Members of the Release Based Cleanup Working Group,

As required by CGS section 22a-134tt(b), as amended by Public Act 22-50, I am excited to provide a revised draft of the Release Based Cleanup Regulations or "RBCRs." Attached, please find:

1. The complete RBCRs, and conforming regulatory changes, as they will be posted in the eRegulations system. Included in this proposal are:
    - **Section 1 (pp. 1 to 203):** the proposed Release Based Cleanup Regulations.
    - **Section 2 (pp. 203-288):** This section replaces the existing Remediation Standards Regulations (Regs., Conn. State Agencies §§ 22a-133k1 to 22a-133k-3) with cross references to the new regulations. The approximately 85 pages of existing regulatory text are bracketed for deletion and are replaced with 3 short paragraphs shown in underlined text at the end of each bracketed section.
    - **Section 3 (pp. 233-289):** a schedule of administrative civil penalties proposed to be adopted pursuant to Regs., Conn. State Agencies § 22a-6b.
    - **Section 4 (pp. 289-290)**: the addition of a single subdivision to the existing Release Reporting Regulations (at subsection (d) of Regs., Conn. State Agencies § 22a-450-1).
    - **Section 5 (pp. 290 to 346):** adjustments to cross references to the existing cleanup standards found in the Environmental Use Restriction regulations (Regs., Conn. State Agencies § 22a-133q-1 to 22a-133q-9, inclusive, and 22a-133q-App1 and 22a-133q-App2). *No substantive changes have been made to these regulations, the only changes are to update cross references throughout.*
    - **Statement of Purpose (pp. 347 to 348)**
2. A redline version of the RBCRs. This version shows changes made to the draft provided to this Working Group on December 29, 2024 in redline. Note that, in sections 22a-134tt-9 and 22a-134tt-10, all additions to the RSRs including those proposed in the December 29, 2024 draft is now shown as highlighted text, and revisions to that text made in this revised draft are shown in redline.
3. A copy of the fiscal note for the proposed regulations, prepared in conjunction with the Department of Economic and Community Development.
4. A copy of the regulatory flexibility analysis for the proposed regulations.

We look forward to highlighting the more significant revisions to the earlier draft during our meeting tomorrow at 3:00 PM. Your efforts have made this moment possible, and we're excited to celebrate this milestone as we look to the work ahead, including continuing our discussions with working group members, and a broader group of stakeholders, during the comment period. Tomorrow, we will have more details to share on the planned outreach during the comment period.

Thank you!

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Connecticut
Department of Energy &
Environmental Protection

Conserving, improving, and protecting our natural resources and environment;
Ensuring a clean, affordable, reliable, and sustainable energy supply.

Sec. 22a-134tt-1. Definitions and Miscellaneous Provisions

(a) Definitions

For the purposes of the RBCRS, the following terms have the following meanings:

(1) "Accessory uses of land" means any use of a parcel of land that is not the primary use of that parcel of land;

(2) "Active recreation" means any activity that is not "passive recreation" as it is defined in these regulations;

(3) "Active remediation" means remediation other than monitored natural attenuation;

~~(4) "Actual knowledge" means the type of knowledge described at section 22a-134tt-2(a)(2) of the RBCRs;~~

~~(5)~~(4) "Application of pesticides" means the spraying, spreading, injection, placement, or other use of pesticides at a parcel for the pesticide's intended purpose, but does not include other releases of pesticides such as those from the handling, mixing, storing, spilling, leaking or disposing of pesticides, or releases of pesticides from equipment cleaning or repair;

~~(6)~~(5) "Aquifer protection area" has the same meaning as provided in section 22a-354h of the Connecticut General Statutes;

~~(7)~~(6) "Area of influence" has the same meaning as provided in section 22a-354b-1(a) of the Regulations of Connecticut State Agencies;

~~(8)~~(7) "Areal extent of a groundwater plume" means the surface area beneath which groundwater is polluted by a release and in which one or more substances from such release or mobilized by such release is present at a concentration above the laboratory reporting limit;

~~(9)~~(8) "Assessment of the secondary containment system" means an inspection or examination of a secondary containment system to ensure it is free of cracks, gaps, or voids and is functioning as designed and intended;

~~(10)~~(9) "Association or professional property management company" means a ~~condominium~~ common interest community association, homeowners association, or company authorized to monitor compliance with declarations, bylaws, ~~or~~ lease agreements, or other documents enforceable by such association or company and to maintain a parcel of land;

~~(11)~~(10) "Audit" means the commissioner's review of an LEP verification or PEP certification pursuant to section 22a-134tt-13 of the RBCRs;

~~(12)~~(11) "Automotive exhaust" means the substances which are byproducts of the reaction within an internal combustion engine and are expelled by those automobiles which rely on internal combustion engines for propulsion;

~~(13)~~(12) "Background concentration" means the concentration of a substance in soil or groundwater that, based on a validated conceptual site model, is:

(A) In the general geographic vicinity of a release; and

(B) Either:

(i) Naturally occurring; or

(ii) Minimally affected by human influences at concentrations equal to or less than criteria specified in the RBCRs;

(13) -"Base annual fee" means the fee calculated and paid the first time a release is assigned to a tier pursuant to section 22a-134tt-6(f)(2)(A) of the RBCRs;

(14) "Carcinogenic substance" means a substance defined as a "carcinogen" by federal or state agencies and for which a quantitative health risk extrapolation is available;

(15) "Certification" means the written opinion of a permitted environmental professional on a form prescribed by the commissioner that the remediation of a release satisfies the standards established in regulations adopted pursuant to section 22a-134tt;

(16) "CFR" means the Code of Federal Regulations;

(17) "Change in tier assignment" means the assignment of a release to a different tier following the process specified in section 22a-134tt-6(c)(2) of the RBCRs;

(18) "Characterization" means determining the nature and extent of a release in accordance with prevailing standards and guidelines;

(19) "Chloride-based, inorganic salt" means an inorganic substance containing chloride, including sodium chloride, calcium chloride, magnesium chloride or any other inorganic substance containing chloride;

~~(18)~~(20) "Cleanup standards sections" means sections 22a-134tt-7 to 22a-134tt-10, inclusive, of the RBCRs;

(21) "Commissioner" means the Commissioner of Energy and Environmental Protection or the designated agent of the commissioner;

(22) "Closure characterization" means characterization of a release such that the horizontal and vertical extent of such release is delineated to the points at which it is no longer detected or that the extent of such release has otherwise been determined in a manner consistent with prevailing standards and guidelines provided such standards and guidelines shall not specify delineation to the point at which a release is no longer detected for all releases or in all circumstances;

~~(19)~~(23) "Conceptual site model" means a representation in three dimensions of environmental conditions at a release area that is developed through a multi-phased investigative approach which validates such representation with information about, including, but not limited to, a substance's release, fate and transport, and pathway to human and environmental receptors;

~~(20) "Constructive knowledge" means the type of knowledge described at section 22a-134tt-2(a)(3) of the Regulations of Connecticut State Agencies;~~

~~(21)~~(24) "Date of tier assignment" means the date specified by section 22a-134tt-6(c)(4)(D) of the RBCRs;~~egulations of Connecticut State Agencies~~;

~~(22)~~(25) "Demarcation layer" means a brightly-colored, tear-resistant, environmentally-stable marker layer installed at an appropriate depth, suitable to indicate the presence of polluted soil beneath such layer;

~~(23)~~(26) "Department" means the Department of Energy and Environmental Protection;

~~(24)~~(27) "Dilution factor" means the ratio by which the concentration of a substance dissolving into soil water is reduced by dilution with groundwater or surface water, as applicable;

~~(25)~~(28) "Dilution and attenuation factor" or "Dilution attenuation factor" means the ratio by which the concentration of a substance dissolving into soil water is reduced by dilution with groundwater and by sorption to unsaturated or saturated soil, or by degradation, transformation or stabilization of the substance;

~~(26)~~(29) "Diminishing state groundwater plume" means a groundwater plume that has been characterized seasonally and in three dimensions, provided that the characterization of such plume:

(A) Is consistent with a validated conceptual site model; and

(B) Demonstrates that such plume:

(i) Is not migrating, or has very limited potential to migrate, in any direction; and

(ii) Is comprised only of substances whose concentrations have decreased and will continue to decrease over time, except for the concentrations of related breakdown components, provided it is demonstrated that concentrations of such breakdown components are not a known risk to human health and the environment. For purposes of this clause, "breakdown components" means constituent compounds that result from the alteration of an original compound in the environment;

~~(27)~~(30) "Direct exposure criteria" or "DEC" means the criteria identified in section 22a-134tt-App2 of the RBCRs, alternative direct exposure criteria approved by the commissioner pursuant to section 22a-134tt-9(d) of the RBCRs, or direct exposure criteria approved by the commissioner pursuant to section 22a-134tt-9(b)(7) of the RBCRs;

~~(28)~~(31) "Downgradient" means in the direction of the maximum rate of decrease of hydraulic head;

~~(29)~~(32) "Downgradient area" with respect to a release of a substance means the area bounded by:

(A) The width of the release area of such substance perpendicular to the direction of groundwater flow;

(B) Two side boundary lines parallel to the downgradient direction of groundwater flow extending from the two endpoints of said width to the downgradient parcel boundary; and

(C) The downgradient parcel boundary extending between the two side boundary lines, excluding any portion of such downgradient area that is either affected by any other release of such substance or beneath an existing permanent structure;

~~(30)~~(33) "Dwelling unit" means a single family home or a section of a larger structure where a person or family eats, lives, and sleeps, such as a multi-family house, apartment, mobile home, or set of rooms;

~~(31)~~(34) "Drinking water supply well" means an artificial excavation constructed by any method for the purpose of obtaining or providing water for drinking or other domestic, industrial, commercial, agricultural, recreational or irrigation use, or other outdoor water use;

~~(32)~~(35) "Emergent reportable release" means a release to the land and waters of the state discovered by an observed change in conditions that is required to be reported by regulations adopted pursuant to section 22a-450 of the Connecticut General Statutes;

~~(33)~~(36) "Engineered control" means any physical barrier, system, technology or method that prevents exposure to polluted soil, or minimizes migration of liquids or vapor through such soil, and complies with the other requirements specified in section 22a-134tt-9(f)(2) of the RBCRs;

~~(34)~~(37) "Environmental land use restriction" or "ELUR" has the same meaning as provided in section 22a-133q-1(3) of the Regulations of Connecticut State Agencies;

~~(35)~~(38) "Environmental use restriction" or "EUR" has the same meaning as provided in section 22a-133q-1(4) of the Regulations of Connecticut State Agencies;

~~(36)~~(39) "Environmentally isolated soil" means polluted soil which is above the seasonal high water table and is not subject to infiltration in accordance with section 22a-134tt-9(c)(5)(A) of the RBCRs, thereby preventing the leaching of pollutants from such soil into groundwater;

~~(37)~~(40) "EPA" means the United States Environmental Protection Agency;

~~(38)~~(41) "ETPH" means extractable total petroleum hydrocarbons;

~~(39)~~(42) "EUR regulations" has the same meaning as provided in section 22a-133q-1(7) of the Regulations of Connecticut State Agencies;

~~(40)~~(43) "Excess lifetime cancer risk" means the estimated probability that an individual's exposure to a substance could result in cancer;

~~(41)~~(44) "Exigent condition" means a condition which exists or occurs as a result of a release that the commissioner determines, in the commissioner's sole discretion, requires the department to respond to such release to abate such a condition;

~~(42)~~(45) "Existing release" means a release discovered through the laboratory analysis of samples taken from the land and waters of the state;

~~(43)~~(46) "Fertilizer" means the substances identified as fertilizers in section 22-111b of the Connecticut General Statutes;

~~(44) "Full characterization" means characterization of a release such that the horizontal and vertical extent of such release is delineated to the points at which it is no longer detected or that the extent of such release has otherwise been determined in a manner consistent with prevailing standards and guidelines;~~

~~(45)~~(47) "GA area" means an area where the groundwater classification is GA, GAA, or GAAs;

~~(46)~~(48) "GB area" means an area where the groundwater classification is GB;

~~(47)~~(49) "Ground surface" means any horizontal surface at or near ground level, including, but not limited to, soil, grass, sidewalks, and driveways;

~~(48)~~(50) "Groundwater" means that portion of "waters" as defined in section 22a-423 of the Connecticut General Statutes at or below the water table;

~~(49)~~(51) "Groundwater classification" means the groundwater classification established in the ~~W~~water ~~Q~~quality ~~S~~standards;

~~(50)~~(52) "Groundwater criteria" means surface water protection criteria, water quality criteria, volatilization criteria, groundwater protection criteria, and background concentration, as applicable;

~~(51)~~(53) "Groundwater divide" means a line on the water table from which the water table slopes downward in both directions away from such line;

~~(52)~~(54) "Groundwater monitoring well" means a well constructed for the purpose of aquifer testing, obtaining samples of ground water quality and/or measurement of ground water level;

~~(53)~~(55) "Groundwater plume" means groundwater that has been impacted by a release and is emanating from a release area and in which one or more substances from such release is present at a concentration above the laboratory reporting limit;

~~(54)~~(56) "Groundwater protection criteria" or "GWPC" means the criteria identified in section 22a-134tt-App4 of the RBCRs, alternative groundwater protection criteria calculated by an LEP or approved by the commissioner pursuant to section 22a-133k-10(d)(2) of the RBCRs, or groundwater protection criteria approved by the commissioner pursuant to section 22a-134tt-10(i)(1) of the RBCRs;

~~(55)~~(57) "Hardscape" means man-made features that are incorporated into landscaped areas, including walkways constructed with asphalt, concrete, or pavers; gravel parking areas and driveways; paved or gravel storm water features; placement of natural rock; rip-rap; and non-vegetated retaining walls;

~~(56)~~(58) "Hazard index" means the calculation of the potential for non-cancer health effects as a result of exposure to one or more substances with the same or similar modes of toxic action or toxic endpoints;

~~(57)~~(59) "Historically impacted material" means polluted material that will be managed in accordance with the conditional exemption for historically impacted material pursuant to section 22a-134tt-9(j) of the RBCRs;

~~(58)~~(60) "Home heating fuel" means any petroleum-based fuel, including any petroleum product regulated pursuant to chapter 250 of the Connecticut General Statutes, used as the primary source of residential heating or domestic hot water;

~~(59)~~(61) "Hydraulic gradient" means the change in hydraulic head per unit distance;

(62) "Hydraulic head" means the elevation to which water rises in a piezometer or a well;

~~(60)~~(63) "Immediate action" means the remediation necessary to comply with the requirements established by section 22a-134tt-5 of the RBCRs;

~~(61)~~(64) "Immobilization" or "Immobilize" means the act of binding a substance to create a solid that is resistant to leaching and eliminates or virtually eliminates the mobility of a substance from such solid, including, but not limited to, solidification to physically bind or enclose a substance within a stabilized mass, stabilization through chemical reactions between a stabilizing agent and a substance, or encapsulation by coating a substance;

(65) "Impervious surface" means a surface composed of any material that prevents infiltration of water into the soil which shall include, but is not limited to, concrete or bituminous concrete;

~~(62)~~(66) "Improved surface" means an area of soil uniformly covered by pavement, concrete, stone, or other similar material except any secondary containment system;

~~(63)~~(67) "Inaccessible soil" means soil that meets at least one of the following conditions:

(A) Is more than four feet below the ground surface;

(B) Is more than two feet below a paved ground surface comprised of bituminous concrete that, at a minimum, is three inches thick or reinforced concrete that, at a minimum, is four inches thick;

(C) Is beneath a building or other permanent structure;

(D) Is polluted ~~fill~~material:

(i) Beneath a paved ground surface comprised of bituminous concrete that, at a minimum, is three inches thick or reinforced concrete that, at a minimum, is four inches thick; and

(ii) That exceeds the applicable direct exposure criteria solely due to:

(I) Semi-volatile organic substances or petroleum hydrocarbons that are normal constituents of bituminous concrete; or

(II) Metals at concentrations that are equal to or less than two times the applicable direct exposure criteria; or

(E) Is located beneath concrete or bituminous concrete and complies with the applicable requirements of subparagraphs (B) and (C) of subdivision (3) of subsection (b) of section 22a-134tt-9 of the RBCRs.

(68) "Incidental Public Roadway Release" means an existing release of asphalt or asphalt byproducts, petroleum hydrocarbons, or other substances to asphalt or soil in the right of a public roadway that is present due to the operation of passenger motor vehicles and is not a significant existing release, or is a release of chloride-based, inorganic salt.

~~(64)~~(69) "Indoor air" means the portion of the atmosphere interior to buildings;

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~~(65)~~(70) "Immediate action plan" means a plan prepared pursuant to section 22a-134tt-5(j) of the RBCRs;

~~(66)~~(71) "Immediate action report" means a report prepared pursuant to section 22a-134tt-5(k) of the RBCRs;

~~(67)~~(72) "Industrial/commercial activity" means any activity related to the commercial production, distribution, manufacture or sale of goods, services, or any other activity which is not a residential activity;

~~(68)~~(73) "Industrial/commercial direct exposure criteria" means the criteria identified as industrial/commercial direct exposure criteria in section 22a-134tt-App2 of the RBCRs, alternative direct exposure criteria approved by the commissioner pursuant to section 22a-134tt-9(d) of the RBCRs, or direct exposure criteria approved by the commissioner pursuant to section 22a-133k-9(b)(7) of the RBCRs;

~~(69)~~(74) "Industrial/commercial volatilization criteria" means the criteria identified as industrial/commercial volatilization criteria in sections 22a-134tt-App6 and 22a-134tt-App7 of the RBCRs, alternative volatilization criteria approved by the commissioner pursuant to section 22a- 134tt-10(c)(4) of the RBCRs, or volatilization criteria approved by the commissioner pursuant to section 22a-134tt-10(i)(3) of the RBCRs;

(75) "Intermittent watercourse" means a type of watercourse, as the term is defined in section 22a-38 of the Connecticut General Statutes, delineated in accordance with section 22a-38 of the Connecticut General Statutes;

~~(70)~~(76) "Knowledge" means a person knows of a release because such person is aware of one or more of the types of information specified at section 22a-134tt-2(b) of the RBCRs;

(77) "Laboratory reporting limit" means the lowest concentration at which an analyte can be detected in a sample of environmental media by a laboratory certified by the Department of Public Health pursuant to section 19a-29a of the Connecticut General Statutes and which concentration can be reported with a reasonable degree of accuracy and precision pursuant to section 22a-134tt-1(e) of the RBCRs;

~~(71)~~(78) "Land and waters of the state" has the same meaning as provided in section 22a-134pp(3) of the Connecticut General Statutes.

~~(72)~~(79) "Licensed environmental professional" or "LEP" means an environmental professional who has a current valid license issued by the commissioner pursuant to section 22a-133v of the Connecticut General Statutes;

~~(73)~~(80) "Managed multifamily residential activity" means activity at any parcel with four or more dwelling units, provided such dwelling units are managed by an association or a professional property management company;

~~(74)~~(81) "Managed multifamily residential direct exposure criteria" means the criteria identified as managed multifamily residential direct exposure criteria in section 22a-134tt-App11 of the RBCRs or an

alternative direct exposure criteria approved by the commissioner pursuant to section 22a-134tt-9(d) of the RBCRs;

~~(75)~~(82) "Matrix interference" means either a positive or negative effect when measuring the concentration of a substance in a sample that creates erroneous results for an analyte;

~~(76)~~(83) "Maximum extent practicable" means the greatest degree of remediation that can be achieved using sound engineering and hydrogeologic practices without taking cost into consideration;

~~(77)~~(84) "Maximum extent prudent" means the greatest degree of remediation that can be achieved using sound engineering and hydrogeologic practices that the commissioner deems reasonable, taking into consideration cost in proportion to social and environmental benefits, provided that a mere showing of expense will not necessarily render an alternative unreasonable;

~~(78)~~(85) "Monitored natural attenuation" means representative groundwater monitoring of the natural attenuation of each substance in a groundwater plume to a concentration equal to or less than groundwater criteria, provided such monitoring demonstrates that:

(A) Such attenuation is occurring, and will continue to occur, as evidenced by changes in chemical concentrations, alterations of chemical components, and hydrogeologic conditions within the aquifer after completing the remediation of a release area in a manner that will achieve compliance with the RBCRs; and

(B) The only remaining groundwater plume from a release is a diminishing state groundwater plume;

(86) "Multiple lines of evidence" means two or more sets of observable facts which tend to demonstrate the truth of a matter asserted;

~~(79)~~(87) "Municipality" has the same meaning as provided in section 22a-134pp(4) of the Connecticut General Statutes.

~~(80)~~(88) "Natural attenuation" means a decrease in concentration of a substance in groundwater through operation of natural physical or chemical processes, including, but not limited to, adsorption, absorption, dilution, phase transfer, oxidation, organic complexation, biodegradation, dispersion, and diffusion;

~~(81)~~(89) "Naturally occurring" means present in the environment in forms that have not been influenced by human activity;

~~(82)~~(90) "Ninety-five (95) percent upper confidence level of the arithmetic mean" means a value that, when repeatedly calculated for randomly drawn subsets of size n from a population, equals or exceeds the population arithmetic mean ninety-five (95) percent of the time;

~~(83)~~(91) "Non-aqueous phase liquid" or "NAPL" means a liquid that is not dissolved in water;

~~(84)~~(92) "Notice of Activity and Use Limitation" or "NAUL" has the same meaning provided in section 22a-133q-1(14) of the Regulations of Connecticut State Agencies;

~~(85)~~(93) "Numeric cleanup standards" means those cleanup standards identified in sections 22a-134tt-~~APP1~~ APP2 to 22a-134tt-APP12, inclusive, of the RBCRs;

~~(86)~~(94) "Oil or petroleum" means oil or petroleum of any kind or in any form, including, but not limited to, crude oil or fractions thereof, refined petroleum or fractions thereof, biofuels, waste oils, mineral oils, dielectric fluids and distillation products such as heating oils, diesel fuels, fuel oil, kerosene, naphtha, gasoline, and lubricating and hydraulic oils;

~~(87)~~(95) "Organoleptic" means the capability to produce a detectable sensory stimulus such as odor or taste;

~~(88)~~(96) "Parcel" means a piece, tract, or lot of land, together with the buildings and other improvements situated thereon, a legal description of which piece, tract, or lot is contained in a deed or other instrument of conveyance;

~~(89)~~(97) "Parcel-wide investigation" means an investigation of an entire parcel of land conducted pursuant to the site characterization guidance document published by the commissioner on the department's internet website, or by another method consistent with prevailing standards and guidelines approved in writing by the commissioner;

~~(90)~~(98) "Passive recreation activity " means recreational activities that do not require development of prepared facilities like sports fields or courts or buildings, but does allow for the establishment of paved or unpaved walking trails;

~~(91)~~(99) "Passive recreation direct exposure criteria" means the criteria identified as passive recreation direct exposure criteria in section 22a-134tt-App12 of the RBCRs, or an alternative direct exposure criteria approved by the commissioner pursuant to section 22a-134tt-9(d) of the RBCRs;

~~(92)~~(100) "PCBs" means polychlorinated biphenyls;

~~(93)~~(101) "Permitted Environmental Professional" or "PEP" means a person authorized by a permit issued pursuant to section 22a-454 of the Connecticut General Statutes to certify release records.

~~(94)~~(102) "Person" has the same meaning as meaning as provided in section 22a-134pp(5) of the Connecticut General Statutes;

~~(95)~~(103) "Persistent impact to groundwater" means the presence of a release in groundwater after more than 24 hours;

~~(96)~~(104) "Pesticide" has the same meaning as provided in section 22a-47(w) of the Connecticut General Statutes;

~~(97)~~(105) "Per- and polyfluoroalkyl substances" or "PFAS" means man-made chemicals with at least one fully fluorinated carbon atom, including but not limited to perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS);

~~(98)~~(106) "Pollutant mobility criteria" or "PMC" means the criteria identified in section 22a-134tt-App3 of the RBCRs, alternative pollutant mobility criteria calculated by an LEP or approved by the commissioner pursuant to section 22a-134tt-9(d) of the RBCRs, or pollutant mobility criteria approved by the commissioner pursuant to section 22a-134tt-9(c)(6) of the RBCRs;

~~(99)~~(107) "Polluted fill" means soil which contained polluting substances at the time such soil was deposited as fill material;

~~(100)~~(108) "Polluted material" means soil that has been historically intermixed with coal ash, wood ash, coal fragments, coal slag, coal clinkers, asphalt paving fragments, or any combination thereof;

~~(101)~~(109) "Polluted soil" means soil affected by a release of a substance at a concentration above the laboratory reporting limit for such substance;

~~(102)~~(110) "Pollution" has the same meaning as provided in section 22a-423 of the Connecticut General Statutes;

(111) "Potential public water supply resource" means any "potential well fields" as defined in section 22a-354a of the Connecticut General Statutes, or any area mapped by the commissioner pursuant to section 22a-354c(b) of the Connecticut General Statutes;

~~(103)~~(112) "PPB" means parts per billion;

~~(104)~~(113) "PPM" means parts per million;

~~(105)~~(114) "Practicable" means the greatest degree of remediation that can be achieved using sound engineering and hydrogeologic practices without taking cost into consideration;

~~(106)~~(115) "Preferential pathway" means a high-permeability conduit that allows contamination to migrate through soils and groundwater at a faster rate than would be expected through naturally occurring undisturbed soils or unfractured bedrock such as a utility penetration; line; drain; building sump or drainage pit; elevator shaft; fractured bedrock; or gravel;

~~(107)~~(116) "Private drinking water supply well" means a drinking water supply well that services a single dwelling unit;

~~(108)~~(117) "Properly constructed and developed groundwater monitoring well" means a well that provides samples that are representative of groundwater in a release area that is installed in accordance with prevailing standards and guidelines;

~~(109)~~(118) "Prudent" means reasonable, taking into consideration cost in proportion to social and environmental benefits;

~~(110)~~(119) "Public roadway" means any portion of a federal, state, town, or other public highway, including, but not limited to, road, street, parkway, limited access highway, boulevard, or avenue paved with bituminous concrete or concrete, under the control of the federal government, the state or any political subdivision of the state, any quasi-governmental entity or municipal economic development agency or entity created or operating under the Connecticut General Statutes, that is dedicated, appropriated, or open to the movement of vehicles or pedestrians, including appurtenant sidewalks, medians, and shoulders, but excluding landscaped or grassy areas beyond the outer edge of the travel way;

~~(111)~~(120) "Public water supply distribution system" means any combination of pipes, tanks, pumps, etc. which deliver water from the source or treatment facility to the consumer from any water

company, as defined in section 25-32a of the Connecticut General Statutes, supplying water to two (2) or more consumers, or twenty-five (25) or more persons daily, at least sixty (60) days of the year;

~~(112)~~(121) "Public drinking water supply well" means a drinking water supply well that services multiple dwelling units;

~~(113)~~(122) "Q99" means the daily stream flow that is predicted to be equaled or exceeded on ninety-nine (99) percent of days in a year, and is calculated using methods developed by the U.S. Geological Survey (StreamStats);

~~(114)~~(123) "Reasonable confidence protocols" or "RCPs" means any reasonable confidence protocols, quality assurance requirements, or quality control requirements, posted by the commissioner on the department's internet website, regarding the laboratory measurements of the concentration of a substance in a sample;

~~(115)~~(124) "Release" has the same meaning as ~~that~~ provided in section 22a-134pp(6) of the Connecticut General Statutes;

~~(116)~~(125) "Release-based cleanup regulations" or "RBCRs" ~~refers to~~means sections 22a-134tt-1 to 22a-134tt-APP12, inclusive, of the Regulations of Connecticut State Agencies;

~~(117)~~(126) "Release area" means the land area at and beneath which polluted soil is located as a result of a release;

~~(118)~~(127) "Release record" means a document certified by a PEP or verified by an LEP documenting compliance with a requirement or requirements of the RBCRs;

~~(119)~~(128) "Remediation" ~~means determining the nature and extent of a release, in accordance with prevailing standards and guidelines, and the containment, removal and mitigation of such release, and includes, but is not limited to, the reduction of pollution by monitored natural attenuation~~has the same meaning as section 22a-134pp(7);

~~(120)~~(129) "Report" means to notify the commissioner of a release in accordance with the RBCRs or the regulations adopted pursuant to section 22a-450 of the Connecticut General Statutes, and in the manner specified by the commissioner;

~~(121)~~(130) "Residential activity" means any activity at:

(A) A place intended for people to live, including, but not limited to, a residence, dwelling, house, apartment, condominium, nursing home, or dormitory;

(B) A pre-school, primary school, secondary school, day care center, playground, or outdoor recreational area; or

(C) A hospital, solely for the purposes of compliance with volatilization criteria;

~~(122)~~(131) "Residential direct exposure criteria" means the criteria identified as residential direct exposure criteria in 22a-134tt-App2 of the RBCRs, alternative direct exposure criteria approved by the

commissioner pursuant to section 22a-134tt-9(d) of the RBCRs, or direct exposure criteria approved by the commissioner pursuant to section 22a-134tt-9(b)(7) of the RBCRs;

~~(123)~~(132) "Residential volatilization criteria" means the criteria identified as residential volatilization criteria in sections 22a-134tt-App6 and 22a-134tt-App7 of the RBCRs, alternative volatilization criteria approved by the commissioner pursuant to section 22a-134tt-10(c)(4) of the RBCRs, or volatilization criteria approved by the commissioner pursuant to section 22a-134tt-10(i)(3) of the RBCRs;

~~(124)~~(133) "Scoping level ecological risk assessment" means visual observation of potential pathways from a release to ecological receptors;

~~(125)~~(134) "Screening level ecological risk assessment" means confirmed pathways from a release to ecological receptors through results of laboratory analysis of representative samples;

~~(126)~~(135) "Seasonal high water table" means, on an annual basis, the highest plane in the ground at which all pore spaces are filled with water at atmospheric pressure;

~~(127)~~(136) "Seasonal low water table" means, on an annual basis, the lowest plane in the ground at which all pore spaces are filled with water at atmospheric pressure;

~~(128)~~(137) "Secondary containment system" means a system serving one (1) or more primary storage containers or tanks that is designed, installed and operated to collect and contain a release of a reportable material in the event of loss of the integrity or failure of the primary containment;

~~(129)~~(138) "Sediment" means unconsolidated material occurring in a watercourse, as that term is defined in section 22a-38 of the Connecticut General Statutes, and in estuarine water or marine water;

~~(130)~~(139) "Semi-volatile organic substance" means an organic substance that has a higher molecular weight and higher boiling point than a volatile organic substance;

~~(131)~~(140) "Significant existing release" means a release to the land and waters of the state discovered pursuant to section 22a-134tt-2 of the RBCRs that is present in the location identified by, or creating one or more of the impacts to human health or the environment identified in, section 22a-134tt-5(f) of the RBCRs;

~~(132)~~(141) "Site-specific ecological risk analysis" means the full delineation and evaluation of pathways and impacts from a release to ecological receptors;

~~(133)~~(142) "Soil" means unconsolidated geologic material overlying bedrock, including, but not limited to, sediment that has been removed from any surface water body and placed on dry land;

~~(134)~~(143) "Soil water" means that portion of "waters" as defined in section 22a-423 of the Connecticut General Statutes, which is above the water table;

(144) "Soil vapor" means gaseous substances in the space between particles of soil;

~~(135)~~(145) "Solid, liquid or gaseous products" ~~shall have~~has the same meaning as provided in section 22a-450-1(39) of the Regulations of Connecticut State Agencies;

~~(136)~~(146) "SPLP" means Synthetic Precipitation Leaching Procedure EPA Method 1312 as set forth in "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", SW-846, U.S. Environmental Protection Agency, Office of Solid Waste, Washington D.C. 20460;

~~(137)~~(147) "Subject area" means an area where the RBCRs require an EUR to be placed and maintained as part of the selected remedial approach. "Subject area" includes the area subject to the restrictions and requirements of an EUR after such EUR has been recorded. There can be multiple subject areas on a parcel, or an entire parcel may comprise a single subject area;

~~(138)~~(148) "Substance" means an element, compound or material which, when added to air, water, soil or sediment, may alter the physical, chemical, biological or other characteristic of such air, water, soil or sediment;

~~(139)~~(149) "Surface water" has the same meaning as ~~that~~ provided in section 22a-426-1(60) of the Regulations of Connecticut State Agencies;

~~(140)~~(150) "Surface water protection criteria" or "SWPC" means the criteria identified in section 22a-134tt-App5 of the RBCRs, alternative surface water protection criteria calculated by an LEP or approved by the commissioner pursuant to section 22a-134tt-10(b) of the RBCRs, or surface water protection criteria approved by the commissioner pursuant to section 22a-134tt-10(i)(2) of the RBCRs;

~~(141)~~(151) "Target indoor air concentrations" means ~~a~~ risk-based indoor air concentrations developed in consultation with the Department of Public Health that are not expected to cause adverse health effects from chronic exposure;

~~(142)~~(152) "TCLP" means Toxicity Characteristic Leaching Procedure EPA Method 1311 as set forth in "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", SW-846, U.S. Environmental Protection Agency, Office of Solid Waste, Washington D.C. 20460;

~~(143)~~(153) "Technically impracticable" means a determination by the commissioner that further reduction of the concentration of a substance in soil or groundwater cannot be achieved using sound engineering and hydrogeologic remediation practices;

~~(144)~~(154) "TI Zone" means the areal extent of a substance that is technically impracticable to remediate to the applicable groundwater criteria;

~~(145)~~(155) "Tier" means either:

(A) One of the categories established under 22a-134tt-6(b)(1) of the RBCRs; or

(B) The act of assigning a release to one of the categories identified in 22a-134tt-6(b)(1) of the RBCRs, pursuant to the process specified in 22a-134tt-6 of the RBCRs;

~~(146)~~(156) "Tier Characterization" means the nature and extent of each substance present in the land and waters of the state at a concentration that exceeds fifty (50) percent of the applicable cleanup standard, or the applicable laboratory reporting limit, whichever is higher, has been delineated, or a demonstration that each substance is present in soil or groundwater at a level less than or equal to the background concentration has been made, using the standards identified in section 22a-134tt-4 of the RBCRs, except that:

(A) Pesticides shall be characterized to the extent needed to determine that pesticides discovered are present due to the application of pesticides. If such a determination is made, no further characterization of pesticides present due to the application of pesticides shall be required for tier characterization; and, pesticides present due to spraying, spreading, injecting, placing or other use of pesticides for the pesticide's intended purpose and consistent with its labeling shall not require further characterization for the purposes of tier characterization; and

(B) A release of polluted material that is discovered on a parcel currently used only for industrial/commercial activity may be characterized only to the extent needed to determine that it is prudent to remediate the polluted material using the conditional exemption for historically impacted material, pursuant to section 22a-134tt-9(j) of the RBCRs;

~~(147)~~(157) "Underground storage tank system" or "UST system" means an underground storage tank and any associated ancillary equipment and containment system;

~~(148)~~(158) "Underground storage tank system regulations" means regulations adopted pursuant to section 22a-449(d) of the Connecticut General Statutes;

~~(149)~~(159) "Upgradient" means in the direction of maximum rate of increase of hydraulic head;

~~(150)~~(160) "Upgradient area" with respect to a release area of a substance means the area bounded by:

(A) The width of the release area of such substance perpendicular to the direction of groundwater flow;

(B) Two side boundary lines parallel to the upgradient direction of groundwater flow extending from the two endpoints of said width to the upgradient parcel boundary; and

(C) The upgradient parcel boundary extending between the two side boundary lines, excluding any portion of such upgradient area that is affected by any other release of such substance, or beneath an existing permanent structure;

~~(151)~~(161) "Vapor mitigation system" means technology employed to mitigate real or potential impacts from vapor intrusion;

~~(152)~~(162) "Verification" ~~shall have~~has the same meaning as provided in section 22a-134pp(9) of the Connecticut General Statutes;

~~(153)~~(163) "Volatilization criteria" means the criteria identified in sections 22a-134tt-App6 and 22a-134tt-App7 of the RBCRs, alternative volatilization criteria approved by the commissioner pursuant to section 22a-134tt-10(c)(4) of the RBCRs, or volatilization criteria approved by the commissioner pursuant to section 22a-134tt-10(i)(3) of the RBCRs;

~~(154)~~(164) "Volatilization criteria for groundwater" means the criteria identified in section 22a-134tt-App6 of the RBCRs, alternative volatilization criteria approved by the commissioner pursuant to section 22a-134tt-10(c)(4) of the RBCRs, or volatilization criteria approved by the commissioner pursuant to section 22a-134tt-10(i)(3) of the RBCRs;

~~(155)~~(165) "Volatilization criteria for soil vapor" means the criteria identified in section 22a-134tt-App7 of the RBCRs, alternative volatilization criteria approved by the commissioner pursuant to section 22a-

134tt-10(c)(4) of the RBCRs, or volatilization criteria approved by the commissioner pursuant to section 22a-134tt-10(i)(3) of the RBCRs;

~~(156)~~(166) "Volatile organic substance" means an organic substance that has a high vapor pressure and low boiling point at room temperature;

~~(157)~~(167) "Volatile petroleum substance" means a volatile organic substance found in gasoline, diesel fuel, fuel oil, heating oil, kerosene, jet fuel, or similar fuels, along with volatile organic substances that may have been used as fuel additives;

~~(158)~~(168) "Water table" means the plane in the ground at which all pore spaces are filled with water at atmospheric pressure;

~~(159)~~(169) "Water quality criteria" means the lower of the human health or aquatic life criteria contained in Table 3 of the Water Quality Standards;

~~(160)~~(170) "Water quality standards" means the Connecticut Water Quality Standards in sections 22a-426-1 to 22a-426-9, inclusive, of the Regulations of Connecticut State Agencies and the Classification Maps adopted pursuant to section 22a-426 of the Connecticut General Statues;

~~(161)~~(171) "Wetland" has the same meaning as "wetlands" as provided in section 22a-38(15) of the Connecticut General Statutes or "wetland" as provided in section 22a-29(2) of the Connecticut General Statutes.

(b) Construction of Regulations

In the construction of the RBCRs, terms or words in the singular may be construed and applied to more than one thing and terms or words in the plural may be construed and applied to the singular or just one thing.

(c) Use of Form Prescribed by the Commissioner

(1) Any submittal to the commissioner under the RBCRs, including, but not limited to, a request for a variance, approval, notice, financial assurance, or EUR shall be submitted in writing on a form prescribed by the commissioner. Such form may require the following information:

(A) A description of the subject release;

(B) A description of the distribution and concentration of substances in soil and groundwater resulting from the subject release;

(C) The general characteristics of soil in the vicinity of the subject release area;

(D) A map showing the extent of all release areas on a parcel and the subject release area, including all sample locations;

(E) A map showing the extent of the subject groundwater plume and the concentration of substances in such plume;

(F) The tabulated analytical results of all laboratory analyses of soil and groundwater at the subject release area;

(G) A detailed justification for any variance or approval requested;

(H) Any information specifically required by the RBCRs;

(I) A signed certification by the person submitting the form and, if provided on the form, certification by an LEP; and

(J) Any other information deemed necessary by the commissioner.

(2) If an electronic system is available for any submission identified in subdivision (1) of this subsection, such submittal shall be made pursuant to the instructions prescribed by the commissioner for the use of such electronic system.

(d) **General Requirements for Analytical Data**

(1) Analytical Data Quality and Usability

(A) With respect to analytical data, the following shall apply:

(i) All analytical data used to comply with the RBCRs shall be scientifically valid and defensible, with a level of precision, accuracy, and sensitivity commensurate with its intended use. All analytical data submitted shall include an analytical data quality assessment and data usability evaluation prepared by individuals qualified to make such assessment or evaluation; and

(ii) If the commissioner determines that analytical data is not scientifically valid and defensible, or not of a sufficient level of precision, accuracy, and sensitivity to support the intended use of the data, the commissioner shall identify in writing the reasons for such conclusions and such data shall not be relied upon to demonstrate compliance with the RBCRs.

(B) The commissioner may specify, by posting on the department's internet website, methods or protocols to ensure that analytical data is of known and documented quality, including, but not limited to:

(i) RCPs for laboratory quality assurance and quality control measures or analytical methods for the evaluation of soil, sediment, groundwater, air, or soil vapor;

(ii) RCPs to be followed when establishing laboratory reporting limits; and

(iii) Methods and protocols for assessing data quality and evaluating data usability which can be used to determine whether data is scientifically valid and defensible, with a level of precision, accuracy, and sensitivity commensurate with its intended use.

(C) If an analytical data quality assessment or usability evaluation is conducted using a method or protocol other than the methods and protocols prescribed by the commissioner pursuant to this subdivision, such methods and protocols shall be documented and submitted for the commissioner's review and evaluation. If the commissioner determines that such method or protocol is not scientifically valid and defensible, or not of a sufficient level of precision, accuracy, and sensitivity to support the intended use of the data, the commissioner shall identify in writing the reasons for such conclusions and such data shall not be relied upon to demonstrate compliance with the RBCRs.

(2) Laboratory Reporting Limit Requirements

The laboratory reporting limit for the analysis of all samples used to comply with the RBCRs shall:

(A) Be established at a concentration which is less than the applicable criteria, unless matrix interference or instrument limitations cannot be overcome by taking the additional actions listed in subdivisions (3) and (4) of this subsection;

(B) Not be artificially raised or lowered; and

(C) (i) Be equivalent to the concentration of the lowest standard used to calibrate the instrument actually analyzing a sample, provided such instrument has been calibrated in accordance with a method specified in an RCP or otherwise approved by the commissioner after consultation with the Commissioner of Public Health; or

(ii) Be equivalent to the concentration of a low-level reporting standard, as specified in an RCP or otherwise approved by the commissioner after consultation with the Commissioner of Public Health.

(3) Matrix Interference

(A) When analyzing a sample, if due to matrix interference the laboratory reporting limit for a substance is greater than the applicable RBCR criteria for such substance, additional procedures, including, but not limited to, sample preparation procedures or alternative analytical methods shall be evaluated to determine whether the use of such procedures or methods will enable a laboratory reporting limit equal to or less than the applicable RBCR criteria for such substance to be consistently and accurately achieved.

(B) In the circumstances described in subparagraph (A) of this subdivision, at a minimum, the following procedures or methods shall be evaluated in determining whether a laboratory reporting limit less than or equal to the applicable criteria can be achieved:

(i) "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods." SW-846, U.S. Environmental Protection Agency, Office of Solid Waste, Washington D.C. 20460; or

(ii) Other analytical methods or procedures either approved in writing by EPA or, after consultation with the Commissioner of Public Health, approved in writing by the commissioner.

(C) (i) If pursuant to subparagraph (B) of this subdivision, a procedure or method is identified that will consistently and accurately achieve a laboratory reporting limit equal to or less than the applicable criteria, the sample shall be re-analyzed for the subject substance using such procedure or method.

(ii) If after re-analysis the matrix interference is overcome and the lowest laboratory reporting limit for a substance that can be consistently and accurately achieved is now equal to or less than the applicable criteria, the analytical results from such re-analysis can be used for the purpose of determining compliance with the RBCRs.

(D) (i) If despite taking the actions to overcome matrix interference specified in subparagraphs (B) and (C) of this subdivision, a laboratory reporting limit less than or equal to the applicable criteria cannot be consistently and accurately achieved, a report detailing the measures taken

to overcome such matrix interference shall be submitted in writing to the commissioner. This report shall include, at a minimum, a description of the measures taken under subparagraphs (B) and (C) of this subdivision as well as the lowest achievable laboratory reporting limit consistently and accurately achievable under subparagraph (C)(i) of this subdivision.

(ii) The commissioner shall use the report submitted pursuant to clause (i) of this subparagraph to determine the lowest laboratory reporting limit for such substance that can be consistently and accurately achieved. If the commissioner determines that such laboratory reporting limit is still greater than the applicable criteria, the commissioner may determine that compliance with the RBCRs will be achieved when such laboratory substance has been remediated to such reporting limit. Any such determination by the commissioner shall be in writing and shall include the reasons for such determination.

(4) Instrument Limitations

(A) When analyzing a sample, if due to instrument limitations the laboratory reporting limit for a substance is greater than the applicable RBCR criteria for such substance, alternative analytical methods or alternative instrumentation shall be evaluated to determine whether the use of such procedures or methods will enable a laboratory reporting limit equal to or less than the applicable criteria for such substance to be consistently and accurately achieved.

(B) In the circumstances described in subparagraph (A) of this subdivision, at a minimum, the following procedures or methods shall be evaluated in determining whether a laboratory reporting limit less than or equal to the applicable criteria can be achieved:

(i) "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods." SW-846, U.S. Environmental Protection Agency, Office of Solid Waste, Washington D.C. 20460; or

(ii) Other analytical methods or instruments either approved in writing by EPA or, after consultation with the Commissioner of Public Health, approved in writing by the commissioner.

(C) (i) If pursuant to subparagraph (B) of this subdivision, a method or instrument is identified that will consistently and accurately achieve a laboratory reporting limit equal to or less than the applicable criteria, the sample shall be re-analyzed for the subject substance using such method or instrument.

(ii) If after re-analysis the instrument limitation is overcome and the lowest laboratory reporting limit for a substance that can be consistently and accurately achieved is now equal to or less than the applicable criteria, the analytical results from such re-analysis can be used for the purpose of determining compliance with the RBCRs.

(D) (i) If despite taking the actions to overcome instrument limitations specified in subparagraphs (B) and (C) of this subdivision, a laboratory reporting limit less than or equal to the applicable criteria cannot be consistently and accurately achieved, a report detailing the measures taken to overcome such instrument limitations shall be submitted in writing to the commissioner. This report shall include, at a minimum, a description of the measures taken under subparagraphs (B) and (C) of this subdivision as well as the lowest achievable laboratory

reporting limit consistently and accurately achievable under subparagraph (C)(i) of this subdivision.

(ii) The commissioner shall use the report submitted pursuant to clause (i) of this subparagraph to determine the lowest laboratory reporting limit for such substance that can be consistently and accurately achieved. If the commissioner determines that such laboratory reporting limit is still greater than the applicable criteria, the commissioner may determine that compliance with the RBCRs will be achieved when such substance has been remediated to such laboratory reporting limit. Any such determination by the commissioner shall be in writing and shall include the reasons for such determination.

(e) Significant Existing Releases

For the purposes of the RBCRs, only the following existing releases are determined to be significant existing releases:

(1) a release that has caused or is causing contamination of a public or private drinking water well;

(2) a release of a substance for which a groundwater protection criteria has been specified that has caused or is causing contamination of groundwater within 500 feet of a private or public drinking water well at a concentration equal to or greater than the groundwater protection criteria;

(3) a release discovered in soil within two feet of the ground surface that contains a substance at concentrations greater than or equal to 15 times the applicable direct exposure criteria for such substance;

(4) a release of volatile organic substances or volatile petroleum substances to groundwater that has caused or is causing either:

(A) a groundwater plume within 30 feet of the ground surface and within 30 feet or less of the lowest portion of a building contaminated at concentrations greater than or equal to 10 times the applicable volatilization criteria for any volatile organic substance, except volatile petroleum substances;

(B) a groundwater plume within 10 feet of the ground surface and within 10 feet or less of the lowest portion of a building contaminated at concentrations greater than or equal to 10 times the applicable volatilization criteria for any volatile petroleum substances;

(C) soil vapor beneath a building to be contaminated at concentrations greater than or equal to the applicable volatilization criteria for such substance; or

(D) the detection of toxic air contaminants in indoor air provided such toxic air contaminant is not present in indoor air solely as the result of a current process or use of materials; ~~in an industrial setting~~;

(5) a release of a substance at a concentration of greater than or equal to 10 times the surface water protection criteria for such substance, or of a non-aqueous phase liquid, to groundwater within 500 feet of surface water;

(f) Criteria and Land Uses

(1) When determining the current use of land, all current uses on the parcel impacted by a release, including accessory uses, shall be considered. If any use of a parcel, or any portion of the parcel, is for residential activity, the current use of the parcel shall be residential.

(2) When determining the applicable criteria for soil remediation, residential criteria shall be considered applicable unless use of a parcel is restricted by an EUR or the parcel is subject to a permit by rule.

(g) Licensing of Permitted Environmental Professionals

(1) In determining whether the commissioner is satisfied that issuing a ~~license~~ permit pursuant to section 22a-454 of the Connecticut General Statutes to a person to act as a permitted environmental professional will not result in pollution, contamination, emergency or the violation of the RBCRs or a violation of any regulation adopted under sections 22a-30, 22a-39, 22a-116, 22a-347, 22a-377, 22a-430, 22a-449, 22a-451 and 22a-462 of the Connecticut General Statutes, the commissioner shall consider:

(A) Such person's training and education;

(B) The duration and nature of such person's professional experience; and

(C) Any credentials or licenses held by such person.

(2) As part of an application submitted pursuant to section 22a-454 of the Connecticut General Statutes, the commissioner may request any information necessary to comply with the requirements of this subsection.

(3) No permit~~license~~ authorizing a person to act as a PEP shall be renewed if the commissioner determines that the activities of the permittee have resulted or will result in pollution, contamination, ~~or~~ emergency, or a violation of the RBCRs. If the activities of a PEP result in pollution, contamination, ~~or~~ emergency or a violation of the RBCRs, the commissioner may take any applicable enforcement action authorized by section 22a-134ss of the Connecticut General Statutes.

(h) Maintaining a Release

(1) For the purposes of the RBCRs, a person shall be maintaining a release when, regardless of fault for the creation of such release, such person:

(A) Owns a parcel of land on or under which such release, or a portion of such release, is located; or

(B) Has the right to possess a parcel of land, or the portion of a parcel of land, where such release is located, provided that if any person with the right to possess a parcel or portion of a parcel obtains knowledge of a release on the parcel or portion of a parcel they possess such person shall not be determined to be maintaining such release if such person has notified the owner of the parcel of such release and such release has been reported to the Department if such release is required to be reported pursuant to section 22a-134tt-3 of the RBCRs.

(2) A release may be maintained by one or more persons. If more than one person is maintaining a release in violation of the provisions of chapter 445b of the Connecticut General Statutes or the RBCRs, each person shall be jointly and severally liable for compliance with the RBCRs, pursuant to section 22a-134ss(b) of the Connecticut General Statutes.

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(3) Any person maintaining a release that has migrated on or under the parcel or portion of a parcel owned or possessed by such person from a source on a different parcel may satisfy the cleanup standards sections pursuant to section [DOWNGRADIENT PROVISIONS CITE] of the RBCRs.

(4) A person shall not be considered to be maintaining releases on a parcel after such person no longer owns or has the right to possess such parcel or a portion a portion of such parcel. If a person was maintaining a release in violation of the provisions of chapter 445b of the Connecticut General Statutes or the RBCRs, the commissioner may take enforcement action against such person, including those actions specified in section 22a-134ss, even if such person no longer owns or has the right to possess a parcel or portion of a parcel.

(i) PFAS and Road Salt

(1) Discovery in a public or private drinking water supply

(A) Notwithstanding the requirements of the RBCRs, if an existing release of PFAS or chloride-based, inorganic salt is discovered in a public or private drinking water supply, including but not limited to a public or private drinking water supply well, by the person who owns or operates such drinking water supply:

(i) such release shall not be a significant existing release, and immediate action shall not be required; and

(ii) provided such release is reported to the commissioner pursuant to the process specified in section 22a-134tt-3 of the RBCRs not more than 3 days following discovery of such release, the person who owns or operates such drinking water supply shall not be required to take any other action or pay any fee required by the RBCRs, except if the commissioner determines such person to have created or be maintaining a source of PFAS or salt pursuant to subparagraph (B) of this subdivision.

(B) The commissioner may investigate any release reported pursuant to subparagraph (A) of this subdivision, and if the commissioner identifies the source of such releases and the creator or maintainer of such source, the commissioner shall notify such creator or maintainer in writing and such source shall be considered to be discovered for the purposes of section 22a-134tt-2 of the RBCRs, and subject to the requirements of the RBCRs.

(C) If the commissioner identifies the source of such release, the commissioner may issue an order to each person who created or is maintaining such source to remediate the source of such release and requiring that potable drinking water be provided to all persons affected by such release, including an order pursuant to sections 22a-134ss or 22a-471 of the Connecticut General Statutes.

(2) Discovery in the land and waters of the state

(A) Notwithstanding any other requirements of the RBCRs, an existing release of PFAS discovered in the land and waters of the state, except in a public or private drinking water supply, shall be subject to the requirements of the RBCRs only when:

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(i) Such release is discovered at concentrations that indicate that PFAS is not present solely due to atmospheric deposition or the use of consumer products for their intended purpose; and

(ii) It can be reasonably expected that the source of such release is or was located on the parcel where such release is discovered or another parcel that is or was owned or operated by the creator of such release;

(B) Any person claiming an exemption from the requirements of the RBCRs pursuant to this subdivision for a release located on a parcel that is or has been used for an industrial/commercial activity shall report such release to the Commissioner not more than 365 days after it is discovered, pursuant to section 22a-134tt-3 of the RBCRs.

(C) For the purposes of subparagraph (A) of this paragraph, if PFAS is discovered on a parcel that is or has been used for industrial or commercial purposes known or suspected to use PFAS in its operations, there shall be a reasonable expectation that the source of such release is or was located on such parcel.

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Sec.~~tion~~ 22a-134tt-2. Discovery of Releases

(a) Discovery of an Existing Release

(1) Except as provided in subsection (b) of this section, discovery of a release to the land and waters of the state occurs when a person who created or is maintaining an existing release has ~~actual~~ knowledge ~~or constructive knowledge~~ of such release, except that a release shall not be deemed discovered if the only evidence of such release is data available or generated before the date when regulations are first adopted pursuant to section 22a-134tt.

(2) A person who created or is maintaining a release has ~~actual~~ knowledge of a release if such person: ~~they know of the presence of substances in or on the land and waters of the state. Actual knowledge of a release shall include, but shall not be limited to, knowledge of a release on the basis of either:~~

(A) Becomes aware of ~~T~~the results of laboratory analysis of soil, groundwater, sediment, or soil vapor~~, obtained by or at the direction of the person who created or is maintaining the release or the commissioner,~~ indicating concentrations of such substances above the laboratory reportransiting limit; ~~or~~

(B) Becomes aware of ~~T~~the observed presence of non-aqueous phase liquid; or

~~provided such substance is not present because it has been authorized under Title 22a of the Connecticut General Statutes, is naturally occurring, or is a result of automotive exhaust or the application of fertilizer or pesticides consistent with their labeling.~~

(C~~3~~) ~~Such personA person who shall be presumed to have discovered a release if such person,~~ when taking into account any specialized knowledge or training, becomes aware of multiple lines of evidence that would indicate to ~~has actual or constructive knowledge of a release and, if such release exists, would be considered to have created or be maintaining such release.~~

~~(A) Such a person shall be considered to have constructive knowledge when:~~

~~(i)~~ a reasonable person, with similar knowledge, experience or training, exercising a ~~reasonable~~ degree of care that a reasonable person would exercise in the same or similar circumstances, the presence of ~~oil or petroleum or chemical liquids or solids, liquids, or gaseous products or hazardous waste, as defined in section 22a-448 of the Connecticut General Statutes, in or on the land and waters of the state~~a release in or on the land and waters of the state. Such lines of evidence may include, but shall not be limited to:~~would have discovered a release; or~~

~~(ii) multiple lines of evidence indicate the presence of oil or petroleum or chemical liquids or solids, liquids, or gaseous products or hazardous waste, as defined in section 22a-448 of the Connecticut General Statutes, in or on the land and waters of the state. Such evidence may include, but shall not be limited to:~~

(i~~I~~) information about the use of a particular geographic area, including anecdotal reports of historical disposal or releases, aerial photographs, and maps;

(ii~~II~~) the results of field screening indicating the presence of volatile organic compounds, petroleum hydrocarbons, or metals;

(iii~~III~~) observed staining of soil, concrete floors, or pits;

(iv~~IV~~) organoleptic evidence, including odors;

(v~~V~~) indoor air samples indicating the intrusion of soil vapors; or

(vi~~VI~~) the observed presence of asphalt, coal slag, solid waste, ash, or other non-native materials in or on the land and waters of the state; ~~or~~

provided such substance is not present because it has been authorized under Title 22a of the Connecticut General Statutes, is naturally occurring, or is a result of automotive exhaust or the application of fertilizer or pesticides consistent with their labeling.

~~(iii) such person has been notified, pursuant to subsection (b)(2) of this section, that characterization of a release has identified the source of such release, and such source is under the control of a person who created or is maintaining such release.~~

~~(B) A person with constructive knowledge of a release, and who would be considered to have created or be maintaining such release, shall bear the burden of rebutting the presumption that a release has been discovered.~~

~~(i) The presumption that a release has been discovered shall only be rebutted when a person with constructive knowledge obtains laboratory analytical data, based on the collection of samples from representative locations, which demonstrates that any substance reasonably likely to have been released in the geographic area identified is not present in or on the land and waters of the state in the identified geographic area. Such data shall be collected and analyzed pursuant to sections 22a-134tt-1(d) and 22a-134tt-4 of the RBCRs.~~

~~(ii) If the presumption that a release has been discovered is not rebutted, the release shall be considered discovered on the day the person who created or is maintaining such release first had constructive knowledge of the release and shall be subject to the requirements of the Release-Based Cleanup Regulations.~~

(3) For the purposes of this subsection data available or generated before the date when regulations are first adopted pursuant to section 22a-134tt shall encompass environmental reports or investigations conducted prior to the date when regulations are first adopted pursuant to section 22a-134tt in their entirety, including but not limited to, laboratory analytical data and observations, photographs or research regarding the historical use of an area of land.

(b) Existing Releases Discovered by the Commissioner or Other Persons

~~(1) If the commissioner determines a release exists in a certain geographic area on the basis of the results of laboratory analysis of soil, groundwater, sediment, or soil vapor indicating concentrations of substances above the laboratory reporting limit, and provides such data to the person who created or is maintaining the release, such person will be considered to have actual knowledge of the release, pursuant to subsection (a)(2) of this section.~~

(~~2~~1) If characterization of an existing release performed pursuant to the requirements of section 22a-134tt-4 of the RBCRs has identified the source of such release, and information regarding such characterization, including the results of laboratory analysis of soil, groundwater, sediment, or soil vapor, indicating concentrations of such substances above the laboratory reporting limit, is provided to any person who would be considered to have created or be maintaining a release by the person performing such characterization, the person who receives such notice shall ~~would~~ be ~~considered~~ presumed to have created or be maintaining a release ~~shall have constructive knowledge of such release pursuant to subsection (a)(3) of this section.~~ provided that such presumption may be rebutted through characterization of the area from which such release is believed to be emanating.

(c) Discovery of a Significant Existing Release

In addition to the provisions of subsection (a) of this section, a significant existing release is discovered when any person~~, taking into account any specialized knowledge or training possessed by such person, authorized or otherwise permitted by the person who created or is maintaining a release to access a specific area for any purpose,~~ obtains ~~actual~~ knowledge~~, pursuant to the standards identified in subsection (a)(2) of this section, or constructive knowledge, pursuant to the standards identified in subsection (a)(3) of this section,~~ of a significant existing release ~~requiring immediate action~~.

(d) ~~Existing~~ Releases from Regulated Underground Storage Tank Systems

If the source of a release is or was an underground storage tank system regulated by the underground storage tank system regulations adopted pursuant to section 22a-449(d) of the Connecticut General Statutes, such release shall not be considered to have been discovered for the purposes of the RBCRs.

(e) Discovery of Emergent Reportable Releases

(1) Any release to the land and waters of the state required to be reported by regulations adopted pursuant to section 22a-450 of the Connecticut General Statutes shall be considered to be discovered and shall be subject to the requirements of the RBCRs, unless otherwise exempted from discovery by subsection (d) of this section.

(2) Releases required to be reported by regulations adopted pursuant to section 22a-450 of the Connecticut General Statutes shall be deemed not to be releases to the land and waters of the state, and shall not be subject to the requirements of the RBCRs, if:

(A) The release occurs to the air;

(B) The release occurs to a secondary containment system entirely within the interior of a structure or a secondary containment system outside the interior of a structure consisting of an above ground storage tank or which does not contact soil; or

(C) The release occurs to the interior of a structure and does not come into contact with soil; and substantially all of the material released is removed from any surface to which it was released not more than two hours after discovery.

(f) Naturally Occurring Metals at the Time of Discovery

(1) If the laboratory analytical results of soil samples identify the presence of one or more metals listed in the following table, each metal shall be considered naturally occurring if:

(A) the concentration of such metal in each sample analyzed is less than or equal to the low value listed in the following table that corresponds to such metal;

(B) Not less than 3 samples of soil have been analyzed and the concentration in any 1 or more samples analyzed is greater than the low value listed in the following table that corresponds to such metal but the concentration in each sample analyzed is less than or equal to the high value in the following table that corresponds to such metal;

(C) Not less than 5 samples of soil have been analyzed and the concentration in any 1 or more samples analyzed is greater than the high value listed in the following table that corresponds to such metal but the concentration in each sample analyzed is less than or equal to the residential direct exposure criteria for such metal, provided an outlier analysis has been performed and any sample determined to be an outlier is evaluated to determine whether such sample has resulted in the discovery of a release;

(D) Not less than 7 samples of soil have been analyzed and the concentration in any 1 or more samples analyzed is greater than the residential direct exposure criteria for such metal, provided an outlier analysis has been performed and the results of the laboratory analysis of all soil samples analyzed is provided to the commissioner, and the commissioner determines in writing that, in the commissioner's sole discretion, the identified metal is naturally occurring; or

(E) The identified metal is determined to be background using a method other than the methods specified in this subsection, provided such method is submitted to the commissioner in writing and the commissioner, in the commissioner's sole discretion, approves of the use of such method.

(2) Soil samples shall be collected and analyzed as follows:

(A) If 1 or more samples identify concentrations of metals greater than the low value listed in the following table ~~following subdivision (1) of this subsection~~, the minimum number of samples of soil specified by subparagraphs (B), (C), and (D) of this subsection shall be collected from another area reasonably believed not to be impacted by site activity, and shall be from the same geologic unit and of similar texture and composition;

(B) If one or more samples identifying concentrations of metals greater than the low value listed in the following table ~~following subdivision (1) of this subsection~~ have been collected from a known or suspected release area, the minimum required number of samples of soil specified by

subdivisions (B), (C), or (D) of subsection (~~e~~f) of this section shall be collected from outside such known or suspected release area; and

(C) All analytical data shall comply with the requirements of section 22a-134tt-1(d) of the RBCRs. If an outlier analysis is required, such analysis shall be performed pursuant to any method specified by the commissioner pursuant to section 22a-134tt-1(d) of the RBCRs or another method approved by the commissioner pursuant to such section.

Naturally Occurring Background Metals Values for Connecticut

Inorganic Substance	**~~Option 1 Default Values~~ Low Value in mg/kg (ppm)**	**~~Option 2 Upper Limit~~High Value in mg/kg (ppm)**
Aluminum	58,800	85,040
Antimony	0.1	0.3
Arsenic	3	6
Barium	385	756
Beryllium	2	2
Bismuth	0.2	0.5
Cadmium	ND < 0.1	0.3
Calcium	5,610	20,870
Cerium	73	138
Cesium	ND < 5	8
Chromium	31	60
Cobalt	9	20
Copper	17	45
Gallium	15	24
Indium	0.05	0.1
Iron	26,080	51,940
Lanthanum	32	66
Lead	18	27
Lithium	20	60
Magnesium	5,840	15,320
Manganese	544	1,195

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Inorganic Substance	~~Option 1 Default Values~~ Low Value in mg/kg (ppm)	~~Option 2 Upper Limit~~High Value in mg/kg (ppm)
Mercury	0.03	0.1
Molybdenum	0.7	4
Nickel	13	36
Niobium	10	17
Phosphorus	339	817
Potassium	16,930	29,620
Rubidium	80	117
Scandium	12	18
Selenium	ND < 0.2	0.8
Silver	ND < 1	ND < 1
Sodium	9,930	18,500
Strontium	125	283
Sulfur	ND < 100	304
Thallium	0.4	0.8
Thorium	11	15
Tin	2	3
Titanium	2,880	4,660
Tungsten	0.9	2
Uranium	3	7
Vanadium	69	102
Yttrium	19	31
Zinc	44	104

Notes:

ND = non-detect at the specified reporting limit

mg/kg = milligrams per kilogram

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(g) – Discovery of Incidental Releases

(1) Notwithstanding the requirements of the RBCRs, the presence of the following shall not be determined to be a release:

(A) Trihalomethanes in groundwater reasonably believed to be attributable to naturally-occurring ecological processes or leakage or discharges from a public water supply system; or

(B) The byproducts of the combustion of wood or charcoal reasonably believed to have been used for a residential or recreational purpose.

(2) If the laboratory analysis of a soil sample identifies the presence of semi-volatile organic substances at concentrations less than or equal to 50 percent of the residential criteria specified in sections 22a-134tt-app2 or 22a-134tt-app3 of the RBCRs or a calculated additional polluting substances criteria for such semi-volatile organic substance in soil, or petroleum hydrocarbons less than or equal to 25 percent of the residential criteria specified in sections 22a-134tt-app2 or 22a-134tt-3 of the RBCRs or a calculated additional polluting substances criteria for such substance in soil, the discovery of such release shall be considered incidental and not subject to any requirement of the RBCRs, provided that:

(A) The source of the release of semi-volatile organic substance or petroleum hydrocarbons is known, and:

(i) Additional soil samples are collected at the approximate location of the source of such release and at a reasonable distance further away from the source of such release and the laboratory analysis of such samples indicates that concentrations of such substances are decreasing away from the source; and

(ii) Multiple lines of evidence indicate that the semi-volatile organic substance or petroleum hydrocarbons identified are reasonably likely to be the highest concentrations of such substances present in soil as a result of such release; or

(B) The results of laboratory analysis of 3 additional soil samples, each collected at the same depth at a lateral distance of approximately five feet from the original sample location, 1 sample collected not more than five feet above the original sample location, and 1 sample collected at a depth of not more than five feet below the original sample location, identifies any semi-volatile organic substances or petroleum hydrocarbons present in such samples at concentrations less than or equal to those specified in subdivision (2) of this subsection.

(3) For the purposes of this subdivision (2) of this subsection,

(A) Semi-volatile organic compounds shall not include PCBs or any substance identified in appendix A of regulations adopted pursuant to section 22a-450 of the Connecticut General Statutes except for benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene; and

(B) Petroleum hydrocarbons shall not include any volatile organic substance as defined at 22a-134tt-1(165).

(4) Notwithstanding section 22a-134tt-1(h) of the RBCRs, no person responsible for the maintenance of a public roadway shall be determined to be maintaining an incidental public roadway release on, under,

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or within any right of way that contains a public roadway for which such person is responsible provided that:

(A) any excavated soil impacted by an incidental public roadway release is:

(i) reused pursuant to section 22a-134tt-9(h) of the RBCRs;

(ii) or properly disposed; or

(iii) such soil is:

(I) reused in the same right of way from which it was excavated;

(II) reused in a location impacted by the same release, or an existing release of the same type of substances;

(III) and, if such soil contains VOCs at concentrations greater than the applicable direct exposure criteria, such soil is 30 feet or more in every direction from a building and is reused under concrete or bituminous concrete; and

(B) if such incidental public roadway release is a release of chloride-based, inorganic salt and such release has impacted a public or private drinking water supply, a safe drinking water supply is provided.

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Sec. 22a-134tt-3. – Reporting Newly Discovered Existing Releases

(a) Report Required; Discovery By a Creator or Maintainer

Upon discovery of an existing release, a report of such release shall be provided to the commissioner by a person who created or is maintaining such release within the applicable time period specified in subdivision (1) or (2) of this subsection. Any report required by this subsection shall contain the information and be made in the manner specified by subsection (b) of this section. A person who discovers a significant existing release, but who did not create and is not maintaining such release, shall take the steps required by subsection (c) of this section to ensure that such release is reported as required.

(1) Significant Existing Releases

(A) A significant existing release shall be reported not more than 72 hours after the discovery of such release, except that a significant existing release of NAPL or a substance for which a numeric groundwater protection criteria is specified in section 22a-134tt-App4 impacting a public or private drinking water supply well shall be reported not more than 24 hours after such impact is identified .

(B) Notwithstanding the requirements of subparagraph (A) of this subdivision, a significant existing release shall be reported not more than 2 hours after the discovery of such a release if such release is an imminent hazard which creates a significant risk of harm to human health, safety, public welfare, or the environment, including, but not limited to:

(i) an imminent risk of impacting a public or private drinking water supply by NAPL or by a substance for which a groundwater protection criteria is identified in the cleanup standards sections;

(ii) an imminent risk of explosion;

(iii) a significant existing release which is discovered or is present within 500 feet of residential activity, playground, recreation area, or park; and

(iv) an imminent risk to sensitive ecological receptors, such as aquatic life.

(2) Other Reportable Existing Releases

(A) An existing release shall be reported, pursuant to the requirements of subsection (b) of this section, not more than 120 days after discovery if:

(i) there is one or more numeric cleanup criteria for each substance released in the cleanup standards sections, and the results of laboratory analysis indicate that a substance is present in soil or groundwater at a concentration greater than or equal to two times the applicable numeric cleanup standard; provided that, if oil or petroleum, or constituent components of oil or petroleum, are detected at concentrations that exceed the reportable concentrations

in soil, such release shall only be reported if the contiguous volume of soil containing such release is characterized pursuant to 22a-134tt-4 and determined to be equal to or greater than 2 cubic yards;

(ii) such release is identified by the presence of subsurface NAPL in a groundwater monitoring well, excavation, or subsurface structure, and the measured thickness of such NAPL is equal to or greater than one-eight inch; or

(iii) the release is of a substance for which no numeric cleanup standard is specified, but the concentration is greater than two times an additional polluting substances criteria for such substance calculated pursuant to the cleanup standards sections, or no additional polluting substances criteria can be calculated.

(B) Notwithstanding the requirements of subparagraph (A) of this subdivision, a release shall not be reported if, not more than 120 days after discovery, it has been remediated to the standards in the cleanup standards sections and a release remediation closure report has been verified by an LEP pursuant to section 22a-134tt-12 of the RBCRs.

(C) An existing release shall be reported, pursuant to the requirements of subsection (b) of this section, not more than 365 days after discovery if there is one or more numeric cleanup standards, or an additional polluting substances criteria can be calculated, for each substance released and the results of laboratory analysis indicate that ~~a~~ such substance is present in soil or groundwater at a concentration less than twice the applicable numeric cleanup standard or calculated additional polluting substances criteria, except that a release shall not be reported if, not more than 365 days after discovery, such release has been remediated to the standards in the cleanup standards sections and a release remediation closure report has been verified by an LEP pursuant to section 22a-134tt-12 of the RBCRs.

(D) Notwithstanding the requirements of subparagraph (A) of this subdivision, the following releases are exempt from the requirement to report:

(i) Any release required to be reported by regulations adopted pursuant to section 22a-450 of the Connecticut General Statutes;

(ii) Releases resulting or emanating from a consolidated bituminous concrete surface provided such release is from an incidental source, as such term is used at section 22a-134tt-9(b)(5)(B);

~~(iii) Releases resulting or emanating from piers, pilings, and other building foundation structures and other building materials, provided such structures or materials are still in good repair and serving their original intended use;~~

(ii~~v~~) Releases resulting or emanating from utility poles or landscaping timbers still serving their original intended ~~in~~ use; and

(iv) Releases of trihalomethanes discovered in groundwater caused by naturally occurring geological process or discharges from a public water supply system;

(b) Report contents and process

(1) Contents of Report

(A) Any report required by this section shall contain the following information regarding a discovered release:

(i) The time and date that, pursuant to section 22a-134tt-2 of the Regulations of Connecticut State Agencies, the release was discovered;

(ii) The precise longitude and latitude, in degrees, minutes, and seconds, where the release is located such that it can be found using a global positioning system device;

(iii) The street address of the parcel on or under which the release is located, the town and zip code in which such parcel is located, the map, block and lot number of such parcel, if known, and any significant landmarks on such parcel to help more closely identify the precise location of the release. If the parcel on or under which the release is located does not have an address, or the address is unknown, the address of a nearby parcel may be provided along with sufficient directions or landmarks to locate the release;

(iv) The name, mailing address, telephone number, and electronic mail address of the person providing the report and the person who created or is maintaining the release at whose direction the report has been provided;

(v) A statement identifying whether the person providing the report is the creator or maintainer of the release or, if the person is not the creator or maintainer of the release, a description of such person's relationship to the creator or maintainer;

(vi) The name, business address, telephone number, and electronic mail address of any LEP or PEP who has knowledge of the discovered release;

(vii) If the person providing the report is not the owner of the parcel on or under which the release is located, the name of the owner of the parcel on or under which the release is located, and the telephone number and mailing address for such owner, if such information is known;

(viii) A brief description of the current use of the parcel on which the release was discovered;

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(ix) Known or suspected sensitive receptors within 500 feet of the release, including, but not limited to, residential drinking water wells, public water supply wells or reservoirs, surface water bodies, schools and day care centers;

(x) The substance or substances released, and if known, the quantity or concentration of such substances;

(xi) A description of the nature and extent of the release, to the extent known, including whether such release has impacted soils, groundwater or surface water; and

~~(xii) A description of any imminent hazard posed by such a release, including but not limited to those hazards listed in subsection (a)(1)(B) of this section; and~~

(xiii) The results of any laboratory analysis identifying each substance present at greater than applicable numeric cleanup standard or a cleanup standard calculated pursuant to section 22a-134tt-APP8 of the Regulations of Connecticut State Agencies at the time such report is submitted.

(B) If the release required to be reported is a significant existing release, and not all information required by subparagraph (A) of this subdivision ~~(1) of this subsection~~ is available at the time a report must be provided:

(i) any person required to report such a release shall report all known information about such release required to be reported by subdivision (1) of this subsection ~~known information about such release~~ in the timeframe specified by subsection (a)~~(1)~~ of this section; and

(ii) Not later than 7 days after an incomplete report is provided pursuant to clause (i) of this subparagraph, a complete report, containing all the information specified in subparagraph (A) of this subdivision ~~(1) of this subsection~~, shall be provided.

(C) Form and Process for Providing a Report

(i) The commissioner shall specify, by posting on the department's internet website, the form and process by which each type of report required by subparagraph (B) of subdivision (1) of this subsection and containing the information specified in such subparagraph, shall be provided. The form and process specified may include, but shall not be limited to, one or more of the following:

(I) a telephone call to the department's emergency dispatch center;

(II) a written report provided by mail;

(III) a written report provided by electronic mail to a designated electronic mail address; or

(IV) a written report provided using to a file transfer site or electronic filing system maintained by the department.

(ii) If the process for submitting a report specified by the commissioner pursuant to this subparagraph requires the report be provided in writing, such report shall be provided on a form prescribed by the commissioner.

(2) Reports submitted in error

If the person who submitted a report subsequently determines that such report was submitted in error, such person may request that the report be amended or retracted. Such request shall be made using a form prescribed by the commissioner, and shall include the date the report was submitted and a description of the error. The commissioner request, in writing, any additional information necessary to determine if the report was submitted in error. If the commissioner determines the report was made in error, the report shall be amended or retracted as requested.

(c) Reports of Significant Existing Releases When the Person Who Discovers Such Release Did Not Create And Is Not Maintaining The Release

(1) The timeframe for providing a report specified in subsection (a)~~(1)~~ of this section shall begin upon discovery of significant existing release by a person who did not create and is not maintaining such release, pursuant to section 22a-134tt-2(b) of the RBCRs.

(2) If:

(A) ~~t~~The significant existing release is not known to be impacting a public or private drinking water supply well and the person who discovers a significant existing release has access to the geographic area of the release because:

(i~~A~~) such person is an employee, contractor, agent, representative, or otherwise has access to the geographic area of the release at the specific direction or with the direct consent of a person who created or is maintaining a release, the person who discovers such a release shall, not later than one business day ~~hour~~ after discovering the release, notify the person who created or is maintaining the release of its discovery and provide all available relevant information regarding the release to such person; or

(ii~~B~~) such person is an employee, contractor, agent, representative ~~hired, retained, designated or authorized,~~ or otherwise has access to the geographic area of the release at the direction of a person other than a person who created or is maintaining such a release, the person who discovered the release shall, not later than one ~~hour~~ business day after discovering the release, notify the person on whose behalf the geographic area of the release was accessed of the discovery and provide all available relevant information regarding the release to such person. Any person receiving such a notification shall contact a person who created or is maintaining the release and provide

all available relevant information regarding the release to such person not later than one ~~hour~~ business day after receiving the notification.

(B) The significant existing release is known to be impacting a public or private drinking water supply well and the person who identifies such impact from the significant existing release has access to the geographic area of the release because:

(i) such person is an employee, contractor, agent, representative, or otherwise has access to the geographic area of the release at the specific direction or with the direct consent of a person who created or is maintaining a release, the person who discovers such a release shall, not later than 6 hours after discovering the release, notify the person who created or is maintaining the release of its discovery and provide all available relevant information regarding the release to such person; or

(ii) such person is hired, retained, designated or authorized, or otherwise has access to the geographic area of the release at the direction of a person other than a person who created or is maintaining such a release, the person who discovered the release shall, not later than one business day after discovering the release, notify the person on whose behalf the geographic area of the release was accessed of the discovery and provide all available relevant information regarding the release to such person. Any person receiving such a notification shall contact a person who created or is maintaining the release and provide all available relevant information regarding the release to such person not later than 6 hours after receiving the notification.

(3) A person who created or is maintaining a significant existing release, upon receipt of notification made pursuant to this subsection, shall report such release to the commissioner within the time specified by subsection (a)(1) of this section that contains the information required by, and is in the form and uses the process specified by, subsection (b) of this section. The person reporting such a release shall confirm to the person who notified them and the person who discovered such a release, that a timely report of the release has been provided to the commissioner.

(4) If the person who discovered a significant existing release and the person who notified the person who created or is maintaining such a release have not received confirmation that such a timely report of such release has been provided to the commissioner pursuant to subparagraph (2)(B) of this subsection, and the time period for reporting such release has expired, such persons shall notify the commissioner that:

(A) a significant existing release was discovered;

(B) the time, date and location of discovery;

(C) the nature of the discovered release;

(D) that a person who created or is maintaining such a release was notified within the time specified by this subsection; and

(E) the name and contact information for such person.

The commissioner shall specify, by posting on the department's internet website, the form and process by which such notification shall be made, which shall include, but may not be limited to notification by telephone call to the department's emergency dispatch center.

(5) Persons Not Subject To Requirement To Notify

Notwithstanding the requirements of this subsection:

(A) If a significant existing release created or maintained by an attorney's client is discovered by such attorney, that attorney's only obligation shall be to inform the attorney's client of the obligation to report such release in a timely manner; and

(B) If a significant existing release is discovered by a person who has access to the geographic area of the release pursuant to section 22a-133dd of the General Statutes, such person shall not be required to take any action pursuant to this subsection.

(d) Reports of Existing Releases Discovered on Transfer Act Site

(1) If an existing release is discovered on any parcel required to be investigated and remediated pursuant to sections 22a-134 to 22a-134e, inclusive, and sections 22a-134h and 22a-134i of the Connecticut General Statutes and, pursuant to section 22a-134rr of the Connecticut General Statutes, such release is subject to the requirements of sections 22a-134qq to 22a-134xx, inclusive, of the Connecticut General Statutes, a report of such release shall be provided to the commissioner pursuant to the requirements of this section.

(2) If remediation of the parcel pursuant to the requirements of sections 22a-134 to 22a-134e, inclusive, and sections 22a-134h and 22a-134i of the Connecticut General Statutes, is ongoing and a Form I, Form II, Form III verification or Form IV verification has not yet been submitted, and the discovered release is not a release requiring immediate action, in addition to complying with the requirements of subsection (b) of this section, any report filed pursuant to subdivision (1) of this ~~subparagraph~~ subsection shall specify whether:

(A) the release will be remediated pursuant to the process and to the standards specified in the RBCRs; or

(B) the release will be remediated pursuant to the requirements of, and to the standards specified by sections 22a-134 to 22a-134e, inclusive, and sections 22a-134h and 22a-134i of the Connecticut General Statutes, and a Form III verification or From IV verification for the parcel which includes such release will be provided pursuant to the requirements of sections 22a-134

to 22a-134e, inclusive, and sections 22a-134h and 22a-134i of the Connecticut General Statutes not later than the deadline for verification of the parcel specified in section 22a-134a(g)(c) of the Connecticut General Statutes, without extension of such deadline.

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Sec. 22a-134tt-4. Characterization of Discovered Releases

(a) Requirement to Characterize Nature and Extent of a Release

(1) Upon discovery, the nature and extent of a release shall be determined, pursuant to the requirements of this section. This characterization is necessary prior to determining the appropriate remedial action for an existing release. Remediation of any release shall not be determined to have satisfied the requirements of the RBCRs unless and until the nature and extent of such release has been determined, as required herein.

(2) Required Information

(A) Characterization of a release shall require the development of a conceptual site model, which may include, but shall not be limited to, evaluation of:

(i) The physical setting of the release, such as topography, soil type, geology, and hydrogeology;

(ii) Chemical properties of each substance discovered;

(iii) The historical, current, and anticipated land uses of the release area and surrounding real property;

(~~iii~~iv) Receptor pathways and ~~P~~potential receptors, such as existing uses of groundwater and proximity to water supply wells, nearby occupied buildings and nearby surface water;

(~~i~~v) Historical information and records;

(vi) Observations of the release area and surrounding real property; and

(vii) The results of soil, groundwater, or other environmental media testing, including the results of any field screening and all laboratory analytical data concerning such release.

(B) (i) When specifying prevailing standards and guidelines pursuant to subsection (b) of this section, the commissioner shall identify ~~those releases for which a full characterization is not required and shall specify~~ the ~~extent of~~ information necessary to develop a conceptual site model of ~~such~~ a release and to complete closure characterization ~~fully characterize~~ such release; and

(ii) Prevailing standards and guidelines specified by the commissioner shall indicate that a determination that the release remediation closure report for a release ~~may be~~ prepared pursuant to section 22a-134tt-8(a) of the RBCRs ~~certified by a PEP~~ shall be considered ~~full~~ closure characterization and shall ~~to~~ satisfy the requirements of this section.

(C) ~~Full~~Closure characterization of an existing release shall include the preparation of a conceptual site model narrative by an LEP in accordance with prevailing standards and guidelines.

(3) Tier characterization of a release shall be completed as soon as is prudent ~~practicable~~, but not later than 1 year after discovery of such release.

(4) No release remediation closure report shall be verified by an LEP or certified by a PEP until closure~~full~~ characterization of a release is complete.

(5) If an immediate action is required by section 22a-134tt-5 of the Regulations of Connecticut State Agencies, then any characterization necessary to perform such actions, or verify the effects of such actions, shall be completed as required by such section.

(b) Identification of Prevailing Standards and Guidelines

(1) The commissioner may specify, by posting on the department's internet website, methods or protocols for the characterization of a release through the development of a conceptual site model which shall include, but shall not be limited to, methods or protocols for identifying and evaluating the information specified by subsection (a)(2) of this section. Methods or protocols posted on the department's internet website pursuant to this subdivision shall be considered prevailing standards and guidelines.

(2) If characterization is conducted pursuant to the prevailing standards and guidelines specified by the commissioner pursuant to subdivision (1) of this subsection, such characterization shall be sufficient for all purposes required by the RBCRs.

(3) (A) If characterization is performed using standards and guidelines other than those prevailing standards and guidelines specified by the commissioner pursuant to subdivision (1) of this subsection, such standards and guidelines, and any methods or protocols used pursuant thereto, shall be documented and submitted for the commissioner's review;

(B) The documentation required by subparagraph (A) of this subdivision shall be submitted to the commissioner one time ~~once~~, at the earliest of the following:

(i) upon completion of an immediate action completed pursuant to section 22a-134tt-5 of the Regulations of Connecticut State Agencies, if an immediate action is required for such release;

(ii) upon submission of a release remediation closure report, if remediation is completed not more than one year after discovery of such release; or

(iii) upon assignment of the release to a cleanup tier, if such release is required to be assigned to a cleanup tier.

(C) If the commissioner determines that such standard or guideline, or any method or protocol used pursuant thereto, is not scientifically valid and defensible, or not of a level of precision, accuracy, and sensitivity to sufficiently determine the nature and extent of a release, the commissioner shall identify in writing the reasons for such conclusions and such characterization shall not be relied upon to demonstrate compliance with the RBCRs. Along with such written statement, the commissioner shall specify a deadline for the completion of characterization pursuant to the requirements of this section.

(4) Notwithstanding the requirements of this section, a release remediation closure report ~~certified by a~~ prepared pursuant to section 22a-134tt-8 of the RBCRs ~~PEP~~ shall be considered to complete closure

characterization of a release provided it contains only such characterization necessary to demonstrate compliance with the applicable provisions of such section. ~~22a-134tt-8 of the RBCRs.~~

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Sec. 22a-134tt-5. – Immediate Actions

(a) Immediate Action Required

(1) An immediate action, performed pursuant to the requirements of this section, shall be required upon discovery of a release to the land and waters of the state if such release is:

(A) An emergent reportable release; or

(B) A significant existing release.

(2) An immediate action shall continue until it has achieved either an immediate action transition-point identified in subsection (h) of this section or the standards identified in the cleanup standards sections.

(3) If an immediate action is required by this section but such action has not been undertaken or an immediate action has not been performed pursuant to the requirements of this section, including but not limited to, the failure to comply with a deadline specified herein, the failure to satisfy a cleanup standard or transition-point identified by subdivision (2) of this subsection, or the failure to submit an immediate action report identified in subsection (k) of this section, the commissioner may take any action authorized by section 22a-134rr or 22a-134ss of the Connecticut General Statutes, including issuing a cease and desist order pursuant to section 22a-134ss(g) of the Connecticut General Statutes. Nothing herein shall affect the commissioner's ability to taken enforcement action under any other provision of statute or regulation.

(b) Emergencies and Exigent Conditions

(1) Upon receiving a report of an emergent reportable release or a significant existing release, the commissioner may, in the commissioner's sole discretion, determine such release to be an emergency or exigent condition and may direct the response to such release.

(2) If the commissioner responds to such an emergency or exigent condition, on-site or otherwise, the commissioner may direct any person who created or is maintaining such release to perform any action necessary to investigate, stabilize, contain, mitigate, remediate, remove, or monitor such release or to protect human health or the environment, which shall include, but not be limited to, any remediation or other action necessary to achieve an immediate action transition-point specified in subsection (h) of this section or a standard specified in the cleanup standards sections.

(3) If an action directed by the commissioner pursuant to this subsection is not performed as directed by the commissioner or is not able to be performed by the person who created or maintained the release in the timeframe necessary to protect human health or the environment, the commissioner may perform such action, or may retain an appropriately licensed contractor to perform such action, and may seek to recover eligible costs pursuant to section 22a-451 of the Connecticut General Statutes and may take any authorized enforcement action including, but not limited to, actions authorized by sections 22a-134rr to 22a-134ss, inclusive, of the Connecticut General Statutes including issuing a cease and desist order pursuant to section 22a-134ss(g) of the Connecticut General Statutes, or an administrative civil penalty pursuant to sections 22a-134ss(f) and 22a-6b of the Connecticut General Statutes, including a schedule of penalties adopted pursuant thereto.

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(4) The commissioner shall determine, in the commissioner's sole discretion, when an emergency or exigent condition caused by a release has been abated. The commissioner may determine that an emergency or exigent condition has been abated without achieving either an immediate action transition-point specified by subsection (h) of this section or a standard specified in the cleanup standards sections. Upon determining that the emergency or exigent condition has been abated, the commissioner may end any response to such release. At the conclusion of any response directed by the commissioner, provided the response directed has not achieved an immediate action transition-point or a cleanup standard, each person who created or is maintaining such release shall continue the actions required to achieve an immediate action transition-point or a cleanup standard within the time specified by subsection (h) of this section.

(c) Time to Begin Required Immediate Actions

(1) The actions required by subsections (d) and (e) of this section shall begin immediately upon discovery of an emergent reportable release, if practicable, and under no circumstances later than 2 hours after discovery of such release. No time period or deadline specified by this section shall delay any action necessary to investigate, stabilize, contain, mitigate, remediate, remove, or monitor such release.

(2) The actions required by subsections (d) and (f) of this section shall begin immediately upon discovery of a significant existing release, ~~or as soon as is practicable~~if practicable, and under no circumstances later than any deadline for action specified in this section after such release is reported as required by section 22a-134tt-3 of the Regulations of Connecticut State Agencies. No time period or deadline specified by this section shall delay any action necessary to investigate, stabilize, contain, mitigate, remediate, remove, or monitor such release.

(3) If the immediate actions specified by subsection (d) of this section, and subsection (e) or (f), as applicable, are not underway and the time frame specified by this subsection has passed, the commissioner may perform such action, or may retain an appropriately licensed contractor to perform such action, and may seek to recover eligible costs pursuant to section 22a-451 of the Connecticut General Statutes and may take any authorized enforcement action including, but not limited to, actions authorized by sections 22a-134rr to 22a-134ss, inclusive, of the Connecticut General Statutes including issuing a cease and desist order pursuant to section 22a-134ss(g) of the Connecticut General Statutes, or an administrative civil penalty pursuant to section 22a-134ss(f) and section 22a-6b of the Connecticut General Statutes, including a schedule of penalties adopted pursuant thereto.

(d) Required Immediate Actions

(1) Upon discovery of an emergent reportable release or a significant existing release, each person who created or is maintaining such release shall take immediate action to investigate, stabilize, contain, mitigate, remediate, remove, or monitor such release, as required to meet an immediate action transition-point specified by subsection (h) of this section or a cleanup standard specified in the cleanup standards sections. Such actions shall include, but shall not be limited to:

> (A) Removing from the land and waters of the state, to the maximum extent practicable, an emergent reportable release, or, to the extent necessary to comply with this section, a significant existing release, using means appropriate for the specific substance released and the land and waters impacted by such release;

(B) Implementing measures to prevent migration of a release, which may include, but shall not be limited to, active remediation techniques or the use of physical barriers or appropriate treatment systems; and

(C) Identifying the source of a release and eliminating the source of an emergent reportable release or, if practicable in the time provided to complete immediate actions, eliminating the source of a significant existing release.

(2) ~~Full~~Closure characterization of the nature and extent of a release shall not be required before commencing an immediate action. Characterization of the nature and extent of the release shall be performed at the same time as the required immediate actions to ensure that such required actions are sufficient and successful. At a minimum, characterization sufficient to demonstrate that an immediate action transition-point specified by subsection (h) of this section has been achieved shall be developed during the timeframe specified for achieving an immediate action transition-point, except that should the actions performed include remediation to a standard specified in the cleanup standards sections, ~~a complete characterization~~ closure~~full~~ characterization of such release pursuant to section 22a-134tt-4 of the RBCRs shall be required.

(e) Required Immediate Actions for an Emergent Reportable Release

~~In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that is:~~

(1) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that is ~~P~~present in a public or private drinking water well:

(A) Install, as soon as is practicable, physical barriers to prevent the further migration of such release, which may include, but shall not be limited to, interceptor trenches, sheet piles or slurry walls, and implement, as soon as is practicable, hydraulic control and recovery measures, which may include but shall not be limited to, recovery wells, absorbent socks, bailing, or vacuuming;

(B) Identify each public or private drinking water well located on ~~a~~ each parcel adjacent to the parcel on which the impacted well is located, collect samples of water from such wells, and send for laboratory analysis as soon as is practicable but not more than 36 hours after discovery that a public or private drinking water well has been impacted by such release;

(C) Identify each public or private drinking water well located within 200 feet of an impacted well, or within 500 feet downgradient of an impacted well, collect samples of water from such wells, and send for laboratory analysis as soon as is practicable but not more than 36 hours after discovery that a public or private drinking water well has been impacted by such release;

(D) Ensure that an alternative source of potable water is provided to the users of each public or private drinking water well impacted by such release;

(E) Seven days after the collection of samples from a public or private drinking water well pursuant to subparagraph (B) and (C) of this subdivision, collect a second sample of water from each well tested and send for laboratory analysis;

(F) For each drinking water well impacted by the release of a substance at a concentration greater than the groundwater protection criterion, install an appropriate treatment system for such substance or connect to an unimpacted public drinking water supply system. Each treatment system shall be installed not more than 15 days following discovery that such well has been impacted by the release, unless such drinking water well will be replaced with a connection to an unimpacted public water supply system. Each connection to an unimpacted public drinking water supply system shall be made not more than 30 days following discovery of such impacted well; and

(G) As soon as practicable, but not more than 45 days following discovery that such release has impacted a public or private drinking water well, prepare and submit to the commissioner an immediate action report, pursuant to subsection (k) of this section, that:

(i) Lists each drinking water well identified pursuant to subparagraph (B) and (C) of this subdivision, specifies whether each drinking water well has been impacted by such release, and includes the results of laboratory analysis of all samples collected from such wells;

(ii) Identifies each treatment system installed and each connection to an unimpacted public drinking water supply system made. For each treatment system installed, a schedule for the maintenance and monitoring of such system shall be specified;

(iii) For each drinking water well impacted by a substance at a concentration less than the groundwater protection criterion, and for each drinking water well within 200 feet of a drinking water well impacted by such release, provides a schedule for the quarterly monitoring of such well for substances associated with such release; and

(iv) Includes a description of those measures undertaken to prevent further migration of the release, pursuant to subparagraph (A) of this subdivision, and a schedule for the maintenance, and monitoring of such measures;

(H) The commissioner may request a follow up report be submitted pursuant to section 22a-450-(4)(b) of the Regulations of Connecticut State Agencies, and may specify a deadline for the submission of such a report;

(2) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that is I impacting groundwater, and is present in a groundwater monitoring well within 500 feet in any direction of a public or private drinking water well:

(A) Install, as soon as is practicable, physical barriers to prevent the further migration of such release, which may include, but shall not be limited to, interceptor trenches, sheet piles or slurry walls, and implement, as soon as is practicable, hydraulic control and recovery measures, which may include but shall not be limited to, recovery wells, absorbent socks, bailing, or vacuuming;

(B) Identify each public or private drinking water well located on a parcel adjacent to the parcel on which the impacted monitoring well is located, collect samples of water from such wells, and send for laboratory analysis as soon as is practicable but not more than 36 hours after discovery of such release;

(C) Seven days after the collection of samples from a public or private drinking water well pursuant to subparagraph (B) of this subdivision, collect a second sample of water from each well tested and send for laboratory analysis;

(D) Not more than 45 days after discovery of such release, prepare and submit to the commissioner an immediate action report, pursuant to subsection (k) of this section that:

(i) lists each drinking water well identified pursuant to subparagraph (B) of this subdivision, specifies whether each listed drinking water well has been impacted by such release, and includes the results of laboratory analysis of all samples collected from such wells;

(ii) provides a schedule for the quarterly monitoring of groundwater at monitoring wells determined to impacted by such release; and

(iii) includes a description of those measures undertaken to prevent further migration of such release pursuant to subparagraph (A) of this subdivision, including a schedule for the periodic testing of wells identified pursuant to subparagraphs (B) of this subdivision, and a schedule for the implementation, maintenance, and monitoring of any such measures; and

(E) Notwithstanding the requirements of this subdivision, any public or private drinking water well impacted by a release shall be subject to the requirements of subdivision (1) of this subsection.

(3) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that is ~~D~~discovered in soil:

(A) Not more than 2 hours after discovery of such release, initiate remediation of such impacted soil to the applicable direct exposure criteria or to the standards found in section 22a-134tt-8(a) of the RBCRs, and continue until compliance with such criteria or standards have been met; and

(B) Notwithstanding the requirements of subparagraph (A) of this subsection, if such release contains PCBs, remediate or dispose of such soil in the manner required by 40 CFR 761 or as directed by the commissioner, not more than 48 hours after discovery.

(4) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that is~~A~~a release of volatile organic substances, except volatile petroleum substances, that is discovered in groundwater within 30 feet or less of the ground surface and within 30 feet or less of the lowest portion of a building under which groundwater is impacted, or that consists of volatile petroleum substances within 10 feet or less of the ground surface and within 10 feet or less of the lowest portion of a building under which groundwater is impacted with such substances:

(A) If the building is occupied or in use, immediately ventilate the building to the maximum extent practicable, which may include, but shall not be limited to, the opening of doors and windows, the use of fans, or the adjustment of the building's air handling turnover rate;

(B) All measures necessary to ensure that further migration of such release into indoor air is mitigated or prevented, which may include, but shall not be limited to:

(i) installation of a soil vapor extraction system;

(ii) installation of a sub-slab depressurization system; or

(iii) the sealing of cracks in the buildings floor and foundation or other preferential pathways; and

(C) Not more than 7 days after discovery of the release, prepare and submit an immediate action plan, pursuant to subsection (j) of this section, that:

(i) Describes the nature and extent of the volatile organic substances from soil or groundwater in indoor air, and includes the results of laboratory analysis of soil, soil vapor, and groundwater samples collected;

(ii) Specifies a vapor mitigation system or approach to be used or installed, and a schedule for the installation of such system or approach;

(iii) Includes a schedule for the maintenance and monitoring of such system or approach; and

(iv) Includes a description of those measures already undertaken, or to be undertaken, to prevent further migration of such release, and a schedule for the implementation, maintenance, and monitoring of any such measures.

(5) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that is~~C~~causing a visible impact to surface water:

(A) As soon as practicable, but not more than 2 hours after the discovery of such release, undertake all measures necessary to remove all impacts that are recoverable and ensure that further migration of such release is mitigated or prevented, which may include, but shall not be limited to, physical barriers such as booms, interceptor trenches, slurry walls, other physical barriers, or vacuum extraction;

(B) If the release occurred in or migrated to a surface water body, each substance released is soluble or has a specific gravity greater than or equal to 1, and such release has been present in surface water for a period-of-time such that accumulation or adsorption on sediments is possible, sample sediments to determine if such sediments were impacted by the release in a reasonable time, provided such sampling shall occur not more than 48 hours following discovery of the release;

(C) Not more than 45 days after discovery of such release, prepare and submit an immediate action report, pursuant to subsection (k) of this section, that includes:

(i) A description of measures installed to prevent migration of such release and any necessary maintenance or monitoring of such measures;

(ii) The results of laboratory analysis of sediment samples if required to be collected pursuant to subparagraph (B) of this subdivision;

(iii) A schedule for any necessary additional mitigation, abatement, and monitoring of the impacted surface water body; and

(iv) A schedule for the quarterly monitoring of groundwater, if any groundwater is impacted by such release resulting in impacts to groundwater at a concentration greater than or equal to the surface water protection criteria or by a nonaqueous phase liquid.

(f) Required Immediate Actions for a Significant Existing Release

~~In addition to the actions specified by subsection (d) of this section, the following actions shall be required if the release is a significant existing release that:~~

(1) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that has ~~Has caused~~impacted or is impacting a public or private drinking water well:

(A) Install, as soon as is practicable, physical barriers to prevent the further migration of the release, which may include, but shall not be limited to, interceptor trenches, sheet piles or slurry walls, and implement, as soon as is practicable, hydraulic control and recovery measures, which may include but shall not be limited to, recovery wells, absorbent socks, bailing, or vacuuming;

(B) Identify each public and private drinking water well located on a parcel adjacent to the parcel on which the impacted well is located, provided that such well is within 500 feet of the impacted well, and collect samples of water from such wells not more than 2 days after discovery of such release;

(C) Ensure that an alternative source of potable water is provided to the users of each public or private drinking water well impacted by the release;

(D) Not more than 15 days after discovery that a public or private drinking water well has been impacted by such release, identify each public and private drinking water well located within 200 feet of an impacted well, or within 500 feet downgradient of an impacted well; and

(E) Not more than 15 days after discovery that a public or private drinking water well has been impacted by such release, prepare and submit an immediate action plan, pursuant to subsection (j) of this section, that:

(i) Lists each drinking water well identified pursuant to subparagraphs (B) and (D) of this subdivision, specifying whether each listed drinking water well has been impacted by such release and including the results of laboratory analysis of all samples collected pursuant to subparagraphs (B) and (D) of this subdivision;

(ii) Specifies a schedule for the sampling and analysis of drinking water wells on parcels adjacent to the parcel on which each impacted drinking water well is located, provided each impacted drinking water well shall be sampled not less than once per quarter, and a schedule for the continued identification and sampling of potentially impacted wells in an

iterative manner until all drinking water wells impacted by the release have been identified and sampled;

(iii) For each drinking water well impacted by such release by a substance at a concentration greater than the groundwater protection criterion, either identifies and describes an appropriate treatment system for such substance or indicates that a connection to an unimpacted public drinking water supply system will be provided. For each treatment system identified, the plan shall specify a schedule for its installation, provided such system shall be installed not more than 15 days following discovery that such well has been impacted by such release, and any required maintenance and quarterly monitoring. For each identified connection to an unimpacted public drinking water supply system, the plan shall specify a schedule for the connection to such system, provided such connection shall be made not more than 30 days following discovery that such well has been impacted by the release;

(iv) For each drinking water well impacted by such release by a substance at concentrations less than or equal to the groundwater protection criteria, and for each drinking water well within 200 feet of a drinking water well impacted by such release, provides a schedule for quarterly monitoring of such drinking water well for the substances associated with such release; and

(v) Includes a description of those measures already undertaken, or to be undertaken, to prevent further migration of such release, pursuant to subparagraph (A) of this subdivision, and a schedule for the implementation, maintenance, and monitoring of any such measures.

(2) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that is ~~is~~ of a substance for which a groundwater protection criterion has been adopted that has ~~caused~~ impacted or is impacting groundwater within 500 feet of a private or public drinking water well at a concentration equal to or greater than the groundwater protection criterion:

(A) Identify each drinking water well located on a parcel adjacent to the parcel on which the impacted monitoring well is located, provided that such drinking water well is within 500 feet of the impacted monitoring well, and collect samples of water from such wells not more than 2 days after the discovery of such release;

(B) Not more than 15 days after discovery of such release, identify each public and private drinking water well located within 200 feet of an impacted monitoring well, or within 500 feet downgradient of an impacted monitoring well;

(C) As soon as practicable, implement all measures necessary to ensure that further migration of such release is mitigated or prevented;

(D) Not more than 15 days after discovery of such release, prepare and submit an immediate action plan, pursuant to subsection (j) of this section, that:

(i) Lists each drinking water well identified pursuant to subparagraphs (A) and (B) of this subsection

(ii) Specifies whether each identified well has been sampled, lists each drinking water well known to have been impacted by the release, and includes the results of laboratory analysis of all samples collected from such wells;

(iii) Lists each drinking water well within 200 feet of an impacted public or private drinking water well, or within 500 feet downgradient of a groundwater monitoring well and groundwater plume exceeding groundwater protection criteria for substances associated with the release, and specifies a schedule for the sampling of such wells;

(iv~~ii~~) Provides a schedule for the quarterly monitoring of groundwater determined to be impacted at a concentration greater than a groundwater protection criterion; and

(~~i~~v) Includes a description of those measures already undertaken, or to be undertaken, to prevent further migration of the release, including a schedule for the periodic testing of wells identified pursuant to subparagraphs (A) and (B) of this subdivision, and a schedule for the implementation, maintenance, and monitoring of any such measures; and

(E) Notwithstanding the requirements of this subdivision, any public or private drinking water well impacted by the release shall be subject to the requirements of subdivision (1) of this subsection.

(3) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that is ~~Is~~ discovered in soil within 2 feet of the ground surface that contains a substance at concentrations greater than or equal to 15 times the applicable direct exposure criterion for such substance:

(A) Determine the location and extent of soil impacted by such release, not more than 45 days after discovery of such release;

(B) Not more than 90 days after discovery of such release:

(i) Remove or mitigate soil within 2 feet of the ground surface impacted at concentrations greater than 15 times the applicable direct exposure criteria by measures to prevent exposure to such soil, which may include, but shall not be limited to, installation of a fence, pavement, or other temporary physical barrier;

(ii) Render inaccessible, by satisfying all relevant provisions of the cleanup standards sections, all soil impacted by such release at concentrations greater than the applicable direct exposure criteria;

(iii) Remediate all soil impacted by such release to the applicable direct exposure criteria; or

(iv) If the soil is impacted by PCBs, remediate or dispose of such soil as required by 40 CFR 761 or in a manner authorized by the commissioner or the ~~Environmental Protection Agency~~EPA;

(C) Not more than 90 days after discovery of such release, if measures to prevent exposure to such soil have been implemented pursuant to subparagraph (B)(i) or (B)(ii) of this subdivision, prepare and submit an immediate action plan, pursuant to subsection (j) of this section that:

(i) Describes the location and extent of such release, including the results of the laboratory analysis of samples;

(ii) Includes a description and photographs of the installed measures~~, and a schedule for the monitoring and maintenance of such measures, at a minimum annually, and sufficient to ensure that such measures remain effective~~; and

(iii) Provides a schedule for the monitoring and maintenance of such measures, at a minimum annually, and sufficient to ensure that such measures remain effective; and

(D) Notwithstanding the requirements of subsection (j) of this section, an immediate action plan shall not be required for a ~~release requiring immediate action~~ significant existing release subject to the requirements of this subdivision, if such release has been remediated to the applicable direct exposure criteria or if PCB containing soil has been remediated or disposed of in a manner authorized by the Commissioner or the EPA, pursuant to subparagraph (B)(iii) or (b)(iv) of this subdivision. ~~except as specified by subparagraph (C) of this subdivision.~~

(4) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that is ~~Is~~is of volatile organic substances or volatile petroleum substances to groundwater that has caused or is causing a groundwater plume within 30 feet of the ground surface and within 30 feet or less of the lowest portion of a building impacted at concentrations greater than or equal to 10 times the applicable volatilization criteria for any volatile organic substance, except volatile petroleum substances; a groundwater plume within 10 feet of the ground surface and within 10 feet or less of the lowest portion of a building impacted at concentrations greater than or equal to 10 times the applicable volatilization criteria for any volatile petroleum substances; soil vapor beneath a building to be impacted at concentrations greater than or equal to the applicable volatilization criteria for such substance; or the detection of toxic air contaminants in indoor air provided such toxic air contaminant is not present in indoor air solely as the result of a current process or use of materials ~~in an industrial setting~~:

(A) ~~If the building is occupied or in use, i~~Immediately ventilate the building to the maximum extent practicableIf the building is occupied or in use; and

(B) Not more than 30 days after discovery of such release, prepare and submit an immediate action plan, pursuant to subsection (j) of this section, that:

(i) Describes the nature and extent of such release, and includes the results of laboratory analysis of samples collected;

(ii) Specifies a sufficiently protective vapor mitigation system or approach to be used or installed, which may include, but shall not be limited to, the sealing of cracks and other preferential pathways, a sub-slab depressurization system or soil vapor extraction system or an adjustment of air handling turnover rate, and a schedule for the use or installation of such system or approach;

(iii) Includes a schedule for the maintenance and monitoring of such system or approach to be used or installed; and

(iv) Includes a description of those measures already undertaken, or to be undertaken, to prevent further migration of such release, and a schedule for the implementation, maintenance, and monitoring of any such measures.

(5) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that is ~~Is~~ a release of a substance at a concentration greater than or equal to 10 times the surface water protection criteria for such substance, or that is a non-aqueous phase liquid, ~~to~~ that has impacted or is impacting groundwater within 500 feet of surface water:

(A) Not more than 30 days after discovery of such release, prepare and submit an immediate action report pursuant to subsection (k) of this section that:

~~(i) Prepare and submit an immediate action report, pursuant to subsection (k) of this section that:~~

(i~~I~~) Describes the nature and extent of such release, and includes the results of laboratory analysis of samples collected;

(ii~~II~~) Identifies each measure taken to prevent migration of such release; and

(iii~~III~~) includes a schedule for completing tier characterization of such release.

(g) Certification by a PEP or Verification by an LEP

(1) Immediate action required by this section may be directed by the commissioner in the event such release is determined to be an emergency or exigent condition pursuant to subsection (b) of this section. If such release is not determined to be an emergency or exigent condition pursuant to subsection (b) of this section, immediate action may be certified as complete by a PEP or verified as complete by an LEP, except that an immediate action shall be required to be verified by an LEP if:

(A) Such release was discovered through laboratory analysis of samples of soil, sediment, groundwater, or indoor air;

(B) Such release is causing persistent groundwater impact; or

(C) The actions proposed will satisfy the standards specified in the cleanup standards sections, and such cleanup standards require LEP verification.

(2) The need for an LEP to verify that an immediate action is complete shall not be considered a requirement that an LEP supervise or otherwise be present at all times during an immediate action, and no time period specified in this section shall be stayed due to the presence or absence of an LEP.

(3) Notwithstanding the requirements of this subsection, no person shall engage in the business of collecting, storing or treating waste oil or petroleum or chemical liquids or hazardous wastes, or of acting as a contractor to contain or remove or otherwise mitigate the effects of discharge, spillage, uncontrolled loss, seepage or filtration of such substance or material or waste, nor shall any person, municipality or regional authority dispose of waste oil or petroleum or chemical liquids or waste solid, liquid or gaseous products or hazardous wastes except in accordance with the requirements of a permit issued pursuant to section 22a-454 of the Connecticut General Statutes.

(h) Immediate Action Transition-Points

(1) Emergent Reportable Release Transition-Points

If the release for which immediate action was required is an emergent reportable release, such immediate action shall result in compliance with the standards specified at section 22a-134tt-8 of the RBCRs, the applicable numeric criteria in the cleanup standards sections, an applicable additional polluting substances criterion calculated pursuant to section 22a-134tt-App 8 of the RBCRs, or if such criteria cannot be met within 1 year of discovery, an applicable immediate action transition-point, specified below:

(A) For a release impacting a drinking water well, for which required actions are specified in subsection (e)(1) of this section, such transition-points shall be:

(i) without treatment, four quarters of water monitoring laboratory analytical results that demonstrate compliance with applicable standards for each substance~~s~~ detected in such well;

(ii) the installation of a suitable treatment system to each impacted drinking water well identified, provided that:

(I) four quarters of water monitoring laboratory analytical results demonstrate that the substances are not detected in effluent water from the treatment system on such well as submitted to the commissioner; and

(II) an immediate action report is submitted that includes all the information specified in subsection (k) of this section, a plan and schedule for the maintenance and monitoring of each treatment system installed, and the analytical results of such quarterly monitoring; or

(iii) the replacement of each impacted drinking water well identified with a connection to an unimpacted public water supply system, provided that an immediate action report is submitted that contains all the information specified in subsection (k) of this section.

(B) For a release impacting groundwater, for which required actions are specified in subsection (e)(2) of this section, such transition-points shall be when, 1 year following discovery of the release, such release is entered into a cleanup tier requiring DEEP oversight, and an immediate action report is submitted that contains all the information specified in subsection (k) of this section;

(C) For a release impacting soil for which required actions are specified in subsection (e)(3) of this section, such transition-point shall be the removal of the release from soil to the maximum extent practicable, and the mitigation of the risk of exposure to any remaining impacted soil, provided that an immediate action report is submitted that contains all the information specified in subsection (k) of this section; and

(D) For a release impacting groundwater of volatile organic substances or volatile petroleum substances for which required actions are specified in subsection (e)(4) of this section, such transition-point shall be when:

(i) mitigation measures~~,~~ identified in subsections (e)(4)(A) and (e)(4)(B) of this section have been installed or implemented and are operating but an environmental use restriction has not yet been recorded;

(ii) the analysis of 9 indoor air samples, taken in consecutive months, indicates concentrations of less than 10 times the applicable TAC; and

(iii) an immediate action report is submitted that contains all the information specified in subsection (k) of this section;

(E) For a release impacting surface water, for which required actions are specified in subsection (e)(5) of this section, such transition-point shall be when the release that is the source of the impact has been removed or mitigated to the maximum extent practicable and all visible sheen is collected or otherwise eliminated, provided an immediate action report is submitted that contains all the information specified in subsection (k) of this section.

(2) Significant Existing Release Transition-Points

If the release for which immediate action was required is a significant existing release, such immediate action must result in compliance with the standards specified in the cleanup standards sections, or an applicable immediate action transition-point, specified ~~as follows~~below:

(A) For a release impacting a drinking water well, for which required actions are specified in subsection (f)(1) of this section, such transition-point shall be:

(i) without treatment, four quarters of water monitoring laboratory analytical results that demonstrate compliance with applicable standards for each substance~~s~~ detected in such well;

(ii) the installation of a suitable treatment system to each impacted drinking water well identified, provided that:

(I) four quarters of water monitoring laboratory analytical results demonstrate that the substances are not detected in effluent water from the treatment system on such well as submitted to the commissioner; and

(II) an immediate action report is submitted that includes all the information specified in subsection (k) of this section, a plan and schedule for the maintenance and monitoring of each treatment system installed, and the analytical results of such quarterly monitoring; ~~and~~or

(iii) the replacement of each impacted drinking water well identified with a connection to an unimpacted public water supply system, provided that an immediate action report is submitted that contains all the information specified in subsection (k) of this section.

(B) For a release impacting groundwater, for which required actions are specified in subsection (f)(2) of this section, such transition-point shall be when, 1 year following discovery of the release, such release is entered into a cleanup tier requiring DEEP oversight, and an immediate action report is submitted that contains all the information specified in subsection (k) of this section.

(C) For a release to soil, for which required actions are specified by subsection (f)(3) of this section, such transition-point shall be when direct exposure to such soil is mitigated, pursuant to subsection (f)(3)(B) of this section, provided an immediate action report is submitted that contains all the information specified in subsection (k) of this section;

(D) For a release to groundwater of volatile organic substances or volatile petroleum substances for which required actions are specified in subsection (f)(4) of this section, such transition-point shall be when:

(i) mitigation measures, identified in subsection (f)(4)(B) of this section, have been installed or implemented, and are operating but an environmental use restriction has not yet been recorded;

(ii) the analysis of 9 indoor air samples, taken in consecutive months, indicate concentrations of less than 10 times the applicable TAC; and

(iii) an immediate action report is submitted that contains all the information specified in subsection (k) of this section; and

(E) For a release to groundwater near surface water, for which required actions are specified in subsection (f)(5) of this section, tier characterization is complete and such release has been entered into a cleanup tier by filing a tier assignment and paying the required fee.

(i) Remediation of Remaining Substances Released

(1) To the extent that the completion of the required immediate action does not result in the achievement of the standards specified in the cleanup standards sections for each substance~~s~~ released to the land and waters of the state, a release shall remain subject to the requirement to remediate to such cleanup standards.

(2) If a release remains present in the land and waters of the state following the completion of an immediate action, such release shall be:

(A) Tier characterized not later than 1 year after discovery, pursuant to section 22a-134tt-6 of the RBCRs.

(B) Assigned to a cleanup tier pursuant to the process specified in section 22a-134tt-6 of the RBCRs, except that if all substances remaining in the land and waters of the state are remediated to the standards specified in the cleanup standards sections, and a release remediation closure report has been prepared that satisfies the requirements of section 22a-134tt-13 of the RBCRs, then entry into a cleanup tier shall not be required.

(j) Immediate Action Plan

(1) The commissioner may require a person who created or is maintaining an emergent reportable release to submit an immediate action plan. The commissioner shall notify such person, verbally or in writing, that submission of an immediate action plan is required, and shall specify a deadline for the submission of such plan.

(2) A person who created or is maintaining a significant existing release, except a release to groundwater requiring immediate action pursuant to subsection (f)(5) of this section, shall submit an immediate action plan to the commissioner in the time specified by subsection (f) of this section, or, if a time period is not specified in such subsection, not more than 90 days after discovery of a significant existing release.

(3) An immediate action plan shall contain a description of the actions already underway and those proposed to achieve an immediate action transition-point specified by subsection (h) of this section or a standard specified in the cleanup standards sections, and shall:

(A) Be prepared using a form prescribed by the commissioner;

(B) Identify one or more persons who created or is maintaining the release;

(C) Identify the person who will certify or verify the completion of the immediate action;

(D) Reference the initial release report for such release, and update any information provided therein based on the most current available information regarding such release;

(E) Propose a schedule for achieving an immediate action transition-point specified in subsection (h) or a standard specified in the cleanup standards sections on or before 1 year following the discovery of a release;

(E) Provide any other information specified by subsection~~s~~ (d) of this section, and subsections (e) or (f), as applicable; and

(F) Provide any other information specified by the commissioner on such form.

(4) The commissioner may review the immediate action plan, and may approve or reject such plan, in writing. The commissioner's determination shall be provided to the person who submitted the immediate action plan and the person identified as certifying completion of the immediate action. If the commissioner determines that the proposed actions and schedule therein are not protective of human health or the environment, the commissioner shall reject the immediate action plan. If the commissioner rejects the plan, the commissioner shall state the reasons for rejection, which may include, but shall not be limited to:

(A) The actions proposed are incomplete or otherwise inappropriate;

(B) The schedule proposed does not address the release with sufficient urgency when considering any imminent threat to human health or the environment, even if the schedule proposed otherwise satisfies the deadlines specified in subsection (e) of this section, and subsection (f) or (g), as applicable; or

(C) The immediate action plan does not identify the PEP or LEP, if an LEP is required, who will certify the immediate action is complete.

(5) If the commissioner rejects the proposed actions and schedule, the actions and schedule shall be revised and resubmitted for the commissioner's review within 7 days. If the commissioner does not reject the immediate action plan within 21 days after receipt, the plan, including the proposed actions and schedule shall be automatically deemed approved.

(k) Immediate Action Report

(1) An immediate action report shall be submitted on the earlier of the following:

(A) For emergent~~cy~~ reportable releases, ~~shall be submitted~~ on the earlier of the following:

(i) the assignment of such release to a tier; or

(ii) the submission of a release remediation closure report; and

(B) For a significant existing release, shall be submitted on the earlier of the following:

(i) A deadline specified by the commissioner in writing for the submission of such ~~a plan~~report;

(ii) Not more than 60 days after completion of the actions required to achieve an immediate action transition-point specified by subsection (h) of this section or a standard specified in the cleanup standards sections; or

(iii) Not more than 1 year following discovery of an emergent reportable release or a significant existing release.

(2) Such report shall:

(A) Be prepared using a form prescribed by the commissioner;

(B) Identify each known person who created or is maintaining the release;

(C) Identify the person who, pursuant to subsection (g) of this section, supervised the immediate action;

(D) Identify the immediate action transition-point specified by subsection (h) of this section, or the standards specified in the cleanup standards sections that have been achieved;

(E) Provide information regarding the investigation and characterization of the release sufficient to demonstrate that the transition-point or cleanup standards identified have been achieved, including confirmatory sampling of soil or groundwater, if required;

(E) Identify any remaining characterization of the nature and extent of a release necessary to satisfy the requirements of section 22a-134tt-4 of the RBCRs;

(F) Identify any remaining remediation required to achieve the standards specified in the cleanup standards sections for any substances still present in the land and waters of the state; and

(G) Provide any other information specified by the commissioner on such form.

(3) If, at the time an immediate action report is submitted, the release has not been remediated to the standards specified in the cleanup standards sections, the immediate action report and a tiering assignment shall be simultaneously submitted to the commissioner.

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(4) The commissioner may audit the immediate action report pursuant to subsection 22a-134tt-13 of the RBCRs and may approve or reject such report.

(A) If the commissioner rejects the immediate action report, the commissioner may require:

(i) The submission of a modified report containing additional information not later than a specified deadline;

(ii) The submission of a schedule for additional investigation and characterization of the release and an updated immediate action report not later than a specified deadline;

(iii) The performance of additional immediate actions not later than a deadline specified by the commissioner, the submission of a schedule for the performance of such additional immediate actions, and an updated immediate action report upon completion of such actions; and

(iv) the submission of a revised tiering determination.

(B) Notwithstanding the provisions of subparagraph (~~B~~A) of this ~~subsection~~subdivision, if any deadline to complete immediate actions specified by this section has passed, and an immediate action report has not been submitted to the commissioner, or the immediate action report submitted has been rejected, nothing herein shall prevent the commissioner from taking any action authorized by section 22a-134ss of the Connecticut General Statutes.

(l) Nothing contained in this section shall be construed to affect the authority of the Commissioner of Energy and Environmental Protection pursuant to any other statute or regulation.

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Sec.~~tion~~ 22a-134tt-6.~~—~~ Tiers

(a) Requirement to Tier Releases

Not more than 1 year following discovery of a release, each release shall be assigned to a cleanup tier if such release remains present in the land and waters of the state and has not achieved compliance with the cleanup standards sections.

(b) Establishment of Cleanup Tiers

(1) There shall be established the following:

(A) tier 1A;

(B) tier 1B;

(C) tier 2; and

(D) tier 3.

(2) Releases shall be assigned to such tiers using the checklist specified in section 22a-134tt-App1 of the RBCRs.

(3) Releases presenting the highest risk to human health and the environment shall be assigned to tier 1A. Releases presenting less risk to the environment shall be assigned to tier 1B or tier 2, as specified. Releases that have reached groundwater and remain only as a diminishing state groundwater plume may be assigned to tier 3.

(c) Tier Assignment

(1) Not more than 1 year after discovery of a release, each release shall be assigned to a cleanup tier if a release remediation closure report has not been submitted for such release. To assign a release to a cleanup tier, a tier assignment form shall be submitted to the commissioner, which shall include:

(A) A complete tier checklist, including an LEP's verification;

(B) All characterization information necessary to complete the tier checklist, pursuant to section 22a-134tt-4 of the RBCRs;

(C) A copy of the immediate action plan and immediate action report, if immediate action was performed;

(D) The applicable fee specified by subsection (f) of this section; and

(E) Any other information specified by the commissioner on such form.

(2) A release may be assigned to a different cleanup tier when a release has been partially remediated such that risk to human health or the environment has been reduced, or shall be assigned to a different cleanup tier not more than 30 days after additional information has identified previously unaccounted for risks to human health or the environment, in order for continued remediation to occur in a cleanup tier corresponding with the risk to human health and the environment presented by such release as specified by section 22a-134tt-App1 of the ~~Regulations of Connecticut State Agencies~~RBCRs. To change

the tier assignment, a change in tier assignment form shall be submitted to the commissioner on a form prescribed by the commissioner, which shall include:

(A) A complete tier checklist, including an LEP's verification;

(B) All characterization information necessary to complete the tier checklist, pursuant to section 22a-134tt-4 of the RBCRs;

(C) Copies of each approval issued by the commissioner when a remedy requiring the approval of the commissioner has been implemented;

(D) A list of LEP-approved remedies that have been implemented, and all documentation necessary to demonstrate that such remedy has been properly selected and implemented;

(E) The fee specified by subsection (f) of this section, if applicable; and

(F) Any other information specified by the commissioner on such form.

(3) A release may be assigned to tier 3 provided that soil impacted by the release has been remediated to the standards identified by section 22a-134tt-9 of the RBCR~~s~~s, and that the plume of groundwater created by such release is in a diminishing state without need for further active remediation and is being monitored for natural attenuation. In addition to the information specified in subdivision (2) of this subsection, a tier assignment form or change in tier assignment form submitted for the purpose of assigning a release to tier 3 shall include:

(A) Any document or information specified by sections 22a-134tt-9 and 22a-134tt-12 of the RBCR~~s~~s to demonstrate that soil impacted by the release has been remediated to such cleanup standards;

(B) A conceptual site model, supported by sufficient characterization data, that demonstrates that the plume of groundwater created by such release is in a diminishing state and is naturally attenuating;

(C) A groundwater monitoring plan and schedule, including the name, business address, and contact information for the person who will be conducting such monitoring; and

(D) Any other information requested by the commissioner on such form.

(4) The commissioner may audit a tier assignment or change in tier assignment pursuant to section 22a-134tt-13 of the RBCRs. As a result of such audit, the commissioner may reject the tier assignment or change in tier assignment if all required information is not provided or a release is assigned to the incorrect tier. Upon rejection of a tier assignment or a change in tier assignment, the commissioner may:

(A) require the submission of additional information;

(B) require additional investigation or characterization of a release; or

(C) assign the release to an appropriate tier, which shall include but shall not be limited to, tier 1A;

(5) For the purposes of calculation of time, the date of tier assignment for a release shall be the day ~~the day~~ a tier assignment is first submitted pursuant to this section~~-~~.

(d) Cleanup Oversight

Remediation of releases shall be overseen as follows:

(1) Releases assigned to tier 1A shall be supervised by the commissioner who may direct certain tasks to be performed by an LEP or other qualified professional and may exercise all authority over an emergency or exigent circumstance provided by section 22a-134tt-5(b);

(2) Releases assigned to tier 1B shall be supervised by an LEP;

(3) Releases assigned to tier 2 shall be supervised by an LEP; and

(4) Releases assigned to tier 3 shall ~~may~~ be supervised by a qualified professional, except that the performance of certain tasks including compliance monitoring, ~~or the preparation of certain documents identified by the RBCRs may~~and the preparation of a verification shall require the supervision of an LEP.

(e) Deadlines for Remediation

(1) Not more than 1 year following the date of tier assignment, a release assigned to tier 1A shall be closed, or assigned to tier 1B, tier 2, or tier 3.

(2) Not more than 2 years following the date of tier assignment, a release assigned to tier 1B shall be closed, or assigned to tier 2 or tier 3.

(3) Not more than 4 years following the date of tier assignment, a release assigned to tier 2 shall be closed, or assigned to tier 3.

(4) Not more than 5 years following the date of tier assignment, a release assigned to tier 3 shall be closed.

(5) All timelines specified by this subsection shall run concurrently.

(6) Extensions of the deadlines specified in this subsection may be granted as follows:

(A) For releases assigned to tiers 1A, 1B, and 2, the commissioner may, in the commissioner's sole discretion, approve 1 year extensions of the deadlines specified by this subsection for good cause shown. A request for extension shall be made on a form prescribed by the commissioner, and shall include the fee calculated pursuant to subsection (f) of this section. The request for extension shall be made not less than thirty days prior to the expiration of the deadline on a form prescribed by the commissioner; and

(B) An LEP may approve a single 1-year extension of the deadlines specified in this subsection for a release assigned to tier 1B or tier 2. Notice of such extension shall be made not less than 30 days before the expiration of such deadline on a form prescribed by the commissioner, and shall include the fee specified by subsection (f) of this section. Any additional extension of the deadline for the remediation of such release shall be approved by the commissioner.

(C) A request for an extension of time for a release assigned to tier 3 shall be submitted to the commissioner, on a form prescribed by the commissioner. Notwithstanding ~~clauses (i) and (ii) of this subparagraph~~subparagraphs (A) and (B) of this subdivsions:

(i) The commissioner shall approve a 5-year extension of the deadline specified in this subsection for a release assigned to tier 3 provided that the laboratory analysis of groundwater samples demonstrates that the groundwater plume caused by such release remains in a diminishing state and is naturally attenuating at a rate consistent with the conceptual site model submitted pursuant to subsection (c)(3)(B) of this section;

(ii) The commissioner shall approve as many 5-year extensions as are necessary, provided the groundwater plume created by a release assigned to tier 3 remains in a diminishing state and is naturally attenuating at a rate consistent with the conceptual site model submitted pursuant to subsection (c)(3)(B) of this section; and

(iii) If the commissioner determines that the groundwater plume is not in a diminishing state or will not naturally attenuate at a rate consistent with the conceptual site model submitted pursuant to subsection (c)(3)(B) of this section, the commissioner may deny an extension of the deadline specified in this subsection for such release. If the commissioner denies an extension of the deadline, the commissioner shall, in the commissioner's sole discretion, assign the release to an appropriate cleanup tier, and specify a deadline for the remediation of such release.

(f) Fees

(1) Tier Assignment Fees

The following fees shall be paid at the time a tier assignment is submitted to the commissioner. If a tier assignment is rejected, and the release is subsequently assigned to a different tier, the difference between the fee paid and the fee due shall be paid not more than 30 days following the date of tier assignment.

(A) For a release assigned to tier 1A, 3,000 dollars;

(B) For a release assigned to tier 1B, 1,500 dollars;

(C) For a release assigned to tier 2, 1,000 dollars; and

(D) For a release assigned to tier 3, 500 dollars.

(2) Annual Fees

(A) An annual fee shall be due one year following the date of tier assignment, and each year thereafter until a release is verified. The base annual fee shall be:

(i) For a release assigned to tier 1A, 3,000;

(ii) For a release assigned to tier 1B, 1,500;

(iii) For a release assigned to tier 2, 1,000; and

(iv) For a release assigned to tier 3, 500 dollars.

(B) The annual fee shall be calculated as follows:

[FEE] + ~~(~~(.1[FEE]x[number of years since tier assignment date]) = annual fee due

Where:

FEE is equal to the base annual fee for the tier to which the release is assigned on the date the annual fee is due.

(3) Fees for Extension of Time

(A) If a 1-year extension of time is approved by the commissioner or an LEP pursuant to subsection~~s~~ (e)(6)~~(i) and (e)(6)((ii)~~ of this section, a fee equal to the annual fee calculated pursuant to subdivision (2)(B) of this subsection shall be paid to the commissioner.

(B) There shall be no fee for a 5-year extension of time approved pursuant to subsection (e)(6)(C)~~(iii)~~ of this section.

(4) Single Deadline for Annual Fees

Notwithstanding the requirements of this subsection, the commissioner may authorize the payment of the annual fees for multiple releases for which the same creator or maintainer is responsible on a date specified by the commissioner. A request for a single deadline for annual fee payments shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs.

(5) One-Year Exemption for Compliance Monitoring

Notwithstanding the requirements of this subsection, there shall be no tier assignment fee for a release that has impacted groundwater, provided that at the time such release is first assigned to a tier:

(A) all soil impacted by the release has been remediated to the standards identified by the cleanup standards sections; and

(B) The only remaining remediation of groundwater required is compliance monitoring pursuant to subsection (h) of section 22a-134tt-10.

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~~RCSA~~ Sec. 22a-134tt-7. ~~–~~ General Cleanup Standards Provisions

(a) Time-frames for Issuance of Approvals by the Commissioner

The commissioner shall make best efforts within available resources to process in a timely manner any variance or alternative criteria request pursuant to the cleanup standards sections. The commissioner shall, upon request, provide estimated time frames for any such review. In establishing estimated time frames pursuant to this subsection, the commissioner shall take into account available resources, the complexity of the request, and the environmental and economic significance of the remediation.

(b) Environmental Use Restrictions

(1) Whenever an EUR is required under the RBCRs:

(A) An ELUR may always be used; and

(B) A NAUL may only be used:

(i) Pursuant to section 22a-134tt-9(b)(2) of the RBCRs, provided the subject area is zoned for industrial/commercial use and no holder of an interest in such area, other than the owner of such area, has a right of residential activity or use;

(ii) Pursuant to section 22a-134tt-9(b)(3)(B) of the RBCRs, provided the concentrations of substances in such inaccessible soil do not exceed 10 times the applicable direct exposure criteria;

(iii) Pursuant to section 22a-134tt-9(b)(6) of the RBCRs;

(iv) Pursuant to section 22a-134tt-9(c)(5)(A) of the RBCRs, provided that:

(I) The concentrations of substances in such soil do not exceed 10 times the applicable direct exposure criteria and the applicable pollutant mobility criteria; or

(II) The total volume of soil that is environmentally isolated that exceeds 10 times the applicable direct exposure criteria and the applicable pollutant mobility criteria is equal to or less than 10 cubic yards;

(v) Pursuant to section 22a-134tt-9(d)(2)(A) of the RBCRs;

(vi) Pursuant to section 22a-134tt-9(f)(1) of the RBCRs;

(vii) Pursuant to section 22a-134tt-9(f)(2)(B) or section 22a-134tt-9(f)(2)(C) of the RBCRs, provided that the concentrations of the substances in polluted soil at the subject area are equal to or less than 10 times the applicable direct exposure criteria;

(viii) Pursuant to section 22a-134tt-10(c)(1) or section 22a-134tt-10(c)(2)(A) of the RBCRs, provided the subject area is zoned for industrial/commercial use and no holder of an interest in such area, other than the owner of such area, has a right of residential activity or use;

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(ix) Pursuant to section 22a-134tt-10(c)(2)(B) of the RBCRs;

(x) Pursuant to sections 22a-134tt-10(c)(3), 22a-134tt10(c)(4), and 22a-134tt-10(c)(5) of the RBCRs;

(xi) When an ELUR is required and the parcel on which it is to be recorded is owned by the state of Connecticut or the state of Connecticut purchases a property subject to an existing ELUR, the NAUL shall be approved by the commissioner;

(xii) Pursuant to section 22a-134tt-9(b)(2)(C)of the RBCRs; or

(xiv) Pursuant to section 22a-134tt-9(b)(2)(D) of the RBCRs.

(2) Each EUR under the RBCRs shall be subject to and comply with all applicable requirements in section 22a-133o of the Connecticut General Statutes, the EUR Regulations and the RBCRs.

(3) If the RBCRs require an EUR:

(A) Such EUR shall be in effect prior to:

(i) An LEP's verification, including an LEP's interim verification, or certification, as those terms are defined in sections 22a-134(19), 22a-134(28), and 22a-134pp(9) of the Connecticut General Statutes and sections 22a-134tt-1(16) and 22a-134tt-1 (158) of the RBCRs, including, but not limited to, a verification or certification pursuant to section 22a-134tt-10 of the RBCRs; or

(ii) When required by the commissioner, the review and approval of the remediation by the commissioner; or

(B) When voluntary remediation is conducted pursuant to section 22a-133y of the Connecticut General Statutes, the documents required to be prepared by sections 22a-133q-2(b) or 22a-133q-3(b) of the EUR Regulations, as applicable, shall be submitted as part of the final remedial action report at the time such report is submitted to the commissioner. Upon approval of such report by the commissioner, the EUR shall be executed within 36 days of such approval and be put into effect in accordance with the EUR Regulations.

(4) An EUR shall only be deemed to be in effect when such EUR is recorded on the land records in compliance with the EUR Regulations.

(5) When a remedy is selected under the cleanup standards sections for which an EUR is required to be in effect for different subject areas on a parcel, a request may be submitted to the commissioner to extend any deadline specified in the cleanup standards sections to prepare the materials required to obtain and request such EUR. The commissioner may approve or deny in writing such extension request. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that significant progress has been made to complete the remediation of the parcel and strict adherence to the stated deadline would create an extraordinary hardship.

(c) Financial Assurance

(1) A financial assurance shall be required to support an engineered control variance or a technical impracticability variance. Such assurance shall be:

(A) Established and maintained for the duration of the period that the engineered control or technical impracticability variance will be used to achieve compliance with the RBCRs;

(B) Directly available to the commissioner to cover the costs of complying with the variance, including, but not limited to, operation, maintenance, inspection, monitoring, reporting, and other reasonably anticipated repairs and contingencies, in the event that the commissioner determines that such measures have not been performed as required by the RBCRs; and

(C) Established in an amount equal to the cost of 20 percent of 30 years of operation, maintenance, inspection, monitoring, reporting, and other reasonably anticipated repairs and contingencies, which amount shall be maintained in effect for as long as the variance is used to achieve compliance with the RBCRs, except this amount may be adjusted in accordance with subdivision (4) of this subsection.

(2) One or more of the following instruments, and no others, shall be used to satisfy the financial assurance requirements of this subsection:

(A) Trust agreement or trust fund;

(B) Irrevocable standby letter of credit;

(C) Payment of funds in cash as directed by the commissioner; or

(D) Certificate of insurance.

(3) The wording of any instrument used to satisfy the requirements of this subsection shall be identical to the language prescribed by the commissioner, which language shall be posted on the department's internet website. In addition, only an entity that satisfies the following requirements, as applicable, may issue an instrument used to satisfy the requirements of this subsection:

(A) Any trustee shall be an entity with authorization to act as a trustee and whose trust operations are regulated and examined by a federal or state agency;

(B) Any surety issuing a bond shall be among those listed as acceptable sureties on federal bonds in Circular 570 of the U.S. Department of Treasury;

(C) Any institution issuing a letter of credit shall be an entity that has the authority to issue letters of credit and whose letter of credit operations are regulated and examined by a federal or state agency; and

(D) Any insurer shall be licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more states.

(4) The amount of the financial assurance established pursuant to this subsection:

(A) Shall be adjusted for inflation at each 5 year interval from the anniversary date of the establishment of the financial instrument. The adjustment shall be made by using an inflation factor derived from the most recent Implicit Price Deflator for Gross National Product published

by the U.S. Department of Commerce in its "Survey of Current Business" and by multiplying the latest adjusted surety estimate for the site by that 5-year inflation factor; and

(B) May be adjusted, subject to the discretion and written approval of the commissioner, to reflect any recalculation of the costs of operation, maintenance, inspection, monitoring, reporting, and other reasonably anticipated repairs and contingencies, in current dollars. Any request for an adjustment pursuant to this subparagraph shall be submitted to the commissioner in accordance with ~~subsection (g) of this~~ section 22a-134tt-1(c) of the RBCRs.

(5) The requirements of this subsection shall not apply when:

(A) The entity responsible for remediation is a municipality, an agency or a political or administrative subdivision of the state or federal government; or

(B) The amount established under subdivision (1)(C) of this subsection is less than $10,000, unless the commissioner requires compliance with this subsection as a condition of approving the engineered control or technical impracticability variance.

(d) Public Participation

(1) Erection of a Sign

A sign not less than 6 feet by 4 feet that is clearly visible from the public roadway, and includes the words "ENVIRONMENTAL CLEAN UP IN PROGRESS. FOR FURTHER INFORMATION CONTACT:" and includes a telephone number and an electronic mail address from which any party may obtain additional information about the proposed remediation shall be erected and maintained whenever:

(A) Active remediation of an existing release, including but not limited to excavating, removing or stockpiling soil, is underway on a parcel; or

(B) The remediation of an emergent reportable release is underway, and the commissioner has directed in writing that a sign shall be erected and maintained.

(2) Public Notice

(A) Public notice of remediation shall be required for each release assigned to a tier, pursuant to section 22a-134tt-6 of the RBCRs. Such notice shall be provided before the date of tier assignment. Public notice shall be prepared using a form prescribed by the commissioner, and shall include:

(i) The address of the parcel on which remediation will be undertaken or, if no address is available, a description of the location of the parcel relative to the nearest intersection of named streets;

(ii) A brief description of the nature of the release and the substances being remediated;

(iii) An electronic mail and postal mailing address, telephone number, and a point of contact to whom comments regarding the remediation can be submitted and from whom any interested person may obtain additional information about the proposed remediation;

(iv) A statement that public comments may be submitted, via electronic mail or in writing, for thirty (30) days after the date of publication of such notice; and

(iv) Any other information specified by the commissioner on such form.

(B) Public notice shall be provided by mailing or personally delivering the public notice form to the chief elected municipal official and to the Director of Health of the municipality in which remediation will occur and publishing the information specified on such form in a newspaper having general circulation in the municipality in which the release is located.

(C) There shall be a public comment period on the proposed remediation for thirty (30) days after publication of the newspaper notice required by subdivision (~~1~~2)(B~~A)(ii~~) of this subdivision. If comments on the proposed remediation are received during the public comment period, no later than thirty (30) days after close of the public comment period, the person responsible for remediation shall submit to the commissioner a written summary of all such comments and a proposed response to each such comment. Based on the summary of comments and proposed responses, the commissioner may:

~~(i) Based on the summary of comments and proposed responses, the commissioner may:~~

(i~~I~~) Direct the person responsible for remediation to send the written summary and response document to each person who submitted comments within thirty (30) days after the direction is given by the commissioner. If an electronic mail address is known, the summary and response document may be sent to a commenter using electronic mail;

(ii~~II~~) Revise the written summary and response document and direct the person responsible for remediation to send the written summary and response document, as revised by the commissioner, to each person who submitted comments within thirty (30) days after the direction is given by the commissioner. If an electronic mail address is known, the summary and response document as revised by the commissioner may be sent to a commenter using electronic mail; or

(iii~~III~~) Determine that there is substantial public interest in the proposed remediation and direct the person responsible for the remediation to hold a public meeting regarding the proposed remediation. Notice of any such meeting shall be published in a newspaper of substantial circulation in the area of the proposed remediation at least thirty (30) days prior to such meeting. At such meeting all interested persons shall have reasonable opportunity to submit data, views, or arguments orally or in writing. Any such meeting shall not be conducted as, nor be considered to be, a contested case as that term is defined in section 4-166 of the Connecticut General Statutes. After the public meeting, the person responsible for remediation shall comply with subparagraph (C) of this subdivision and, except for this clause, the commissioner may then take actions specified under this subparagraph. Within thirty (30) days after a public meeting held in accordance with subparagraph (C~~D)(iii~~) of this subdivision, the person responsible for remediation shall provide to the commissioner a written summary of and response to any comments received during the public meeting and the commissioner

may then take any of the actions in subclauses (i) or, (ii), or (iv) of this subparagraph. (D) of this subdivision.;

(e) Conditional Exemption for Existing Releases That Have Migrated

(1) Whenever characterization conducted pursuant to 22a-134tt-5 of the RBCRs demonstrates that any person is maintaining a release in the land and waters of the state only because a portion of such release has migrated onto a parcel owned or in the possession of such person, such person may satisfy all obligations imposed by the RBCRs if such person:

(A) Demonstrates that:

(i) Such person neither created the release nor owns or is in possession of the parcel from which such release is or was migrating;

(ii) Such substances are not already present in the land and waters of the state at the release area owned or possessed by such person because of a release at such parcel; and

(iii) On the parcel owned or in possession of such person, all exposure pathways to drinking water supply wells, direct exposure to impacted soil, and from volatilization of impacted soil or groundwater into buildings have been broken or mitigated to the extent reasonably necessary to protect human health;

(B) Reports such release, if reporting is required pursuant to section 22a-134tt-3 of the RBCRs, in the time provided for the submission of such a report and takes any immediate action required by section 22a-134tt-5 of the RBCRs for the portion of the release on the parcel owned or the in the possession of such person;

(C) Prepares and submits a release remediation closure report pursuant to section 22a-134tt-12 of the RBCRs, including only characterization necessary to make the demonstrations required by subparagraph (A) of this subdivision has been completed for the portions of such release on the parcel owned or in the possession of such person pursuant to section 22a-134tt-5 and that substances in the area characterized are present as a result of a release on a parcel not owned or in the possession of such person; and

(D) Agrees to provide reasonable access to the creator of such release or the maintainer of the source of such release for the purpose of complying with the RBCRs.

(E) For purposes of this subdivision, the direct exposure pathway to impacted soil shall be determined to be broken if the immediate action transition point specified at section 22a-134tt-5(h)(2)(C) has been achieved.

(2) Whenever characterization conducted pursuant to section 22a-134tt-5 of the RBCRs demonstrates that a person is maintaining a release to groundwater and that the substances present in such release have co-mingled with the same substances from a different release that has migrated from a parcel not owned or in the possession of such person, such person shall comply with the RBCRs, except that if such

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person did not create and is not maintaining the source of such release, such person may close such release if:

(A) On the parcel owned or in possession of such person, all exposure pathways to drinking water supply wells and from volatilization into buildings have been broken or mitigated to the extent reasonably necessary to protect human health;

(B) Such person prepares and submits a release-remediation closure report pursuant to section 22a-134tt-12 of the RBCRs demonstrating that compliance characterization has been completed for the release created or maintained by such person and the portion of the release that has migrated onto property owned or in the possession of such person pursuant to section 22a-134tt-5 of the RBCRs and that concentrations of such substances do not exceed the concentrations of such substance at the boundary of the parcel onto which a release has migrated; and

(B) Such person agrees to provide reasonable access to the creator of such release or the maintainer of the source of such release for the purpose of complying with the RBCRs.

(3) The provisions of this subsection do not apply to any substances other than those substances that have migrated or are migrating from one parcel and substances present as a result of natural degradation transformations of such substances.

(4) No provision of this subsection shall affect the ability of any person to seek recovery of costs incurred by such person pursuant to section 22a-452 of the Connecticut General Statutes or of the commissioner to recover costs incurred in accordance with section 22a-451 of the Connecticut General Statutes, provided such costs are eligible for recovery pursuant to such section.

(f) ~~(d)~~ Other Requirements

All remediation undertaken to satisfy the RBCRs shall be conducted in accordance with all federal, state, and local requirements, including, but not limited to, 40 CFR 761, all permits, and other required authorizations. Nothing in this subsection shall be construed as requiring any further remediation of any release which has been remediated and which remediation has been approved in writing by the commissioner, unless the commissioner takes action to require such remediation pursuant to any section of Chapter 446k of the Connecticut General Statutes.

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Sec. 22a-134tt-8. Releases Certified as Closed by a Permitted Environmental Professional

(a) Emergent Reportable Releases Certified as Closed by a Permitted Environmental Professional

(1) The remediation of a release shall be determined to have satisfied the requirements of the RBCRs if:

(A) The approximate location and volume of such release was known at the time remediation was commenced;

(B) The substance or substances released are known;

(C) The release:

(i) did not occur in or directly to a surface water body and has not migrated to any such surface water body; or

(ii) occurred in or migrated to a surface water body, and each substance released is soluble or has a specific gravity of less than 1;

(D) The release:

(i) consists of a substance or substances other than oil or petroleum and has not contacted groundwater; or

(ii) consists only of oil or petroleum, is not within 500 feet of a drinking water well, and has not caused a persistent impact to groundwater as determined by subsection (c) of this section;

(E) Remediation commences within the time specified by section 22a-134tt-5 of the Regulations of Connecticut State Agencies, and all immediate actions required by section 22a-134tt-5 of the Regulations of Connecticut State Agencies are completed in the time specified by that section;

(F) The release is to:

(i) Soil,~~S~~ and soil impacted by the release is removed and properly disposed; and

(ii) An improved surface, and such release is be removed to the extent necessary to prevent migration to soil or surface or groundwater, except that if the release is of a material of special concern identified in section 22a-450-6 of the Regulations of Connecticut State Agencies, such release shall be removed until such substance is not detected, which may require removal of the improved surface if such substance is detected in the improved surface; and

(G) A PEP who responded to and directed the cleanup of such release certifies, pursuant to section 22a-134tt-11 of the Regulations of Connecticut State Agencies, that each of the requirements of this subsection has been satisfied.

(2) For the purposes of determining compliance with subsections (a)(1)(C) and (a)(1)(D) of this section, a release to a secondary containment system designed, installed and operated to collect and contain the release shall not be considered to have occurred in or directly impacted a surface water body or to have contacted or caused a persistent impact to groundwater, provided that:

(A) The volume of the release is less than the volume that the secondary containment system is designed, installed and operated to collect and contain, and the secondary containment system has contained such release;

(B) An assessment of the secondary containment system identifies no damage to such system. Such assessment shall include, but may not be limited to, a visual inspection of surfaces coated with epoxy or other coatings. The secondary containment system shall be determined to be damaged if cracks, voids, or gaps in the secondary containment system or in any epoxy or other coating are identified; and

(3) For the purposes of determining compliance with subsection (a)(1)(D)(i) of this section, a release shall be determined to have contacted groundwater if:

(A) Groundwater is encountered in the course of excavating or removing the volume of soil necessary to remove soil impacted by the release;

(B) One or more substances released is detected in a properly constructed and developed groundwater monitoring well located immediately downgradient from the approximate location of the release and not more than 5 feet from the edge of the area excavated for the purposes of remediation; or

(C) A substance or substances released is determined to be present in the groundwater using any other method or protocol specified by the commissioner by publishing such method or protocol on the department's internet website.

(4) For the purposes of determining compliance with subsection (a)(1)(D)(ii) of this section, a release of oil or petroleum shall be determined to have caused a persistent impact to groundwater if:

(A) A visible sheen remains on groundwater after not less than 3 attempts within 24 hours at removing the sheen by vacuum extraction of groundwater from an excavation or adjacent monitoring well;

(B) One or more of the substances released is detected in a properly constructed and developed groundwater monitoring well located immediately downgradient from the approximate location of the release and not more than 5 feet from the edge of the area excavated for purposes of remediation 24 or more hours after completion of the excavation of the soil impacted by the release; or

(C) A substance or substances released is determined to be present in the groundwater using any other method or protocol specified by the commissioner by publishing such method or protocol on the department's internet website.

(5) Notwithstanding section 22a-133v-6(e)(7) of the Regulations of Connecticut State Agencies, an LEP may verify that an emergent reportable release has satisfied the requirements of the RBCRs on behalf of his or her employer, provided such verification is consistent with all requirements of this subsection.

(b) Releases of Home Heating Fuel on Residential Properties

(1) Notwithstanding the requirements of section 22a-134tt-9 of the RBCRs~~egulations of Connecticut State Agencies~~, the remediation of a release of home heating fuel pursuant to the standards specified in this subsection shall be determined to have satisfied the requirements of the RBCRs provided:

(A) Applicability

(i) the release consists entirely of home heating fuel;

(ii) such heating fuel is being used, or stored for future use on the parcel at which it is being stored, on a parcel with not more than four dwelling units; and

(iii) such release was created by the owner of the parcel on which the home heating fuel is being used or stored for future use, or by the owner or occupant of a dwelling unit on such parcel. A release shall be determined to have been created by the owner of such a parcel or the owner or occupant of such a dwelling unit if the release would not have occurred but for the actions or inactions of such person or if such person owns, leases, or is otherwise in possession of the equipment that cause the release of home heating fuel;

(B) Cleanup Standard

An LEP verifies or a PEP certifies that:

(i) all soil impacted by the release has been removed, except that soil impacted by the release may remain if the excavation of such soil may undermine the structural integrity of the dwelling units;

(ii) soil impacted by the release that has not been removed is not impacting groundwater; and

(iii) soil impacted by the release that has not been removed is not impacting indoor air;

(C) Documentation

A release remediation closure report has been prepared pursuant to section 22a-134tt-12 of the Regulations of Connecticut State Agencies that:

(i) Identifies the nature and extent of soil impacted by the release that has not been removed; ~~and~~

(ii) Demonstrates that the remediation of the release of home heating fuel resulted in the removal of soil impacted by the release to the maximum extent prudent; and~~.~~

(iii) Indicates groundwater:

(I) was not impacted by the release of home heating fuel; or

(II) was impacted by the release of home heating fuel, and an LEP has verified that groundwater has been remediated pursuant to the requirements of section 22a-134tt-10 of the Regulations of Connecticut State Agencies.

Sec. 22a-134tt-9. Cleanup Standards for Soil

22a-134tt-9(a) Soil Criteria

Unless otherwise specified in the RBCRs, polluted soil at a release area shall be remediated so that the concentration of a substance in such soil is equal to or less than:

(1) The direct exposure criteria and the pollutant mobility criteria; or

(2) The background concentration for soil.

22a-134tt-9(b) Direct Exposure Criteria

(1) Residential Direct Exposure Criteria

Except as otherwise specified in the RBCRs, polluted soil at a release area shall be remediated so that the concentrations of substances in such soil are equal to or less than the residential direct exposure criteria.

(2) Use of Industrial/Commercial Direct Exposure Criteria, Managed Multifamily Direct Exposure Criteria, and Passive Recreation Direct Exposure Criteria

(A) Except for soil polluted with PCBs, polluted soil at a release area may be remediated so that the concentrations of substances in such soil are equal to or less than the industrial/commercial direct exposure criteria provided that:

(i) The subject area is not currently used for any residential activity;

(ii) Access to the parcel containing such release area is limited to individuals working at or temporarily visiting the subject parcel for industrial/commercial activity or for passive recreation pursuant to subparagraph (D) of this subdivision; and

(iii) An EUR is in effect for the subject area, which restriction shall:

(I) Prohibit residential activity; and

(II) Require compliance with clause (ii) of this subparagraph.

(B) Soil polluted with PCBs at a release area may be remediated so that the concentration of PCBs in such soil is equal to or less than the industrial/commercial direct exposure criteria for PCBs, provided that:

(i) The subject area is not currently used for any residential activity;

(ii) The parcel on which PCBs are present is used in accordance with title 40 CFR Part 761, including, but not limited to, those provisions of 40 CFR Part 761 regarding the requirement for high-occupancy areas;

(iii) The parcel upon which such release area is located is an "outdoor electrical substation," as defined in 40 CFR 761.123, or an "other restricted access (nonsubstation) location", as defined in 40 CFR 761.123; and

(iv) An ELUR is in effect for the subject area, which restriction shall:

(I) Prohibit residential activity; and

(II) Require compliance with clauses (ii) and (iii) of this subparagraph.

(C) Except for soil polluted with PCBs, polluted soil at a release area may be remediated so that the concentrations of substances in such soil are equal to or less than the managed multifamily residential direct exposure criteria provided that:

(i) The only residential activity for which the subject area is used is managed multifamily residential activity;

(ii) The parcel on which the subject area is located is managed by an association or a professional property management company;

(iii) Lease agreements or ~~condominium~~ common interest community declarations, ~~or~~ bylaws, or other documents enforceable by the association or professional property management company:

(I) Prohibit residents from digging in soil, including, but not limited to, prohibiting ~~G~~gardening; and

(II) Allow for active recreation only on areas with impervious surface; and

(iv) An EUR is in effect, which restriction shall:

(I) Prohibit residential activity other than managed multifamily residential activity; and

(II) Require compliance with clause (ii) and (iii) of this subparagraph.

(D) Except for soil polluted with PCBs, polluted soil at a release area may be remediated so that the concentrations of substances in such soil are equal to or less than the passive recreation residential direct exposure criteria provided that:

(i) ~~t~~The only residential activity for which the subject area is used is passive recreation activity; and

(ii) Either:

(I) an EUR is in effect which restriction prohibits residential activity other than passive recreation; or

(II) a conservation easement granted to a municipality, the state of Connecticut, or the United States of America, or any political subdivision thereof, prohibits residential activity other than passive recreation activity.

(3) Conditional Exemptions for Inaccessible Soil

The provisions of this subdivision do not apply to soil polluted with PCBs.

(A) Soil at a release area that is fifteen feet or more below the ground surface is not required to be remediated to the direct exposure criteria.

(B) Inaccessible soil at a release area is not required to be remediated to the direct exposure criteria, provided that an EUR is in effect for the subject area, which restriction shall:

(i) Prohibit exposure to inaccessible soil, including, but not limited to, as a result of excavation, demolition, other intrusive activities, or natural occurrences;

(ii) Require that if soil is used to render polluted soil inaccessible, that such soil used to render polluted soil inaccessible is maintained and immediately replaced, as needed, to maintain the four (4) feet of soil cover and the elevation and topography of the ground surface; and

(iii) Require, as applicable, that:

(I) Bituminous or reinforced concrete that renders the soil inaccessible is maintained in good condition, free of gaps or cracks that could expose such soil;

(II) A building that is used to render soil inaccessible shall consist of a roof, exterior walls, and a concrete floor, maintained in good condition, free of gaps or cracks that could expose such soil and such building shall not be removed; or

(III) Provided that written notice is submitted to the commissioner, a permanent structure that renders the soil inaccessible, shall be maintained in good condition to the extent required to prevent exposure of such soil and shall not be removed.

(C) Inaccessible soil at a release area is not required to be remediated to the direct exposure criteria, provided that such soil:

(i) Is located beneath concrete or bituminous concrete used for parking or vehicle travel, or below a building foundation;

(ii) Is managed pursuant to the requirements of the permit by rule specified in subparagraph (D) of this subdivision;

(iii) Either:

(I) Does not contain VOCs at greater than the applicable direct exposure criteria; or

(II) Contains VOCs at greater than the applicable direct exposure criteria, but such soil is 30 feet or more in every direction from any building; and

(iv) Is impacted by pollutants at concentrations:

(I) Less than or equal to both the industrial direct exposure criteria and 15 times the applicable direct exposure criteria; or

(II) Greater than the industrial direct exposure criteria but less than or equal to fifteen times the applicable direct exposure criteria, provided soil with concentrations in excess of the industrial direct exposure criteria is not less than one foot below the bituminous or reinforced concrete.

(D) Soil rendered inaccessible by concrete or bituminous concrete used for parking or vehicle travel, or below a building foundation pursuant to subparagraph (C) of this subdivision shall be subject to the following permit by rule requirements:

(i) The owner of the parcel on which such conditions exist shall:

(I) Ensure that such parking lot or vehicle travel-way is maintained in good condition, and free of gaps or cracks that could expose such soil or that such building foundation is maintained in such a manner as to not expose soil;

(III) Shall inspect such concrete or bituminous concrete used for parking or vehicle travel or such building foundation every five years to determine whether it remains in good condition;

(IV) Report to the commissioner on the condition of the concrete or bituminous concrete and maintenance taken to ensure such concrete or bituminous concrete is in good condition every five years, using a form prescribed by the commissioner; and

(V) Shall properly manage polluted soil exposed during temporary maintenance or replacement of the concrete or bituminous concrete or any infrastructure located thereunder.

(ii) Prior to any submission to the commissioner that verifies compliance with the provisions of the RBCRs, the owner of the parcel on which soil is rendered inaccessible pursuant to subparagraphs (C) and (D) of this subdivision shall record an affidavit of facts on the municipal land records in the town in which such release is located. Such affidavit shall include the following:

(I) A statement that polluted soil has been rendered inaccessible by concrete or bituminous concrete used for vehicle travel or a building foundation on the parcel;

(II) A description of the concrete or bituminous concrete used to render soil inaccessible, including its intended use or purpose, location and the materials used in its construction; and

(III) A statement that the owner will manage polluted soil pursuant to the provisions of this subparagraph, and subparagraph (C) of this subdivision.

(iii) Notwithstanding the requirements of this subparagraph, if the soil is rendered inaccessible by a concrete or bituminous concrete used as a public road:

(I) Any action or obligation assigned herein to the owner of the parcel on which such release is present shall be complied with by the person responsible for the maintenance of the public road which renders such release inaccessible; and

(II) The recording of an affidavit of facts shall not be required, provided a notice containing the information required by clause (ii) of this subparagraph is submitted to the commissioner, provided to the owner of any known underground utilities within the right of way of such public road, and a copy of such notice is maintained by the person responsible for the maintenance of the public road; and

(iv) Removal of the concrete or bituminous concrete, other than temporary removal for maintenance or replacement of such concrete or bituminous concrete, or any infrastructure located thereunder, shall constitute non-compliance with the requirements of this subdivision and the discovery of a historical release subject to the requirements of chapter 445b of the Connecticut General Statutes. Reporting a release following the permanent removal of concrete or bituminous concrete shall not affect the authority of the commissioner under any other statute or regulation, including, but not limited to, the authority to seek civil or criminal penalties or issue any order to prevent or abate pollution.

(4) Conditional Exemption for Inaccessible Soil Polluted with PCBs

(A) Inaccessible soil polluted with PCBs may be remediated to the concentrations specified in subparagraph (B) of this subdivision, provided that an ELUR is in effect for the subject area, which restriction shall:

(i) Prohibit exposure to such inaccessible soil, including, but not limited to, as a result of excavation, demolition, other intrusive activities, or natural occurrences;

(ii) Prohibit residential activity;

(iii) Require that if soil is used to render polluted soil inaccessible, that such soil used to render polluted soil inaccessible is maintained and immediately replaced, as needed, to maintain the elevation and topography of the ground surface; and

(iv) Require, as applicable, that:

(I) Bituminous or reinforced concrete that renders the soil inaccessible is maintained in good condition, free of gaps or cracks that could expose such soil;

(II) A building that is used to render soil inaccessible shall consist of a roof, exterior walls, and a concrete floor, maintained in good condition, free of gaps or cracks that could expose such soil and such building shall not be removed; or

(III) Provided that written notice is submitted to the commissioner, a permanent structure that renders the soil inaccessible shall be maintained in good condition to the extent required to prevent exposure of such soil and shall not be removed.

(B) Provided the requirements of subparagraph (A) of this subdivision are met, inaccessible soil at a release area polluted with PCBs may be remediated so that the concentrations of PCBs in such soil are equal to or less than:

(i) Ten (10) ppm PCBs by dry weight; and

(ii) Twenty-five (25) ppm PCBs by dry weight if such inaccessible soil is located on an "other restricted access (nonsubstation) location" or an "outdoor electrical substation" as those terms are defined in 40 CFR 761.123, provided that PCBs may be remediated to fifty (50) ppm by dry weight at an outdoor electric substation if a label or notice is visibly placed in the area in accordance with 40 CFR 761.125(c)(2).

(5) Conditional Exemption for Incidental Sources

Soil at a release area polluted with metals, petroleum hydrocarbons, or semi-volatile organic substances is not required to be remediated to the direct exposure criteria for ~~those~~ such substances, provided such pollution is the result of:

(A) An incidental release due to the normal operation of motor vehicles, not including refueling, repair or maintenance of a motor vehicle; or

(B) Normal paving and maintenance of a consolidated bituminous concrete surface, provided such bituminous concrete surface has been maintained for its intended purpose.

(6) Conditional Exemption for Soil Polluted with Pesticides

Soil polluted with pesticides at a release area as a result of the application of pesticides is not required to be remediated to the direct exposure criteria for such pesticides, provided that a determination has been made that such pesticides are present solely as a result of the application of pesticides and:

(A) If the release area is used for residential activity:

(i) Protective measures are developed, implemented, and maintained to prevent human exposure to soil polluted with pesticides that exceeds residential direct exposure criteria. At a minimum, such measures shall consist of:

(I) Blending existing soil so that the concentration of substances for such pesticides in the top one (1) foot of soil are equal to or less than the direct exposure criteria, except for the area around existing mature trees;

(II) Covering soil with pavement, hardscape, buildings, or permanent structures; or

(III) Growing dense or vexatious vegetation on steep slopes to minimize the potential for direct exposure and erosion; and

(ii) An EUR is in effect for the subject area, which restriction shall:

(I) Identify the nature and extent of soil polluted with pesticides above residential direct exposure criteria and serve as notice of such polluted soil; and

(II) Require compliance with clause (i) of this subparagraph.

(B) If the release area is used for industrial/commercial activity:

(i) A soil management plan shall be developed, implemented, and maintained which plan shall include protective measures and ensure, at a minimum that any soil that exceeds the industrial/commercial direct exposure criteria is not exposed, including, but not limited to, as a result of excavation, demolition, or other activities and that any such soil is managed, restored, or disposed in a manner that is protective of human health and the environment and prevents human exposure to such soil, except that such soil management plan need not apply to any portion of a release area that is currently used for raising crops where pesticides are used; and

(ii) An EUR is in effect for the subject area, which restriction shall:

(I) Prohibit residential activity; and

(II) Require compliance with clause (i) of this subparagraph.

(7) Direct Exposure Criteria for Additional Polluting Substances

(A) Substances at a particular release area, for which direct exposure criteria are not specified in section 22a-134tt-App2 of the RBCRs shall be remediated to background concentration or to criteria obtained pursuant to this subdivision. A request under this subdivision shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include:

(i) A proposed risk-based direct exposure criterion calculated in accordance with section 22a-134tt-App8 of the RBCRs, for each substance in such request;

(ii) The laboratory reporting limit for each substance; and

(iii) Any information about the health effects each substance may cause due to exposure pathways not accounted for in the risk-based direct exposure criterion proposed under clause (i) of this subparagraph.

(B) The commissioner may approve or deny in writing a request made under subparagraph (A) of this subdivision. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that the requirements of this subdivision have been satisfied and that the proposed direct exposure criteria will be protective of human health and the

environment.

(C) Unless prohibited in writing by the commissioner, criteria approved by the commissioner pursuant to subparagraph (A) of this subdivision, may be the subject of a request for alternative criteria under subsection (d)(2)(A) of this ~~sub~~section.

22a-134tt-9(c) Pollutant Mobility Criteria

(1) Pollutant Mobility Criteria

(A) Except as otherwise specified in the RBCRs, polluted soil at a release area located in a GA area shall be remediated to the seasonal low water table; whereas polluted soil at a release area located in a GB area shall be remediated to the seasonal high water table. All such polluted soil shall be remediated so that the concentrations of substances in such soil are equal to or less than the applicable pollutant mobility criteria, as determined using:

(i) Mass analysis for such substances, other than inorganic substances and PCBs; and

(ii) TCLP or SPLP analysis expressed in mg/L, or mass analysis in mg/kg divided by twenty, for inorganic substances and PCBs.

(B) In GA area, if it is determined that remediation to the seasonal low water table is technically impracticable or would not result in the permanent elimination of a source of pollution, this subsection shall apply to polluted soil above the seasonal high water table.

(2) Optional Criteria for Polluted Soil in a GA Area

(A) Polluted Soil in any GA Area

Substances in polluted soil in a GA area may be remediated to a concentration equal to or less than the groundwater protection criteria for such substance based upon the analytical laboratory results of a TCLP or SPLP analysis.

(B) Polluted Soil, Except for PCBs or ETPH, in Certain GA Areas

(i) Substances, except for either PCBs or ETPH, in polluted soil in a GA area may be remediated to a concentration at which the analytical laboratory results of:

(I) TCLP or SPLP analysis for such substance in soil is equal to or less than ten (10) times the groundwater protection criteria;

(II) TCLP or SPLP analysis for such substance in soil is equal to or less than the groundwater protection criteria multiplied by an alternative dilution or dilution and attenuation factor, approved in writing by the commissioner in accordance with subsection (d)(3)(B) of this section;

(III) Mass analysis for such substance in soil is equal to or less than ten (10) times the applicable pollutant mobility criteria in section 22a-134tt-App3 to the RBCRs or approved in writing by the commissioner in accordance with subsection (c)(6) of this section; or

(IV) Mass analysis for such substance in soil is equal to or less than the applicable pollutant mobility criteria multiplied by an alternative dilution

or dilution and attenuation factor approved in writing by the commissioner in accordance with subsection (d)(3)(B) of this section.

(ii) The remediation standards specified in clause (i) of this subparagraph may be used only if conditions at a release area satisfy the requirements of subparagraphs (C) and (D) of this subdivision and the notice requirements of subparagraph (E) of this subdivision are satisfied.

(C) Conditions at the release area shall comply with the following requirements:

(i) NAPL is not present as determined in accordance with subdivision (4) of this subsection;

(ii) The water table is at least fifteen (15) feet above the surface of the bedrock; and

(iii) The downward vertical flow velocity of groundwater is equal to or less than the horizontal flow velocity.

(D) Conditions at the release area shall satisfy clause (i) or (ii) of this subparagraph:

(i) (I) A public water supply distribution system is available within two hundred (200) feet of the parcel on which the release area is located, within two hundred (200) feet of all adjacent parcels, and within two hundred (200) feet of any parcel within the areal extent of the groundwater plume from the subject release area;

(II) The groundwater within the areal extent of the groundwater plume from the subject release area is not used for drinking water;

(III) No public or private water supply wells exist within five hundred (500) feet of the subject release area; and

(IV) The groundwater affected by the subject release area is not a potential public water supply resource or in an aquifer protection area; or

(ii) The groundwater plume resulting from the subject release is a diminishing state groundwater plume and either:

(I) The concentration of any substance in the groundwater plume from the subject release area and within seventy-five (75) feet of the nearest downgradient parcel boundary is equal to or less than the groundwater protection criteria; or

(II) The concentration of any substance within the groundwater plume from the subject release area is equal to or less than the groundwater protection criteria for such substance at a location downgradient of the subject release area, on the subject parcel, and within twenty-five (25) feet of such release area.

(E) Written notice of the use of optional criteria calculated by an LEP under this subparagraph shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs.

(3) Optional Criteria for Polluted Soil in a GB Area

(A) Polluted Soil in a GB Area

Provided that NAPL is not present in the release area above the seasonal high water table,

as determined in accordance with subdivision (4) of this subsection, substances in soil in a GB area may be remediated to a concentration at which the results of a TCLP or SPLP analysis of each substance is equal to or less than the groundwater protection criteria:

(i) Multiplied by ten (10);

(ii) Multiplied by the ratio of the summation of the downgradient area and upgradient area compared to the release area, provided that such ratio is equal to or less than five hundred (500); or

(iii) Multiplied by an alternative dilution or dilution and attenuation factor approved in writing by the commissioner in accordance with subsection (d)(3) of this section.

(B) Optional Criteria Based Upon Release-Specific Dilution in a GB Area

(i) The criteria in this clause may only be used if the requirements in clauses (ii) and (iii) of this subparagraph are satisfied. Except for soil polluted with PCBs, substances in soil in a GB area may be remediated to a concentration at which the results of either:

(I) Mass analysis for each substance is equal to or less than the pollutant mobility criteria applicable to such substance in a GA area multiplied by a release-specific dilution factor calculated in accordance with clause (iv) of this subparagraph; or

(II) TCLP or SPLP analysis for each substance is equal to or less than the groundwater protection criterion for such substance multiplied by a release-specific dilution factor calculated in accordance with clause (iv) of this subparagraph.

(ii) Conditions at the subject release area comply with the following requirements:

(I) NAPL is not present above the seasonal high water table as determined in accordance with subdivision (4) of this subsection;

(II) The water table is at least fifteen (15) feet above the surface of the bedrock;

(III) The downward vertical flow velocity of groundwater is equal to or less than the horizontal flow velocity; and

(IV) For each substance in groundwater, the background concentration is equal to or less than the groundwater protection criteria.

(iii) Written notice of the use of optional criteria calculated by an LEP under this subparagraph shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs and shall also include the calculation in clause (iv) of this subparagraph, value and basis of terms, and the infiltration rate and dilution factor from the following table, based on the geologic material and infiltration rate.

Geologic Material	Infiltration Rate (feet/year)
Stratified Drift	2.0
Till	0.5 - 1.0
Lacustrine Deposits	0.4

(iv) The release-specific dilution factor referred to in clause (i) of this subparagraph, shall be calculated using the following formula, and the value of terms referred to in clause (i) of this subparagraph shall be calculated using the following formula:

$$DF = (1 + \left(\frac{Kid}{IL}\right))(1 - F_{adj})$$

Term	Description	Value	Units
DF	Release-specific dilution factor	substance-specific	unitless
K	Hydraulic conductivity of the unconsolidated aquifer underlying the release area	calculated	ft/year
i	Horizontal hydraulic gradient	calculated	ft/ft
d	Aquifer mixing zone default value of 3 feet or a release-specific value calculated using: $d = (0.0112L^2)^{0.5} + d_\alpha[1 - e^{\left(-\frac{LI}{Kid_\alpha}\right)}]$	3, or as otherwise calculated	ft
dα	Aquifer thickness	as determined from boring logs	ft
I	Infiltration rate, as identified in section 22a-134tt-9(c)(3)(B)(iii) of the RBCRs	calculated	ft/year
L	Length of the release area parallel to the direction of groundwater flow	as measured	ft
F_{adj}	Background concentration for groundwater divided by the groundwater protection criteria for the subject substance or, where the background concentration for groundwater cannot be	calculated	ug/L

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Term	Description	Value	Units
	quantified, one half the laboratory reporting limit for the subject substance divided by the groundwater protection criteria for the subject substance		

(4) Determining the Presence of NAPL in Soil

For the purpose of this subsection, the presence of NAPL in soil shall be determined using either:

(A) The following equation where the variables in the equation are assigned the values in the Table following the equation:

$$C_{NAP} = (S/2\rho_b)(K_d\rho_b + \theta_w + H'\theta_a)$$

Term	Description	Value	Units
C_{NAP}	Concentration of an organic substance at which or above which such substance may be present in a non-aqueous phase	calculated	mg/kg
S	Effective solubility	substance-specific	mg/L
ρ_b	Dry soil bulk density	1.5 or the lowest value measured at the subject release area	kg/L
K_d	Soil-water partition coefficient, which is calculated using $Kd = K_{OC}*f_{OC}$	calculated	L/kg
K_{OC}	Soil organic carbon-water partition coefficient	substance-specific	L/kg
f_{OC}	Fraction organic carbon of soil	0.006 or the lowest value measured at the subject release area	g/g
θ_w	Water-filled soil porosity L_{water}/L_{soil}	0.15 for unsaturated soil or 0.43 for saturated soil	L_{water}/L_{soil}
θ_a	Air-filled soil porosity L_{air}/L_{soil}	0.28 for unsaturated soil or 0.0 for saturated soil	L_{air}/ L_{soil}
H'	Henry's law constant (dimensionless)	H x 41 where 41 is a conversion factor	unitless
H	Henry's law constant	substance-specific	atm-m^3/mol

(B) The commissioner may approve or deny in writing a request for an alternative to the equation in subparagraph (A) of this subdivision to determine the presence of NAPL in soil. Such proposed alternative methods may be based upon emerging technologies and

approaches for which guidance, a standard, or an industrial code has been published by a regulatory agency, governmental advisory group, or other recognized professional organization. A request under this subdivision shall be submitted to the commissioner on a form prescribed by the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include any other information that the commissioner deems necessary to evaluate such request. Any approval by the commissioner may specify conditions necessary to protect human health and the environment.

(5) Conditional Exemptions to Pollutant Mobility Criteria

(A) Environmentally Isolated Soil

Polluted soil at a release area above the seasonal high water table is not required to be remediated to the pollutant mobility criteria, provided that:

(i) Such soil does not contain substances that are a continuing source of pollution;

(ii) Regardless of groundwater classification, if such soil contains volatile organic substances in excess of GA area pollutant mobility criteria, the concentrations of such substances have been reduced or immobilized to the maximum extent prudent;

(iii) An EUR is in effect for the subject area, which restriction shall:

(I) Prohibit infiltration of liquid into such soil;

(II) Require compliance with clause (i) and, if applicable, clause (ii) of this subparagraph; and

(iv) The EUR specified in clause (iii) of this subparagraph shall also;

(I) Require that any building that renders soil environmentally isolated consists of a roof and structural walls that prevent infiltration of liquid into the soil beneath the building footprint, and prohibit removal of such building; or:

(II) Require that the use of a permanent structure that renders soil environmentally isolated and prevents infiltration of liquid into the soil beneath the structure's footprint has been approved in writing by the commissioner and prohibit the removal of such structure.

(B) Polluted Material

(i) Polluted material at a release area is not required to be remediated to the pollutant mobility criteria, provided that:

(I) The pollutant mobility criteria in such polluted material is exceeded solely as a result of the presence of coal ash, wood ash, coal fragments, coal slag, coal clinkers, asphalt paving fragments, or any combination thereof;

(II) Such polluted material is not polluted with any volatile organic substances that exceed the applicable pollutant mobility criteria;

(III) Such polluted material does not exceed the applicable soil vapor volatilization criteria, or if it does, all such polluted material is under a building in accordance with section 22a-134tt-10(c)(3) of the RBCRs, a permanent structure approved in writing by the commissioner, or an engineered control in compliance with subsection (f)(2)(B) of this section;

(IV) Such polluted material has achieved compliance with the direct exposure

criteria in section 22a-134tt-9(b) of the RBCRs;

(V) Such polluted material is not affecting and will not affect the quality of an existing use of groundwater, including, but not limited to, a potential public water supply resource or an aquifer protection area;

(VI) A public water supply distribution system is available within two hundred (200) feet of the parcel on which polluted material is located and within two hundred (200) feet of all parcels adjacent thereto; and

(VII) The placement of the polluted material used as fill was not prohibited by law at the time of placement.

(ii) This subparagraph shall apply only to polluted materials identified in clause (i) of this subparagraph and releases from such materials. It shall not apply to releases that are not from polluted materials, even if such releases are in the same location as the polluted materials identified in clause (i) of this subparagraph.

(C) Soil Subject to Infiltration

Polluted soil at a release area polluted with substances, other than volatile organic substances that exceed DEC or PMC, is not required to be remediated to the pollutant mobility criteria, provided that at such release area:

(i) Eighty (80) percent or more of the mass of the substances remaining at the release area has been subject to infiltration;

(ii) Infiltration was not obstructed by anthropogenic features, for at least five (5) years;

(iii) Groundwater monitoring complies with the requirements of section 22a-134tt-10(h)(1) of the RBCRs; and

(iv) The laboratory analytical results for all groundwater sample events collected as specified in section 22a-134tt-10(h)(3) of the RBCRs are equal to or less than the following:

(I) For a GA area, an aquifer protection area, or groundwater area used as a source for either a private or public drinking water supply located in a GB area, groundwater protection criteria and the surface-water protection criteria or, if applicable, the water quality criteria; or

(II) For a GB area, other than a GB area specified in subclause (I) of this clause, the surface-water protection criteria or, if applicable, the water quality criteria.

(D) Conditional Exemption for Incidental Sources

Soil at a release area polluted with metals, petroleum hydrocarbons, or semi-volatile organic substances is not required to be remediated to the pollutant mobility criteria for such substances, provided such pollution is the result of:

(i) An incidental release due to the normal operation of motor vehicles, not including refueling, repair or maintenance of a motor vehicle; or

(ii) Normal paving and maintenance of a consolidated bituminous concrete surface provided such bituminous concrete surface has been maintained for its intended purpose.

(E) Conditional Exemption for Soil Polluted with Pesticides

Soil polluted with pesticides at a release area as a result of the application of pesticides at such release area is not required to be remediated to the pollutant mobility criteria, provided that a determination has been made that such pesticides are present solely as a result of the application of pesticides and:

(i) Compliance with the direct exposure criteria or the requirements in subsection (b)(6) of this section has been achieved; and

(ii) Compliance with the groundwater standards specified in section 22a-134tt-10(a) of the RBCRs or the requirements of section 22a-134tt-10(g) of the RBCRs has been achieved.

(6) Pollutant Mobility Criteria for Additional Polluting Substances

(A) Substances at a particular release area for which pollutant mobility criteria are not specified in section 22a-134tt-App3 of the RBCRs shall be remediated to background concentration or to criteria obtained pursuant to this subdivision. A request under this subdivision shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include:

(i) A proposed risk-based pollutant mobility criteria for each substance calculated in accordance with section 22a-134tt-App8 of the RBCRs, as applicable to the groundwater classification of the release area;

(ii) A method for determining compliance with each criteria;

(iii) The laboratory reporting limit for each substance; and

(iv) Any information demonstrating whether a proposed criteria will ensure that soil water at such release area does not exceed:

(I) In a GA area, the groundwater protection criteria; or

(II) In a GB area, the groundwater protection criteria multiplied by a dilution factor of ten (10).

(B) The commissioner may approve or deny in writing a request made under subparagraph (A) of this subdivision. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that the requirements of this subdivision have been satisfied and that the proposed pollutant mobility criteria will be protective of human health and the environment.

(C) Unless prohibited in writing by the commissioner, criteria approved by the commissioner pursuant to subparagraph (A) of this subdivision, may be the subject of a request for alternative criteria under subsection (d)(3)(A) of this subsection.

22a-134tt-9(d) Alternative Soil Criteria and Alternative Dilution or Dilution Attenuation Factor

(1) Information Required in a Request for Approval of Alternative Soil Criteria

A request for approval of the alternative direct exposure criteria or alternative pollutant mobility criteria at a particular release area may be submitted to the commissioner under this subsection. Any such request shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, including any additional information specified in subdivisions (2) or (3) of this subsection, as applicable, and shall also include:

(A) A detailed description of any other release area located on the same parcel as the subject release area and whether such other release area is affected or potentially affected by the subject release area, or is affecting or may potentially affect the subject release area; and

(B) When an EUR is required under this subsection, the acknowledgement and consent of the owner of the subject area to such alternative direct exposure criteria.

(2) Commissioner Approval of Alternative Release-Specific Direct Exposure Criteria

With respect to a substance, except PCBs, for which direct exposure criteria are specified in section 22a-134tt-App2 of the RBCRs or approved in writing by the commissioner pursuant to section 22a-134tt-9(b)(7) of the RBCRs, the commissioner may approve or deny in writing a request for an alternative release-specific direct exposure criteria or an alternative method for determining compliance with such criteria.

(A) For substances in soil at a release area, no request shall be approved unless it is demonstrated to the commissioner's satisfaction that:

(i) The application of such alternative direct exposure criteria or method of compliance will protect human health and the environment from the risks associated with direct exposure to polluted soil;

(ii) The concentration of each carcinogenic substance in such soil is equal to or less than a 1×10^{-6} excess lifetime cancer risk level and the concentration of each non-carcinogenic substance in such soil does not exceed a hazard index of 1;

(iii) For a release area polluted with ten (10) or more carcinogenic substances, the cumulative excess lifetime cancer risk for all carcinogenic substances in such soil with the same target organ is equal to or less than 1×10^{-5}; and

(iv) For a release area polluted with ten (10) or more non-carcinogenic substances, the cumulative hazard index is equal to or less than 1 for non-carcinogenic substances in such soil with the same target organ.

(B) A request for approval of direct exposure criteria or method of compliance shall include a risk assessment prepared in accordance with the most recent EPA Risk Assessment Guidance for Superfund, or other risk assessment method approved by the commissioner.

(C) Any approval of the commissioner under this subdivision may require that an EUR is or will be in effect for the subject area, which restriction shall require compliance with any conditions specified by the commissioner when issuing such approval.

(3) Commissioner Approval of Alternative Release-Specific Pollutant Mobility Criteria

(A) Alternative Release-Specific Pollutant Mobility Criteria

With respect to substances for which pollutant mobility criteria are specified in section 22a-134tt-App3 of the RBCRs or approved by the commissioner pursuant to subsection

(c)(6) of this section, the commissioner may approve or deny in writing a request for an alternative release-specific pollutant mobility criteria or an alternative method for determining compliance with such criteria. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that application of such alternatives:

(i) For a substance in soil located in a GA area, will ensure that soil water at the release area is equal to or less than the groundwater protection criteria for such substance; or

(ii) For a substance in soil located in a GB area, will ensure that the groundwater plume, after dilution resulting from infiltration on the parcel, is equal to or less than the groundwater protection criteria for such substance.

(B) Alternative Release-Specific Dilution or Dilution Attenuation Factor

With respect to substances for which pollutant mobility criteria are specified in section 22a-134tt-App3 of the RBCRs or approved by the commissioner pursuant to subsection (c)(6) of this section, the commissioner may approve or deny in writing a request for an alternative release-specific dilution or dilution attenuation factor. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that application of such dilution attenuation factor:

(i) For a substance in soil located in a GA area, will ensure that the release area will not degrade groundwater quality and thereby prevent the achievement of the groundwater criteria or background concentration, in accordance with section 22a-134tt-10 of the RBCRs; or

(ii) For a substance in soil located in a GB area, will ensure that the soil water at the release area will not cause the groundwater at the nearest downgradient parcel boundary to exceed the groundwater protection criteria for each substance.

(C) Condition for Approval

For any request for approval of alternative pollutant mobility criteria or alternative dilution or dilution attenuation factor specified in this subdivision, alternative groundwater criteria shall not be used for the same substance for which alternative soil criteria is requested.

(4) LEP Calculation and Use of Alternative Release–Specific Pollutant Mobility Criteria

With respect to substances for which pollutant mobility criteria are specified in section 22a-134tt-App3 of the RBCRs, alternative release–specific pollutant mobility criteria for a release area may be calculated by an LEP in accordance with section 22a-134tt-App9 of the RBCRs, provided that:

(A) The calculated alternative pollutant mobility criteria shall not exceed one thousand (1,000) mg/kg in a GA area or ten thousand (10,000) mg/kg in a GB area;

(B) Collection of representative groundwater samples and the laboratory analytical results of such groundwater samples used to determine compliance with any such alternative criteria shall be conducted in accordance with section 22a-134tt-10(h) of the RBCRs. An alternative criteria under this subdivision shall not be used if any groundwater sample

results are equal to or greater than:

(i) The groundwater protection criteria in section 22a-134tt-App4 of the RBCRs, if the subject release area is in a GA area, an aquifer protection area, or an area where groundwater is used as a source of either private or public drinking water supply;

(ii) Either the surface-water protection criteria in section 22a-134tt-App5 of the RBCRs or, if required under section 22a-134tt-10(a)(3) of the RBCRs, the water quality criteria; and

(iii) The volatilization criteria in section 22a-134tt-App6 of the RBCRs; and

(C) Notice of the use and derivation of the calculated criteria is submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs.

(5) LEP Calculated, Risk-Based Alternative Direct Exposure Criteria

Notwithstanding the requirements of this section, at any location at which there is polluted soil containing multiple polluting substances, an LEP may calculate and use risk-based alternative direct exposure criteria provided:

(~~i~~A) A parcel-wide investigation has been conducted and all discovered releases will be remediated pursuant to the cleanup standards sections;

(~~ii~~B) Remediation to such risk-based alternative direct exposure criteria ensures that the risk posed by such substances does not exceed:

(~~I~~i) A cumulative excess lifetime cancer risk of 10^{-5} for 2 or more carcinogenic substances;

(~~II~~ii) An excess lifetime cancer risk of 10^{-6} for each individual carcinogenic substance; and

(~~II~~iii) A cumulative hazard index of 1 for non-carcinogenic substances with the same target organ;

(~~iii~~C) No risk-based alternative direct exposure criteria may be calculated for PCBs pursuant to this subdivision; and

(~~iv~~D) Such risk-based alternative direct exposure criteria shall be calculated using a form prescribed by the ~~C~~commissioner.

22a-134tt-9(e) Determining Compliance with the Soil Criteria

(1) Direct Exposure Criteria

Unless an alternative method for determining compliance with direct exposure criteria has been approved in writing by the commissioner pursuant to subsection (d)(2) of this section, compliance with direct exposure criteria for each substance is achieved when either:

(A) All laboratory analytical results of soil samples from a release area are equal to or less than the applicable direct exposure criteria; or

(B) Except for PCBs, the ninety-five (95) percent upper confidence level of the arithmetic mean of a statistically representative sampling data set of all laboratory analytical results for such substance from a release area, consisting of ten (10) or more soil samples, is equal to or less than the applicable direct exposure criteria.

(2) Pollutant Mobility Criteria

Unless an alternative method for determining compliance with pollutant mobility criteria has been approved in writing by the commissioner pursuant to subsection (d)(3) of this section, compliance with pollutant mobility criteria for each substance is achieved when either:

(A) All laboratory analytical results of soil samples from a release area are equal to or less than the applicable pollutant mobility criteria; or

(B) Except for PCBs, the ninety-five (95) percent upper confidence level of the arithmetic mean of a statistically representative sampling data set of all laboratory analytical results for such substance from a release area, consisting of ten (10) or more soil samples that are located above the water table, is equal to or less than the applicable pollutant mobility criteria.

(3) Background Concentration

Compliance when remediating to the background concentration for a given substance in soil is achieved when:

(A) A representative sampling program is used to characterize the background concentration for soil that is:
(i) Of similar texture and composition;
(ii) Collected from the nearest location practicable outside the subject release area, as demonstrated to the satisfaction of the commissioner; and
(iii) Not affected by another discrete release of the same substance, or having an effect on the concentrations of the same substance for which a background concentration is determined; and either

(B) All laboratory analytical results of soil samples from the subject release area are equal to or less than the background concentration for soil, or

(C) A statistical comparison of the background concentrations in soil to the concentrations of substances in soil from the subject release area, results in a statistically significant similarity.

22a-134tt-9(f) Soil Criteria Variances

(1) Widespread Polluted Fill Variance

(A) Eligibility

Geographically-extensive polluted fill present at a parcel may be eligible for a variance from compliance with the pollutant mobility criteria in accordance with subparagraph (B) or (C) of this subdivision, provided that:

(i) The fill for which a variance is sought does not contain volatile organic substances in excess of pollutant mobility criteria;

(ii) Such fill 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;

(iii) For each substance in such fill, compliance with the direct exposure criteria in subsection (b) of this section has been achieved;

(iv) Any substances released into such fill subsequent to the placement of such fill that exceed the pollutant mobility criteria shall be remediated to concentrations equal to or less than the concentrations of those substances already within such fill;

(v) The placement of such fill was not prohibited by law at the time of placement;

(vi) Such fill shall remain on the parcel within the area for which such variance has been certified by an LEP in accordance with subparagraph (B) of this subdivision or approved in writing by the commissioner in accordance with subparagraph (C) of this subdivision; and

(vii) The owner of the parcel for which a variance is sought acknowledges and consents to such variance and the EUR required by subparagraph (D) of this subdivision.

(B) LEP Certification of a Widespread Polluted Fill Variance

A variance for widespread polluted fill in accordance with this subdivision may be certified in writing by an LEP, provided such LEP determines that a parcel complies with ~~that~~ the eligibility requirements in subparagraph (A) of this subdivision and the LEP demonstrates that the following requirements have been satisfied:

(i) Such fill extends over an area larger than ten (10) acres;

(ii) Such fill is located within the coastal boundary as defined in section 22a-94(b) of the Connecticut General Statutes;

(iii) Such fill is located within a GB area;

(iv) Such fill is not located within the drainage basin of a Class A stream, as identified in the Water Quality Standards;

(v) Compliance with the groundwater standards in section 22a-134tt-10 of the RBCRs has been achieved for each substance in groundwater;

(vi) Such fill is not hazardous waste, as defined in section 22a-448 of the Connecticut General Statutes;

(vii) Except in the case of a municipality, state, or federal agency, the person requesting the variance or the owner of the parcel subject to the variance did not place the fill on the subject parcel and is not affiliated with any person responsible for such placement through any direct or indirect familial relationship or any contractual, corporate, or financial relationship other than that by which such person's or such owner's interest in such parcel was conveyed or financed; and

(viii) Notice of the use of such variance shall be submitted to the commissioner in

accordance with section 22a-134tt-1(c) of the RBCRs.

(C) Commissioner Approval of a Widespread Polluted Fill Variance

The commissioner may approve or deny in writing a request for a variance under this subsection. No request shall be approved unless such request demonstrates to the commissioner's satisfaction the eligibility requirements in subparagraph (A) of this subdivision and the requirements of this subparagraph have been satisfied. A request for such variance shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include:

(i) Information demonstrating that a public water supply distribution system is available to all areas between the groundwater plume and the downgradient surface water discharge area;

(ii) The comparable cost of achieving compliance with pollutant mobility criteria without such variance;

(iii) The degree to which such fill exceeds pollutant mobility criteria;

(iv) The extent of such fill on the subject parcel that extends below the water table;

(v) The three-dimensional extent of such fill and the percentage of such fill occurring on the subject parcel; and

(vi) Information demonstrating that, except in the case of a municipality, state, or federal agency, the person requesting the variance or the owner of the parcel subject to the variance did not place such fill on the subject parcel or is not affiliated with any person responsible for the placement of such fill through any direct or indirect familial relationship or any contractual, corporate or financial relationship other than that by which such person's or such owner's interest in such parcel is to be conveyed or financed.

(D) Actions Required for Maintaining a Widespread Polluted Fill Variance

(i) No later than one hundred and eighty (180) days after an LEP certifies a widespread polluted fill variance under subdivision (1)(B) of this subsection, an EUR that complies with the requirements of this subsection and the EUR regulations shall be in effect for the subject area, which restriction shall prohibit any movement or reuse of such fill in a manner that does not comply with the RBCRs; or

(ii) No later than one hundred and eighty (180) days after a widespread polluted fill variance has been certified by an LEP or approved by the commissioner, a request for an ELUR or NAUL that complies with the requirements of this subsection and the EUR regulations shall be submitted to the commissioner. The EUR in effect for the subject area, shall:

(I) Prohibit any movement or reuse of such fill in a manner that does not comply with the RBCRs; and

(II) Require compliance with any condition imposed by the commissioner when approving a variance under this section.

(2) Engineered Control Variance

(A) Eligibility

A release area may be eligible for a variance from compliance with the direct exposure criteria, the pollutant mobility criteria, or both, under this subdivision through the use of an engineered control, provided that:

(i) The commissioner authorized the disposal of solid waste or polluted soil at the subject release area;

(ii) The soil at such release area is polluted with a substance for which remediation is technically impracticable;

(iii) The commissioner has determined that the removal of such substance or substances from such release area would create an unacceptable risk to human health;

(iv) An LEP, pursuant to subparagraph (B) of this subsection, has determined that the cost of remediating the polluted soil at the subject release area is significantly greater than the cost of installing and maintaining an engineered control for such soil and conducting groundwater monitoring that complies with section 22a-134tt-10(h) of the RBCRs at the subject release area; or

(v) The commissioner, pursuant to subparagraph (C) of this subsection, has determined that the cost of remediating the polluted soil at the subject release area significantly outweighs the risk to the environment and human health if the engineered control fails, causing the mobilization of a substance in the soil or human exposure to such substance, and the cost of remediating the polluted soil at the subject release area is significantly greater than the cost of installing and maintaining an engineered control for such soil and conducting groundwater monitoring that complies with section 22a-134tt-10(h) of the RBCRs at the subject release area.

(B) LEP Certification of an Engineered Control Variance

A variance from compliance with the direct exposure criteria may be available when an engineered control is used at a release area, provided an LEP certifies to the commissioner, in accordance with section 22a-134tt-1(c) of the RBCRs, that the eligibility requirements of subparagraph (A) of this subdivision and the following requirements have been satisfied:

(i) The engineered control is designed and constructed and will be maintained to meet the following specifications, as applicable:

(I) For non-paved surfaces consisting of shallow-rooted vegetation, mulch, or gravel, there shall be a minimum of one (1) foot of material as measured from the ground surface, provided that the concentrations of any substances in such material are equal to or less than the applicable direct exposure criteria. Such material shall be underlain by a demarcation layer, unless there is a pre-existing mature lawn for a minimum of three (3) years.

(II) For non-paved surfaces consisting of shrubbery, such shrubbery shall be underlain by a minimum of eighteen (18) inches of material as measured from the ground surface, provided that the concentrations of any substances in such material are equal to or less than the applicable direct exposure criteria. Such material shall be underlain by a demarcation layer, unless there is pre-existing mature shrubbery.

(III) For non-paved surfaces consisting of trees, such trees shall be underlain by a minimum of eighteen (18) inches of material, provided that the concentrations of any substances in such material are equal to or less than the applicable direct exposure criteria, measured vertically from the ground surface and extending horizontally to a radius equivalent to the full extent of the tree crown when mature. Such material shall be underlain by a demarcation layer, unless there are pre-existing trees.

(IV) For non-paved surfaces consisting of hardscape, a professional engineer shall sign and seal a plan and specifications indicating that the hardscape is appropriately designed for its intended use, with minimal maintenance and repair for fifteen (15) years, and is or shall be constructed with a minimum of nine (9) inches of a combined thickness of hardscape and sub-base. Such material shall be underlain by a demarcation layer, unless such hardscape is pre-existing.

(V) For paved surfaces, a professional engineer shall sign and seal a plan and specifications indicating that the engineered control is appropriately designed to work for such paved surface's intended use, with minimal maintenance and repair for fifteen (15) years, and shall be constructed with a minimum of two and one-half (2.5) inches of bituminous concrete with a minimum of six (6) inches of sub-base or a minimum of four (4) inches of reinforced concrete In addition any bituminous concrete or reinforced concrete less than five (5) feet wide or less than five hundred (500) square feet, the surface shall be underlain by a demarcation layer, unless such paved surface is pre-existing.

(VI) For a ground-mounted solar array anchored by a concrete ballast, the concrete ballast for the solar array shall be underlain with a minimum of one (1) foot of material and all remaining infrastructure associated with the solar array installation shall consist of a minimum of two (2) feet of material, provided that any substances in such are equal to or less than the applicable direct exposure criteria and all such material is underlain by a demarcation layer;

(ii) PCBs are not present in the soil in excess of the residential direct exposure criteria;

(iii) Consolidation of polluted soil under an engineered control is such that the soil does not exceed four (4) feet above the pre-consolidation elevation;

(iv) Measures are in place to ensure that the structural integrity, function, and effectiveness of the engineered control will be maintained. Such measures shall include, without limitation:

(I) Measures to prevent storm run-on or run-off from damaging the engineered control;

(II) Inspection conducted semi-annually. Such inspections may be done in conjunction with and satisfy the inspection requirements in the EUR Regulations; and

(III) Repairs to correct the effects of settling, subsidence, erosion, or other damaging events or conditions no later than sixty (60) days following identification of damage to the engineered control, provided if weather prevents repairs from being made within sixty (60) days of the identification of damage, as long as temporary repairs or measures have

been taken, repairs can be made as soon as the weather permits;

(v) The owner of the subject area on which such engineered control will be placed acknowledges and consents to such engineered control;

(vi) An EUR is, or will be, in effect for the subject area, which restriction shall:

(I) Prohibit the disturbance of the engineered control and the polluted soil; and

(II) Require compliance with the requirements of this subparagraph, except for clauses (vii) and (viii);

(vii) A copy of the required public notice that was posted in accordance with section 22a-134tt-7(d) of the RBCRs; and

(viii) Calculation of the required financial assurance in accordance with section 22a-134tt-7(c) of the RBCRs.

(C) Commissioner Approval of an Engineered Control Variance

The commissioner may approve or deny in writing a request for a variance under this subsection. No request shall be approved unless such request demonstrates to the commissioner's satisfaction that the eligibility requirements in subparagraph (A) of this subdivision and the requirements of this subparagraph have been met. A request for the commissioner's approval of an engineered control variance shall be submitted in accordance with section 22a-134tt-1(c) of the RBCRs. Any such request shall include a demonstration of compliance with the eligibility requirements of subparagraph (A) of this subdivision and include a detailed written report and plan which demonstrate that:

(i) Such engineered control is supported by specifications that are signed and sealed by a professional engineer and indicate that such engineered control will function with minimum maintenance, will promote drainage and minimize erosion of or other damage to such control, and will accommodate settling and subsidence of the underlying soil so as to maintain the control's functional integrity;

(ii) Measures are in place to ensure that the structural integrity, function, and effectiveness of the engineered control will be maintained. Such measures shall include, without limitation:

(I) Measures that ensure the continued effectiveness of the engineered control;

(II) Measures to prevent storm run-on or run-off from damaging the engineered control;

(III) Inspections, on a schedule approved by the commissioner. Such inspections may be done in conjunction with and satisfy the inspection requirements in the EUR Regulations; and

(IV) Repairs to correct the effects of any settling, subsidence, erosion or other damaging events or conditions no later than sixty (60) days following identification of damage to the engineered control, provided if weather prevents repairs from being made within sixty (60) days of the identification of damage, as long as temporary repairs or measures have been taken, repairs can be made as soon as the weather permits;

(iii) An EUR is or will be in effect for the subject area, which restriction shall:

(I) Prohibit any activity that could disturb either the engineered control or the polluted soil; and

(II) Except for clauses (iv) and (v) of this subparagraph, require compliance

with the requirements of this subparagraph and with all conditions imposed by the commissioner when approving such variance under this subdivision;

(iv) A copy of the required public notice that was posted in accordance with section 22a-134tt- 7(d) of the RBCRs;

(v) Calculation of the required financial assurance in accordance with section 22a-134tt-7(c) of the RBCRs;

(vi) The owner of the subject area on which such engineered control will be placed acknowledges and consents to such engineered control; and

(vii) In addition to clauses (i) to (vi), inclusive of this subparagraph:

(I) For a variance from direct exposure criteria, such engineered control shall be designed, constructed, and will be maintained, to physically isolate polluted soil from human contact with such soil;

(II) For a variance from pollutant mobility criteria, such engineered control shall be designed, constructed, and will be maintained, to minimize migration of liquids through polluted soil and reduce the permeability of such soil to a permeability of less than 10^{-6} cm/sec and groundwater monitoring at the release area shall be adequate to ensure that any substance migrating from the release area will be detected. In addition, if a variance under this subclause includes volatile organic substances, such engineered control shall be designed, constructed, and will be maintained, to ensure that any soil vapor migrating from the subject release area complies with all applicable volatilization criteria in accordance with section 22a-134tt-10(c)(3) of the RBCRs;

(III) For an engineered control that includes immobilization, including, but not limited to, the immobilization of NAPL, such engineered control shall be designed, constructed, and will be maintained, to reduce the migration of contaminants from the subject area, achieve compliance with groundwater criteria, and reduce the permeability of such soil to a permeability of less than 10^{-6} cm/sec or if permeability is reduced by immobilization that such permeability of impacted soil is approved in writing by the commissioner and at a minimum is adequate to immobilize contaminants in the soil to achieve compliance with applicable groundwater criteria; and

(IV) For an engineered control using paved surfaces or hardscape, the engineered control is based on specifications which demonstrate that the surface and sub-base materials are suitable for the intended use and are able to function with minimal maintenance and repair for fifteen (15) years and which specifications are signed and sealed by a professional engineer.

(D) Actions Required for Maintaining an Engineered Control Variance

After an engineered control has been certified by an LEP or approved by the commissioner pursuant to this subdivision, the following actions shall be taken within the timeframes prescribed:

(i) A Final Engineered Control Completion Statement shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, within one

hundred and twenty (120) days from completion of construction of the engineered control. Such statement shall be accompanied by as-built drawings, signed and sealed by a professional engineer, and certified by an LEP to demonstrate that the engineered control complies with the requirements of this subdivision;

(ii) A financial assurance mechanism shall be established within one hundred and twenty (120) days of completion of construction of the engineered control. Such financial assurance shall comply with the requirements of section 22a-134tt-7(c) of the RBCRs; and

(iii) A request for an EUR that complies with the requirements of this subsection and the EUR regulations shall be certified by an LEP or submitted to the commissioner, as applicable within one hundred and eighty (180) days of completion of construction of the engineered control.

(E) If the commissioner approves a request for an engineered control variance, under this subdivision, any such approval may include any additional measures which the commissioner deems appropriate to protect human health and the environment. Nothing in this subdivision shall preclude the commissioner from taking any action the commissioner deems necessary to protect human health or the environment if an approved engineered control fails.

(3) Public Roadways Variance

(A) The commissioner may grant a variance from compliance with the direct exposure criteria, the pollutant mobility criteria, or both, for polluted soil at a release area beneath an existing public roadway. Such variance, if approved, shall apply only so long as such polluted soil is beneath the public roadway. A request for such a variance shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs. Any such request shall also include a statement, in writing, from the entity that owns the public roadway, in which such entity acknowledges:

(i) Such entity's understanding of and consent to the variance requested under this subdivision;

(ii) That the polluted soil under and within the public roadway remains subject to the RBCRs, including, but not limited to, any conditions imposed by the commissioner when approving a variance under this subdivision; and

(iii) That if, at some future time, such public roadway is proposed to be removed, at least ninety (90) days before such public roadway is removed, notice of such removal shall be provided to the commissioner along with a proposed plan for the commissioner's review and approval of the investigation and remediation of all polluted soil for which a variance was obtained under this subdivision.

(B) Polluted soil at a release area is not eligible for a variance under this subdivision unless such soil is beneath an existing roadway.

(C) The commissioner may approve or deny in writing a request for a variance under this subdivision. No request shall be approved unless such request demonstrates to the commissioner's satisfaction that:

(i) The requirements of subparagraph (A) of this subdivision have been satisfied;

(ii) Removal of the polluted soil is neither feasible nor prudent; and
(iii) The granting of the variance will not endanger public health or the environment.

(D) The approval or any variance by the commissioner under this subdivision may include any conditions that the commissioner deems necessary to protect human health and the environment.

22a-134tt-9(g) Non-aqueous Phase Liquids

(1) NAPL shall be removed to the maximum extent practicable.

(2) The commissioner may approve or deny in writing a request for a variance from the requirement to remove NAPL to the maximum extent practicable in accordance with this subsection. No request shall be approved unless such request demonstrates to the commissioner's satisfaction that the requirements of subdivision (3) of this subsection have been satisfied. A request for the approval under this subsection shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs and shall include the acknowledgement and consent of all owners of the release area containing NAPL.

(3) A release area containing NAPL is eligible for a variance under this subsection only if:

(A) All NAPL for which a variance is sought has been contained or removed to the maximum extent prudent such that:
(i) There is no migration of such NAPL;
(ii) In the circumstance where NAPL contains PCBs, such PCBs shall be remediated in compliance with 40 CFR Part 761;
(iii) Compliance with applicable groundwater criteria for groundwater impacted by such NAPL has been achieved;
(iv) Where the NAPL contains volatile organic substances located at or above the seasonal low water table and is beneath a building without mitigation in accordance with section 22a-134tt-10(c)(3) of the RBCRs, compliance with volatilization criteria for soil vapor in accordance with section 22a-134tt-10(c)(2) of the RBCRs has been achieved; and

(B) An ELUR is or will be in effect for the subject area, which restriction shall:
(i) Except for ongoing remediation, prohibit the disturbance and exposure of NAPL;
(ii) Prohibit the construction of a building over such NAPL if there is NAPL containing volatile organic substances located at or above the seasonal low water table; and
(iii) Require compliance with subparagraph (A) of this subdivision.

(4) The requirements of this subsection shall not apply to NAPL subject to regulation under section 22a-449(d)-101 et seq. of the Regulations of Connecticut State Agencies. Any such NAPL shall remain subject to regulation under section 22a-449(d)-101 et seq. of the Regulations of Connecticut State Agencies.

22a-134tt-9(h) Use of Polluted Soil and Reuse of Treated Soil

Any soil excavated from or treated at a release area during remediation shall be managed as follows:

(1) Hazardous Waste

Treatment, storage, disposal and transportation of soil which is hazardous waste as defined pursuant to section 22a-448 of the Connecticut General Statutes shall be carried out in conformance with the provisions of section 22a-449(c)-101 to 119, inclusive, of the Regulations of Connecticut State Agencies, and any other applicable law;

(2) Special Waste

In accordance with section 22a-209-8 of the Regulations of Connecticut State Agencies, the commissioner may authorize polluted soil, which is not hazardous waste as defined pursuant to section 22a-448 of the Connecticut General Statutes, to be disposed of as special wastes as defined in section 22a-209-1 of the Regulations of Connecticut State Agencies.

(3) Polluted Soil

To be reused in any manner, polluted soil shall comply with all requirements of the RBCRs, shall not be placed below the water table, shall not be placed in an area subject to erosion, and shall comply with the requirements in subparagraph (A), (B) or (C) of this subdivision. Prior to the reuse of such soil, a notice or request for the reuse of such soil pursuant to subparagraph (A), (B) or (C) of this subdivision shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs. Any such notice or request shall also include a map showing the proposed location and depth of the placement of such soil, and shall also demonstrate compliance with subparagraph (A), (B), or (C) of this subdivision. The commissioner may approve or deny in writing any request submitted pursuant to subparagraph (B) or (C) of this subdivision. No request shall be approved unless such request demonstrates to the commissioner's satisfaction, compliance with the requirements of subparagraph (B) or (C) of this subdivision, as applicable, and that the proposed reuse of soil is protective of human health and the environment.

(A) Polluted soil from a release area may be reused on the same parcel from which it was excavated by providing notice to the commissioner only if the following requirements are met:

(i) (I) If the soil to be reused is polluted with substances at concentrations that are all equal to or less than the applicable direct exposure criteria in section 22a-134tt-App2 of the RBCRs or criteria otherwise approved by the commissioner pursuant to subsection (b)(7) of this section and the applicable pollutant mobility criteria in section 22a-134tt-App3 of the RBCRs or criteria otherwise approved by the commissioner pursuant to subsection (c)(6) of this section, such soil may be reused at any location on such parcel; or

(II) If the concentration of any substance in such soil exceeds the GA area pollutant mobility criteria in section 22a-134tt-App3 of the RBCRs or criteria otherwise approved by the commissioner pursuant to subsection (c)(6) of this section, such soil may be reused only in a GB area and placed over soil and groundwater that has already been affected by a release; and

(ii) Any soil to be reused is not placed under a building, if the polluted soil contains

volatile organic substances, other than volatile petroleum substances; and

(iii) Any soil to be reused does not contain PCBs.

(B) Polluted soil from a release area may be reused on the same parcel from which it was excavated, on a different parcel affected by the same release, or on an abutting parcel affected by a release of similar substances, only in the following circumstances:

(i) (I) If the polluted soil exceeds the direct exposure criteria or the pollutant mobility criteria applicable to the location on the parcel where the polluted soil will be reused or relocated, such polluted soil shall be rendered inaccessible pursuant to subsection (b)(3) of this section, environmentally isolated pursuant to subsection (c)(5)(A) of this section, or is subject to an engineered control pursuant to subsection (f)(2) of this section;

(II) If the polluted soil contains volatile organic substances, other than volatile petroleum substances, that are greater than the GA area pollutant mobility criteria in section 22a-134tt-App3 of the RBCRs or criteria otherwise approved by the commissioner pursuant to subsection (c)(6) of this section, or if such polluted soil is placed under a building that overlies a release area that has already been affected by a release of volatile organic substances, the requirements of section 22a-134tt-10(c)(3) of the RBCRs shall apply; or

(III) If the polluted soil contains PCBs, the commissioner has issued a written approval in accordance with section 22a-467 of the Connecticut General Statutes and subsection (f)(2) of this section; and

(ii) Prior to any reuse on an abutting parcel affected by the same release, or on a different parcel affected by a release of similar substances, written approval from the commissioner is required.

(C) Polluted soil from a release area may be reused on a parcel other than the parcel for which the polluted soil was excavated, only if prior to any reuse, the commissioner approves such reuse in writing and such soil to be reused:

(i) Is polluted with substances at concentrations equal to or less than the applicable direct exposure criteria in section 22a-134tt-App2 of the RBCRs or criteria otherwise approved by the commissioner pursuant to subsection (b)(7) of this section and the applicable pollutant mobility criteria in section 22a-134tt-App3 of the RBCRs or criteria otherwise approved by the commissioner pursuant to subsection (c)(6) of this section for the location on the parcel where the polluted soil will be relocated;

(ii) Is placed over soil and groundwater which has already been affected by a release of similar substances; and

(iii) Either:

(I) The cumulative depth of all reused polluted soil from all other parcels does not exceed four (4) feet above the pre-remedial grade; or

(II) The cumulative depth of all reused polluted soil from all other parcels does not exceed ten (10) feet, provided that a demonstration has been made to the commissioner's satisfaction that the depth greater than four (4) feet is required for redevelopment purposes and all slopes are designed, created, and will be maintained to prevent erosion.

(4) Natural Soil

Polluted soil may be used at any parcel of land if:

(A) Any substance is present therein in concentrations not exceeding naturally-occurring conditions in soil at the release area from which such soil is removed; and

(B) No other substance is detectable in such soil at a concentration greater than its laboratory reporting limit.

(5) Polluted Soil Containing Pesticides

Notwithstanding the provisions of subdivision (3) of this subsection, the commissioner may approve or deny in writing a request for agricultural reuse of soil containing pesticides excavated on one parcel for reuse on another parcel. Any request regarding the reuse of soil under this subdivision shall be made to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs and, if soil is being reused on a parcel different from the parcel from which it was excavated, shall include the acknowledgement and consent of the owner of the parcel receiving such soil. No reuse shall be approved under this subdivision unless the request for reuse demonstrates to the commissioner's satisfaction that:

(A) The concentration of substances in soil to be reused is equal to or less than the direct exposure criteria and the pollutant mobility criteria for all substances, other than pesticides;

(B) Such soil to be reused is excavated only from the soil horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral matter from which plants receive the most nutrients;

(C) Such soil is reused only at current agricultural properties;

(D) The pesticides in the soil to be reused are the result of the application of pesticides in accordance with accepted practices at the time of application; and

(E) Such reuse is protective of human health and the environment.

22a-134tt-9(i) Additional Remediation of Polluted Soil

Nothing in the RBCRs shall preclude the commissioner from taking any action necessary to prevent or abate pollution or to prevent or abate any threat to human health or the environment, including without limitation:

(1) Ecological Risk Assessment and Remediation

At any location at which, despite remediation in accordance with the RBCRs, the commissioner determines that there is a potential ecological risk, the commissioner may require that an ecological risk assessment be conducted and that additional remediation be conducted to

mitigate any risks identified in such assessment;

(2) Aquatic Life Assessment and Remediation

At any location at which polluted soil has eroded into a surface water body, the commissioner may require that the effect of such polluted soil on aquatic life be assessed and that remediation to protect or restore aquatic life and surface water quality from the effects of such polluted soil be undertaken; or

(3) Multiple Polluting Substances

At any location at which there is polluted soil containing multiple polluting substances, the commissioner may require additional remediation to ensure that the risk posed by such substances does not exceed:

(A) A cumulative excess lifetime cancer risk of 10^{-5} for ten (10) or more carcinogenic substances with the same target organ; and

(B) A cumulative hazard index of 1 for non-carcinogenic substances with the same target organ.

22a-134tt-9(j) Conditional Exemption for Historically Impacted Material

Notwithstanding any other requirement of this section, the purpose of this subsection is to allow for the on-site management of historically impacted material and to prohibit the relocation of such historically impacted material to a different parcel through a permit by rule.

(1) Applicability
An owner of a parcel may obtain a permit by rule to manage historically impacted material in place if:
(A) Only industrial/commercial activity takes place on the parcel;
(B) It has been determined, through tier characterization, that there is historically impacted material on the parcel and it is not prudent to remove such material;
(C) Not more than two years after discovery of a release consisting of historically impacted material, ~~each~~ significant existing releases have ~~has~~ been identified by representative sampling;
(D) Soil containing each identified significant existing release has been removed or rendered inaccessible in the time specified to complete an Immediate Action before submitting notification pursuant to subsection (e) of this section;
~~(D)~~(E) If the fill contains PCBs, all conditions of state and federal law regarding such PCBs have been satisfied, including any additional characterization as may be necessary; and
~~(E)~~(F) The owner complies with the provisions of this section.

(2) Requirements
(A) Owners shall:

(i) Ensure that historically impacted material on the parcel is not relocated to a different parcel.

(ii) Inspect the parcel every five years to determine whether the historically impacted material has been relocated and to identify each current use of the parcel.

(iii) If ownership of the parcel, or of a portion of the parcel, or an interest in the parcel that allows for the possession of such parcel or a part of such parcel is transferred, ~~the owner shall~~ notify the transferee of the permit by rule. If ownership of the parcel, or of a portion of the parcel, has been transferred, the new owner shall be covered by the permit by rule and shall comply with the requirements of this section.

(iv) Maintain only industrial/commercial activity on the parcel.

(v) Record an affidavit of facts in accordance with subsection (f) of this section.

(B) Failure to comply with any of the requirements in subdivision (1) of this subsection shall result in the termination of the permit by rule. Upon the termination of the permit by rule, the owner shall remediate the parcel to the applicable cleanup standard in accordance with section 22a-134tt-9 of the Regulations of Connecticut State Agencies.

(3) Termination of permit by rule due to change in use

If the parcel changes from an industrial/commercial activity as required in subdivision (1)(A) of this subsection~~section (b)(1) of this section,~~ to a residential activity, prior to the change in use, the owner shall report the historical release and remediate the parcel to the residential cleanup standard in accordance with 22a-134tt-9 of the RBCR~~s~~s. The owner shall notify the commissioner in writing as soon as practicable, but not later than 30 days after the change in activity. Such notification shall include a release closure report documenting that the parcel has been remediated to the residential cleanup standard.

(4) Notification

Notwithstanding the requirements of section 22a-134tt-6 of the Regulations of Connecticut State Agencies, not more than 1 year following discovery of a release or not more than 18 months after the effective date of the RBCRs, whichever is later, a notification that tier characterization has determined that the release is a release of historically impacted material and that such release will be managed pursuant to this provisions of this subsection shall be submitted on a form and in a manner prescribed by the commissioner. If such notification is submitted, submission of the tier checklist shall not be required, and such release shall be assigned to tier 2.

(5) Affidavit of facts

After making each determination as required by subdivision~~section~~ (2~~b~~) of this subsection, the owner shall record an affidavit of facts on the municipal land records in the town in which such release is located. Such affidavit shall include the following:

(A) A statement that there is polluted material on the parcel; and

(B) A statement that the owner has registered for the permit that will manage the polluted material in place.

(6) Closure report

A release remediation closure report that relies on the permit by rule to demonstrate compliance with the RBCRs shall be prepared and submitted to the commissioner pursuant to section 22a-134tt-12 of the Regulations of Connecticut State Agencies and contain the following:

(A) Evidence that the affidavit of facts is recorded on the municipal land records;

(B) Documentation of the limited characterization conducted to determine that the release is historically impacted material; and

(C) Documentation that no SERs are present in the historically impacted material subject to the permit by rule.

(7) Reporting

(A) Report to the commissioner on the status of the parcel every 5 years as required in ~~subsection~~ subdivision (2~~c~~)(A~~1~~)(~~B~~ii) of this subsection. The report shall be limited to the certification of current land use activity and that historically impacted material has not been relocated. Such report shall be maintained by the owner and made available for inspection upon request of the commissioner.

(B) The owner shall submit a notification to the commissioner within 15 days of any violation of a requirement in this section.

(8) Nothing in this section shall preclude the additional remediation of historically impacted material in accordance with the cleanup standards sections.

(9) If at any time the commissioner determines that work or activities conducted do not comply with the requirements of this subsection ~~or the RBCRs~~, including, but not limited to, the conduct of activities not authorized by this permit by rule, the commissioner shall consider any such work or activity unauthorized and may take any action authorized by section 22a-134ss of the Connecticut General Statutes, including action to require additional remediation of the historically impacted material.

22a-134tt-9(k) Conditional Exemption for Dredge Spoils

Notwithstanding the requirements of this section, the reuse~~disposal~~ of dredged ~~spoils~~ materials shall not be subject to:

(1) The direct exposure criteria, provided:

(A) A permit authorizing the upland reuse of ~~disposal~~ of dredged materials ~~spoils~~ has been issued by the commissioner pursuant to sections 22a-361 or 22a-403 of the Connecticut General Statutes;

(B) Dredge materials ~~spoils~~ are reused~~disposed of~~ in compliance with all relevant permit terms and conditions; and

(C) ~~Disposed~~ Reused dredged materials ~~spoils~~ are covered by one foot of crushed stone or another cover depth and material approved by the commissioner in a permit issued pursuant to sections 22a-361 or 22a-403 of the Connecticut General Statutes; and

(2) The pollutant mobility criteria, provided:

(A) The provisions of subdivision (1) of this subsection are complied with; and

(B) Dredged materials ~~spoils~~ are reused~~disposed of~~ in a location upgradient of the water body from which such dredge spoils have been removed.

Sec. 22a-134tt-10. Cleanup Standards for Groundwater

22a-134tt-10(a) Groundwater Criteria

Unless otherwise specified in the RBCRs, all substances in groundwater from a release shall be remediated to comply with the following, as applicable:

(1) Groundwater in a GA Area

Remediation of substances in groundwater in a GA area, including the portion of a groundwater plume migrating from a GB area into a GA area, shall result in the reduction of each substance to a concentration equal to or less than:

(A) The background concentration, except as provided in subsection (d) of this section, concerning groundwater protection criteria;

(B) Surface-water protection criteria or background concentration; and

(C) Volatilization criteria.

(2) Groundwater in a GB Area

Except for any portion of a groundwater plume migrating from a GB area into a GA area that is subject to the requirements of subdivision (1) of this subsection, remediation of substances in groundwater in a GB area shall result in the reduction of each substance to a concentration equal to or less than:

(A) (i) The surface-water protection criteria and volatilization criteria; or
(ii) The background concentration; and

(B) The groundwater protection criteria, where the existing use of groundwater is for drinking or other purposes, until the use of such groundwater for drinking or other purposes is permanently discontinued.

(3) Groundwater Plume Discharging to a Low-Dilution Surface Water Body

(A) Remediation of substances in groundwater shall result in the reduction of each substance to a concentration equal to or less than the criteria set forth in subparagraph (B) of this subdivision where such plume discharges to:
(i) A wetland;
(ii) A tidal flat;

(iii) An intermittent watercourse; or

(iv) A location where the areal extent of such groundwater plume occupies more than 0.5%, or other percentage approved in writing by the commissioner, of the upstream drainage basin of the surface water body to which such plume discharges. The percentage of the upstream drainage basin shall be measured from the intersection of the surface water body with such groundwater plume.

(B) Each substance in groundwater specified in subparagraph (A) of this subsection shall be remediated to a concentration that is either:

(i) Equal to or less than the applicable water quality criteria or, if there are no such criteria, to criteria approved by the commissioner in accordance with subsection (i)(2) of this section; or

(ii) Equal to or less than the alternative surface-water protection criteria calculated by an LEP in accordance with subsection (b)(2) of this section or approved by the commissioner in accordance with subsection (b)(3) of this section.

22a-134tt-10(b) Alternative Surface-Water Protection Criteria

With respect to substances in groundwater for which surface-water protection criteria are specified in section 22a-134tt-App5 of the RBCRs or approved by the commissioner pursuant to subsection (i)(2) of this section, alternative surface-water protection criteria may be calculated by an LEP or approved in writing by the commissioner, pursuant to this subsection. For each substance, only one subdivision of this subsection may be used to calculate or to request commissioner approval of alternative surface-water protection criteria. In addition, the commissioner may approve an alternative method of demonstrating compliance with surface-water protection criteria under this subsection.

(1) Groundwater Plume Discharge to a Watercourse

(A) For a substance in a groundwater plume that discharges to an inland surface watercourse classified as AA, A, or B in the Water Quality Standards, alternative surface-water protection criteria may be calculated. Any such calculation shall be performed by multiplying the applicable water quality criteria or, if there are no such water quality criteria, the criteria approved by the commissioner pursuant to subsection (i)(2) of this section, by a dilution factor derived from the following equation:

$$\mathrm{DF} = (0.25 \times \mathrm{Q99})/\mathrm{Q}_{\mathrm{plume}}$$

Terms	Description	Value	Units
DF	Release-specific dilution factor	substance-specific	unitless
Q99	Daily stream flow equal to or exceeded on 99 percent of days in a year	waterbody specific	ft^3/sec

Q_{plume}	Average daily discharge of the subject groundwater plume: $Q_{plume} = KiA$	calculated	ft^3/sec
K	Hydraulic conductivity	as measured	ft/sec
i	Hydraulic gradient	as measured	ft/ft
A	Area of discharge: A = h * w	as measured	ft^2
h	Thickness of groundwater plume at watercourse discharge area	as measured	ft
w	Width of groundwater plume at watercourse discharge area	as measured	ft

(B) For a substance in a groundwater plume that discharges to a coastal surface watercourse classified as SA or SB in the Water Quality Standards, alternative surface-water protection criteria may be calculated. Any such calculation shall be performed by multiplying the applicable water quality criteria, or if there are no such water quality criteria, the criteria approved by the commissioner pursuant to subsection (i)(2) of this section, by a dilution factor derived from the following equation:

$$\mathrm{DF} = \left((\mathrm{W} \times 0.25) \times \mathrm{L} \times \mathrm{D}\right)/\left(\mathrm{T} \times \mathrm{Q_{plume}}\right)$$

Terms	Description	Value	Units
D	Mean depth of the watercourse at mean low tide where the groundwater plume discharges	calculated	ft
DF	Release-specific dilution factor	substance-specific	unitless
L	Distance along which the groundwater plume intersects the watercourse discharge area	calculated	ft

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W	Cross-sectional distance from one shoreline to the other for the tidally influenced watercourse under low tide conditions: (0.25*watercourse width) where the maximum value for W is 100 feet	calculated	ft
T	Daily discharge duration	0.5	day
Q_{plume}	Average daily discharge of the subject groundwater plume: $Q_{plume} = KiA$	calculated	ft^3/sec *
K	Hydraulic conductivity	as measured	ft/day
i	Hydraulic gradient	as measured	ft/ft
A	Area of discharge: A = h * w	as measured	ft^2
h	Thickness of groundwater plume at watercourse discharge area	as measured	ft
w	Width of groundwater plume at watercourse discharge area	as measured	ft

** The units for Q_{plume} should be "ft^3/day".*

(C) For purposes of this subdivision, no alternative surface-water protection criteria shall exceed the maximum allowable alternative surface-water protection criteria specified in the table below, which is the water quality criteria multiplied by a dilution factor calculated pursuant to subparagraph (A) or (B) of this subdivision.

Distance from compliance point to nearest downgradient surface water	Maximum Allowable Alternative SWPC
Less than or equal to 100 feet	100 times WQC
Greater than 100 feet to 200 feet	200 times WQC
Greater than 200 feet to 300 feet	300 times WQC

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Greater than 300 feet to 400 feet	400 times WQC
Greater than 400 feet to 500 feet	500 times WQC
Greater than 500 feet to 600 feet	600 times WQC
Greater than 600 feet to 700 feet	700 times WQC
Greater than 700 feet to 800 feet	800 times WQC
Greater than 800 feet to 900 feet	900 times WQC
Greater than 900 feet	1,000 times WQC

(D) Written notice of the use of alternative surface water protection calculated by an LEP under this subdivision shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs and shall also include the calculation, value and basis of terms, and dilution factor used.

(2) Aquifer Dilution

(A) Alternative surface-water protection criteria may be calculated in accordance with subparagraph (B) of this subdivision, provided that:

(i) The portion of the groundwater plume for which such alternative criteria are calculated is at least five hundred feet from the nearest downgradient surface water; and

(ii) A dilution ratio for such groundwater plume is calculated pursuant to the following equation, and such ratio is equal to or greater than five:

$$DR = RC/DC$$

Terms	Description	Value	units
DR	Release-specific dilution ratio	calculated	unitless
RC	Groundwater concentration of a substance within the release area	as measured	ug/L
DC	Groundwater concentration no more than fifty feet downgradient from the location where the RC was collected	as measured	ug/L

(B) For substances in a groundwater plume that comply with subparagraph (A) of this subdivision, alternative surface water protection-criteria shall be calculated by multiplying the surface-water protection criteria, or if applicable the water quality criteria, by the dilution factor identified in the following table:

Distance to nearest downgradient surface water	Dilution factor
Greater than 500 feet to 600 feet	5
Greater than 600 feet to 700 feet	6
Greater than 700 feet to 800 feet	7
Greater than 800 feet to 900 feet	8
Greater than 900 feet to 1000 feet	9
Greater than 1,000 feet	10

(C) Written notice of the use of alternative surface-water protection criteria calculated by an LEP under this subparagraph shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs and shall also include the calculation, value and basis of terms, and dilution factor used.

(3) Commissioner Approval

The commissioner may approve or deny in writing a request for a release- specific alternative surface-water protection criteria or an alternative method of demonstrating compliance with surface-water protection criteria. No request under this subdivision shall be approved until it is demonstrated to the commissioner's satisfaction that such alternative criteria or alternative method for demonstrating compliance will protect all existing and proposed uses of surface water and is protective of human health and the environment. A request for such approval shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs. Upon receipt of such request the commissioner shall specify which of the following shall be provided to the commissioner:

(A) The Q99 stream flow rate of the surface water body into which the subject groundwater plume discharges;

(B) The identification of other surface water or groundwater discharges to the surface water body within one-half mile of the areal extent of the subject groundwater plume;

(C) A report on the instream water quality into which the subject groundwater plume discharges, including assessment and use attainment information in the most current integrated water quality report and any applicable total maximum daily loads; and

(D) The flow rate of the subject groundwater plume that discharges to the surface water body and the extent and degree of mixing of such discharge in such surface water.

22a-134tt-10(c) Volatilization Criteria

(1) Volatilization Criteria for Groundwater

(A) Residential Volatilization Criteria

Unless otherwise specified in this subsection, each volatile organic substance in groundwater shall be remediated to a concentration that is equal to or less than the residential volatilization criteria for groundwater.

(B) Industrial/Commercial Volatilization Criteria

Each volatile organic substance in groundwater may be remediated to a concentration that is equal to or less than the industrial/commercial volatilization criteria for groundwater, provided that the subject area above the groundwater polluted with volatile organic substances:

(i) Is not used for residential activity;

(ii) Has limited access only to those individuals working at or temporarily visiting for industrial/commercial activity; and

(iii) An EUR is in effect for the subject area or the entire parcel, which restriction shall:

(I) Prohibit residential activity;

(II) Require compliance with clause (ii) of this subparagraph.

(C) Applicability of Volatilization Criteria

Subdivision (1) of this subsection shall apply to:

(i) Volatile organic substances, other than volatile petroleum substances, within thirty (30) feet or less of the ground surface and within thirty (30) feet or less of the lowest portion of a building under which groundwater is polluted with such substances; and

(ii) Volatile petroleum substances, within ten (10) feet or less of the ground surface and within ten (10) feet or less of the lowest portion of a building under which groundwater is polluted with such substances.

(2) Alternative Demonstration of Compliance with Volatilization Criteria for Groundwater

(A) Soil Vapor Below a Building

For volatile organic substances in groundwater, remediation to the volatilization criteria specified in subdivision (1) of this subsection may not be required if the concentration of such substances in soil vapors below a building is equal to or less than:

(i) The residential volatilization criteria for soil vapor; or

(ii) The industrial/commercial volatilization criteria for soil vapor, provided that to use such criteria, the requirements of subdivision (1)(B) of this subsection are satisfied.

(B) Concentrations at the Water Table

For volatile organic substances in groundwater, remediation to the volatilization criteria specified in subdivision (1) of this subsection may not be required if the substances in

groundwater exceeding volatilization criteria are not at the water table and all of the laboratory analytical results from sampling the concentration of such substances at the water table, as seasonally demonstrated by groundwater monitoring representative of the uppermost portion of the water column are equal to or less than:

(i) The residential volatilization criteria for groundwater; or

(ii) The industrial/commercial volatilization criteria for groundwater, provided that to use such criteria, the requirements of subdivision (1)(B) of this subsection are satisfied.

(3) Exemption from Volatilization Criteria for Groundwater through Vapor Mitigation

For volatile organic substances in groundwater beneath an existing building, remediation to the volatilization criteria for groundwater specified in subdivision (1) of this subsection may not be required, provided that:

(A) Measures to prevent the migration of volatile organic substances into any overlying building have been implemented and submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs. The submittal shall also include:

(i) A brief description of the measures implemented to control the migration of such volatile organic substances into any overlying building;

(ii) A demonstration of the effectiveness of such control measures;

(iii) The plan for monitoring the effectiveness of such control measures over time and maintaining such control measures in good condition; and

(iv) A map showing all existing buildings, the areal extent of the groundwater plume, and the location of such control measures;

(B) The commissioner deems the measure proposed under subparagraph (A) of this subdivision acceptable and such measures have been and continue to be implemented and monitored; and

(C) An EUR, or other permanent control measures approved in writing by the commissioner, is or will be in effect for the subject area, which restriction or control measure shall:

(i) Prohibit removal of any building above such volatile organic substances in groundwater; and

(ii) Require compliance with:

(I) Control measures deemed acceptable by the commissioner under subparagraphs (A) and (B) of this subdivision; and

(II) Any condition specified by the commissioner in the approval of such permanent control measures under this subparagraph.

(4) Alternative Release-Specific Volatilization Criteria and Alternative Method of Demonstrating Compliance with Volatilization Criteria

With respect to volatile organic substances in groundwater or soil vapor for which volatilization criteria are specified in sections 22a-134tt-App6 or 22a-134tt-App7 of the RBCRs or approved by the commissioner pursuant to subsection (i)(3) of this section, the commissioner may approve or deny in writing a request for a release-specific alternative volatilization criteria. In addition, the commissioner may approve or deny in writing an alternative method of determining compliance

with such criteria.

(A) A request for approval of alternative volatilization criteria or for an alternative method of demonstrating compliance with volatilization criteria shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include:

(i) A description of the distribution and concentration of volatile organic substances in groundwater or soil vapor beneath any overlying building;

(ii) A description of any site-specific conditions, including, but not limited to, the value of all terms used and the source of any release-specific values.

(B) No request under subparagraph (A) of this subdivision shall be approved unless such request demonstrates to the commissioner's satisfaction that such criteria or alternative method of determining compliance is protective of human health and will ensure that volatile organic substances in groundwater or soil vapor do not accumulate in the air of any building at a concentration which:

(i) For any carcinogenic substance creates a risk to human health in excess of a 10^{-6} excess lifetime cancer risk level, and for any non-carcinogenic substance does not exceed a hazard index of one (1); and

(ii) For a groundwater plume or soil vapor polluted with ten (10) or more volatile organic substances, does not exceed a cumulative excess cancer risk level of 10^{-5} for carcinogenic substances, and for non-carcinogenic substances with the same target organ, the cumulative hazard index does not exceed one (1).

(C) Any approval of the commissioner under this subdivision, may require that an EUR is or will be in effect for the subject area, which restriction shall enumerate and require compliance with any conditions specified by the commissioner when issuing such approval.

(5) Exemption from Volatilization Criteria for Groundwater Through a No Build Restriction

For volatile organic substances in groundwater, remediation to the applicable volatilization criteria specified in subdivision (1) of this subsection may not be required if the following conditions are satisfied:

(A) The water table is less than thirty (30) feet below the ground surface;

(B) No building exists over the groundwater polluted with such substances at a concentration above applicable volatilization criteria;

(C) One of the following has been satisfied:

(i) An EUR is in effect for the subject area, which restriction shall;

(I) Prohibit construction of a building at the subject area; and

(II) Require compliance with subparagraph (B) of this subdivision;

(ii) The commissioner has approved in writing a request demonstrating that no building can reasonably be expected to be constructed over the subject groundwater; or

(iii) The commissioner has approved in writing a request demonstrating that natural

attenuation or other methods of remediation will, within five (5) years, reduce the concentration of volatile organic substances in such groundwater to a concentration equal to or less than:

(I) Residential volatilization criteria; or

(II) The industrial/commercial volatilization criteria, in which case subdivision (1)(B) of this subsection shall apply; and

(D) For any volatile organic substances, other than volatile petroleum substances, that exceed the applicable volatilization criteria within thirty (30) feet of any part of a building, the potential for a vapor intrusion pathway into such building shall be thoroughly evaluated. If such evaluation identifies a vapor intrusion pathway into such building, compliance with subdivision (3) of this subsection shall be required.

(6) Exemption from Volatilization Criteria Through Indoor Air Monitoring

For volatile organic substances in groundwater, remediation to the applicable volatilization criteria specified in subdivision (1) of this subsection may not be required for groundwater underlying an existing building. No request under subparagraph (A) of this subdivision shall be approved unless such request demonstrates to the commissioner's satisfaction that the conditions in the building overlying volatile organic substances in groundwater are ~~is~~ protective of human health and the environment.

(A) A request in accordance with this subdivision shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include:

(i) The acknowledgement and consent of the owner of the building for which approval of the air monitoring program is sought; and

(ii) An indoor air monitoring program and measures to control the level of any such volatile organic substances in the air of the subject building, including, but not limited to:

(I) A description of the distribution and concentration of volatile organic substances beneath the building;

(II) Any measures to be taken;

(III) The location of proposed monitoring points;

(IV) The proposed frequency of monitoring;

(V) The parameters to be monitored; and

(VI) The actions to be taken in the event such monitoring indicates that selected parameters are exceeded.

(B) The commissioner may approve or deny in writing a request submitted under this subdivision. Approval of any indoor air monitoring program pursuant to this subdivision shall require that an ELUR is or will be in effect for the subject area, which restriction shall require compliance with the indoor air monitoring program approved by the commissioner in writing, including any conditions imposed by the commissioner when approving such program.

(7) For the purpose of this subsection, "building" means any structure enclosed by a roof and walls that is capable of accumulating vapors from the subsurface.

22a-134tt-10(d) Groundwater Protection Criteria

(1) Exemption from Attaining Background Concentration in a GA Area

For substances in groundwater in a GA area, remediation to the background concentration may not be required if the concentration of each substance in a groundwater plume is equal to or less than the groundwater protection criteria and one of the following conditions exist:

(A) (i) A public water supply distribution system is available within two hundred (200) feet of the parcel on which the release area is located, within two hundred (200) feet of all adjacent parcels, and within two hundred (200) feet of any parcel within the areal extent of the groundwater plume;

(ii) Such groundwater plume is not located in an aquifer protection area; and

(iii) Such groundwater plume is not located within the area of influence of any public water supply well;

(B) Prior to any soil or groundwater remediation, the groundwater plume is a diminishing state groundwater plume; or

(C) Each substance in groundwater is remediated to a concentration equal to or less than the groundwater protection criteria, and further reduction of the concentrations of such substances to the background concentration cannot be achieved using sound engineering and hydrogeologic remediation practices.

(2) Alternative Groundwater Protection Criteria

With respect to substances in groundwater for which groundwater water protection criteria are specified in section 22a-134tt-App4 of the RBCRs3, or approved by the commissioner pursuant to subsection (i)(1) of this section, alternative groundwater protection criteria may be calculated by an LEP pursuant to subdivision (3) of this subsection or approved in writing by the commissioner pursuant to subdivision (4) or (5) of this subsection.

(3) LEP Calculation of Alternative Groundwater Protection Criteria

(A) For a substance in groundwater located in an area designated on the department's "Potential Alternative Groundwater Protection Criteria Map" in section 22a-134tt-App-10 of the RBCRs, alternative groundwater protection criteria may be calculated by an LEP, in accordance with subparagraph (B) or (C) of this subdivision, as applicable, provided that:

(i) Written notice of the use of alternative groundwater protection criteria is submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and any such notice includes:

(I) The alternative groundwater protection criteria calculation in accordance with subparagraph (B) or (C) of this subdivision; and

(II) Documentation demonstrating compliance with the requirements of this subdivision, including, but not limited to, a water supply well receptor survey;

(ii) Any alternative groundwater protection criteria shall not exceed:

(I) One hundred (100) times the groundwater protection criteria specified in section 22a-134tt-App4 of the RBCRs or approved by the commissioner in accordance with subsection (i)(1) of this section; and

(II) The residential volatilization criteria for groundwater specified in section 22a-134tt-App6 of the RBCRs or approved by the commissioner in accordance with subsection (i)(3) of this section;

(iii) No public or private drinking water supply well is present on any subject parcel within or adjacent to the areal extent of the portion of the subject groundwater plume in which a substance exceeds the background concentration;

(iv) A public water supply distribution system is available within five hundred (500) feet downgradient and two hundred (200) feet in any direction of the subject groundwater plume;

(v) All releases to soil that constitute a source of pollution resulting in the subject groundwater plume have been remediated so there is no longer an on-going source in soil impacting groundwater;

(vi) No alternative pollutant mobility criteria is used for the same substance for which an alternative groundwater protection criteria is used;

(vii) The subject groundwater plume is a diminishing state groundwater plume; and

(viii) The alternative groundwater protection criteria being calculated is not used for any portion of the subject groundwater plume located in bedrock unless approved by the commissioner in accordance with subdivision (5) of this subsection.

(B) For volatile organic substances, the following equation shall be used to calculate alternative groundwater protection criteria in accordance with this subparagraph:

$$\text{Alternative GWPC} = \frac{\text{TAC} \times \text{HV} \times \text{ER} \times \text{MC}}{\text{f} \times \text{WFR}}$$

Terms	Description	Value	Units
Alternative GWPC	Criteria in groundwater as alternative to groundwater protection criteria	calculated	µg/L
TAC	Target Indoor Air Concentration as approved by the commissioner in accordance with section 22a-134tt-App8 of the RBCRs	substance-specific	$\mu g/m^3$
f	Fraction of substance concentration volatilized	0.5	unitless
HV	House Volume	1,000	m^3

ER	Air exchange rate per day, as a time weighted average	134	times per day
MC	Mixing coefficient	0.33	none
WFR	Water Flow Rate	3,183	L/day

(C) For semi-volatile organic substances, inorganic substances and pesticides, the following equation shall be used to calculate alternative groundwater protection criteria in accordance with this subparagraph:

$$\text{Alternative GWPC} = \text{WSF} \times \text{RSC} \times \text{DEC} \times \text{UCF}$$

Terms	Description	Value	Units
Alternative GWPC	Criteria in groundwater as alternative to groundwater protection criteria	calculated	µg/L
WSF	Water to soil concentration factor, based upon accumulation of arsenic in soil	0.02	(mg/L)/ (mg/kg)
RSC	Relative source contribution to account for other background contributions t in soil	0.2	unitless
DEC	Residential direct exposure criteria in section 22a-134tt-App2 of the RBCRs or criteria approved by the commissioner pursuant to section 22a-134tt-9(b)(7) of the RBCRs	Substance Specific	mg/kg
UCF	Unit Conversion Factor	1,000	µg/mg

(4) Commissioner Approval of Alternative Groundwater Protection Criteria Not In Mapped Areas

For a substance in groundwater that is not located in an area designated on the department's "Potential Alternative Groundwater Protection Criteria Map" in section 22a-134tt-App10 of the RBCRs, the commissioner may approve or deny in writing a request for an alternative

groundwater protection criteria pursuant to this subparagraph. A request for such alternative groundwater protection criteria shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs. No request shall be approved unless such request demonstrates to the commissioner's satisfaction:

(A) Compliance with the requirements of clauses (i) to (viii), inclusive, of subdivision (3)(A) of this subsection;

(B) Calculation of proposed alternative groundwater protection criteria in accordance with subparagraphs (B) and (C) of subdivision (3) of this subsection, as applicable; and

(C) Compliance with clause (i) or (ii) of this subparagraph:

(i) Documentation from a public or private water company subject to regulation by the Department of Public Health demonstrating that public drinking water is available in the area where the subject groundwater plume is located, including a public water service area map on file with the Department of Public Health indicating that public water is available. This clause can be used only if;

(I) A public water supply distribution system has become available to any parcel within or adjacent to the areal extent of the portion of the groundwater plume not previously included on the department's "Potential Alternative Groundwater Protection Criteria Map" in section 22a-134tt-App10 of the RBCRs; and

(II) The subject groundwater plume is not located in an aquifer protection area or in an aquifer suitable for development of a public water supply

(ii) As a result of stratified drift aquifer conditions where the subject groundwater plume is located:

(I) The aquifer is not suitable for development of a public water supply due to the hydrogeology, depth, saturated thickness of the surficial materials or other hydrogeologic factors

(II) There is less than twenty (20) feet of saturated sand or sand and gravel in such aquifer or pumping more than fifteen (15) gallons per minute from such aquifer is not sustainable for public water use; and

(III) A cross-sectional map is provided showing the nature and distribution of surficial materials in such aquifer.

(5) Commissioner Approval of Alternative Groundwater Protection Criteria Where Any Portion of a Plume Is In Bedrock

For a substance in groundwater that is located in an area designated on the department's "Potential Alternative Groundwater Protection Criteria Map" in section 22a-134tt-App10 of the RBCRs, and where the portion of the groundwater plume is located in bedrock. A request for such alternative groundwater protection criteria shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs. No request shall be approved unless such request includes a map showing the horizontal and vertical extent of the bedrock groundwater plume that exceeds or could be expected to exceed the groundwater protection criteria and demonstrates to the commissioner's satisfaction;

(A) Compliance with the requirements of clauses (i) to (vii), inclusive, of subdivision (3)(A) of this subsection; and

(B) That the groundwater plume that exceeds the groundwater protection criteria will not pose a risk to human health and the environment.

22a-134tt-10(e) Technical Impracticability Variance

Groundwater may be eligible for a variance from compliance with the surface-water protection criteria or the groundwater protection criteria if the commissioner determines that compliance with such criteria is technically impracticable. No request for a variance shall be approved unless such request demonstrates to the commissioner's satisfaction that the requirements of this subsection have been satisfied.

(1) Request for Technical Impracticability Variance

(A) A request for a technical impracticability variance shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include:

(i) The substance and its concentration in the groundwater plume for which a variance is sought;

(ii) A map showing the horizontal and vertical extent of the groundwater plume that exceeds or could be expected to exceed surface-water protection criteria or groundwater protection criteria;

(iii) A demonstration of compliance with the soil standards in section 22a-134tt-9 of the RBCRs, and unless it is demonstrated that remediation of soil is technically impracticable, that polluted soil is not contributing to the groundwater plume;

(iv) Laboratory analytical results of all representative sampling before, during, and after the implementation of such actions and a description of all actions to remediate the groundwater plume;

(v) A feasibility study for achieving compliance with the criteria for which a variance is sought that evaluates remediation methods and demonstrates that achieving compliance with such criteria in a reasonable timeframe is technically impracticable;

(vi) A demonstration that the subject groundwater plume is in a steady-state or is a diminishing state groundwater plume, or that the subject groundwater plume is hydraulically controlled;

(vii) A map and description of the proposed TI zone, including the identification of existing groundwater withdrawals and potential for future withdrawal of groundwater on parcels within and adjacent to the proposed TI zone, and a demonstration that such withdrawals will not induce movement of the subject groundwater plume into uncontaminated areas or adversely affect the protectiveness of the proposed variance;

(viii) A study to determine the risks posed by the polluted groundwater that would remain if a variance was granted. If such study shows a risk or a potential risk to human health or the environment, a contingency plan to eliminate or minimize such risk shall be included;

(ix) Measures for long-term monitoring, operation, maintenance, and reporting, to ensure that the selected remedy remains effective in its protectiveness. Such measures shall:

(I) Demonstrate through groundwater monitoring that the groundwater plume is not increasing in size or concentration, or otherwise migrating

in a manner that would alter the risk assumptions of clause (viii) of this subparagraph;

(II) Confirm that unacceptable risks to human health and the environment do not occur and if such risk do occur, contingency actions will be taken to abate such risks, including, but not limited to, changes in land use; and

(III) Demonstrate through monitoring that any proposed operation and maintenance controls are working properly and remain effective; and

(x) The type and estimated amount of financial assurance to be posted in accordance with the requirements of section 22a-134tt-7(c) of the RBCRs.

(B) Based upon the information submitted in accordance with subparagraph (A) of this subdivision, the commissioner shall indicate, in writing, either that a groundwater plume does not qualify for a variance under this subsection, or alternatively, that the information specified in subdivision (2) of this subsection shall be submitted and may include conditions the commissioner deems appropriate to protect public health and the environment.

(2) Additional Information to be Submitted Upon Request

After submission of the information required in this subdivision, the commissioner may approve or deny in writing a request for a technical impracticability variance. Unless otherwise specified by the commissioner, the following information shall be submitted within one hundred and twenty (120) days of a request for such information by the commissioner. The information shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include:

(A) A demonstration that public notice has been provided in accordance with section 22a-134tt-7(d) of the RBCRs;

(B) A certification that written notice of the extent and degree of such pollution allowed to remain in place has been provided to each owner of record of each parcel within the TI zone, at the address for such owner on the last-completed grand list of the municipality where the parcel is located, and to the Director of Health of the municipality or municipalities in which the TI zone is located;

(C) If the commissioner has specified that an ELUR is required, the acknowledgement and consent from the owner of each parcel in the TI zone to such variance;

(D) A demonstration that financial assurance has been obtained in accordance with section 22a-134tt-7(c) of the RBCRs; and

(E) A demonstration, as specified by the commissioner in the written request for information under this subdivision, that either an ELUR is in effect on each parcel in the TI zone or other permanent control measure is in place. Any ELUR or other permanent control measure shall:

(i) Require compliance with the plan and measures specified in clauses (viii) and (ix) of subdivision (1)(A) of this subsection;

(ii) Include conditions the commissioner deems appropriate to protect public health

and the environment;

(iii) In addition to any requirement in the EUR Regulations, require the preparation of a report every five (5) years, which reviews the implementation and effectiveness of the variance approved by the commissioner, including, but not limited to, the impact of the use of groundwater on parcels adjacent to the TI zone. Such reports shall be maintained by the parcel owner who is requesting such variance until the technical impracticability variance is no longer required under this subsection and shall be provided to the commissioner upon request; and

(iv) In addition, for a variance from compliance with the groundwater protection criteria:

(I) Prohibit the use of groundwater for drinking or other purposes; and

(II) Prohibit the withdrawal of groundwater, unless a withdrawal has been approved in writing by the commissioner.

22a-134tt-10(f) Conditional Exemption for Incidental Sources

Compliance with the groundwater criteria specified in subsection (a) of this section is not required for the following substances in groundwater under the circumstances described in this subsection:

(1) Trihalomethanes or any other substance within drinking water released from a public water supply distribution system; or

(2) Metals, petroleum hydrocarbons, or semi-volatile organic substances, provided such substances are the result of:

(A) An incidental release due to the normal operation of motor vehicles, not including refueling, repair or maintenance of a motor vehicle; or

(B) Normal paving and maintenance of a consolidated bituminous concrete surface provided such bituminous concrete surface has been maintained for its intended purpose.

22a-134tt-10(g) Conditional Exemption for Groundwater Polluted with Pesticides

Compliance with the groundwater criteria specified in subsection (a) of this section is not required for pesticides in groundwater resulting from the application of pesticides at the release area, provided that:

(1) A determination has been made that such pesticides are present solely as a result of the application of pesticides;

(2) Compliance with the soil standards in section 22a-134tt-9 of the RBCRs has been achieved for any release of pesticides;

(3) The nature and approximate extent of pesticides in the groundwater has been evaluated;

(4) Potable water supply wells on the parcel where pesticides are in groundwater have been sampled and any exposure pathway to drinking water in such wells is eliminated or mitigated to the extent necessary to protect human health;

(5) A potable water supply well receptor survey identifying surrounding drinking water uses has been conducted;

(6) With respect to the parcel for which a demonstration of compliance with the RBCRs is being made, if pesticides in the groundwater on such parcel exceed the groundwater criteria notice is recorded on the municipal land records identifying such exceedance;

(7) If pesticides applied at a parcel, for which a demonstration of compliance with the RBCRs is being made, are present in groundwater on other parcels at concentrations exceeding the groundwater criteria, best efforts have been made to ensure that an EUR has been placed providing notice that pesticides in groundwater on such affected parcels exceeds the groundwater criteria. A certification stating such best efforts have been made shall be submitted with the notice required under subdivision (8) of this section; and

(8) Notice of compliance with the requirements of this subsection, including all documents demonstrating such compliance, is submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and is also submitted to the Director of Health of the municipality in which such pesticides in groundwater are located.

22a-134tt-10(h) Applying the Groundwater Criteria

Compliance with the standards for groundwater in this section, or standards specified in section 22a-134tt-9 of the RBCRs that refer to or require groundwater monitoring, shall be based upon groundwater monitoring conducted in compliance with this subsection.

(1) Groundwater monitoring shall be capable of determining:

(A) The conceptual site model for the release is valid;

(B) The background concentration at the nearest location upgradient of and unaffected by the release;

(C) The effectiveness of any soil remediation to prevent the pollution of groundwater by substances from the release area;

(D) The effectiveness of any measures to render soil environmentally isolated;

(E) The effectiveness of any remediation to eliminate or minimize any risks to human health and the environment associated with each release being remediated, including, but not limited to, any risks identified during remediation or identified in any risk assessment conducted in accordance with subsection (e)(2) of this section;

(F) Whether the concentration of a substance in groundwater is equal to or less than the applicable groundwater criteria for such substance;

(G) Whether a groundwater plume in a GB area interferes with any existing use of groundwater, including, but not limited to, a drinking water supply or an industrial, agricultural, or commercial use of groundwater; and

(H) The effectiveness of monitored natural attenuation to achieve compliance with groundwater criteria within a reasonable timeframe.

(2) Pre-requisites for Determining Compliance with Groundwater Criteria

The groundwater samples that will be used in determining compliance with an applicable criteria for a substance shall be collected after:

(A) All active remediation of soil and groundwater conducted to achieve compliance with pollutant mobility criteria and the applicable groundwater criteria for such substance have been concluded, other than natural attenuation of a groundwater plume or the recording of an EUR;

(B) The aquifer is no longer subject to the transient effects on hydraulic head attributable to withdrawal from or injection to groundwater for the purpose of remediation, or other effects due to site redevelopment or remediation;

(C) Any changes to the geochemistry induced by remedial actions or monitoring well construction methods that might influence the concentration of such substance have stabilized and equilibrium geochemical conditions are established; and

(D) The groundwater plume is a diminishing state groundwater plume.

(3) Determining Compliance with Groundwater Criteria

With the exception of monitoring conducted in accordance with subparagraph (B)(ii) or (C)(ii) of this subdivision, when determining compliance with applicable groundwater criteria for substances, a minimum of four (4) sampling events shall be performed which reflect seasonal variability on a quarterly basis, provided that all sampling events used to demonstrate compliance are performed within two (2) years prior to the most current sampling event used to determine compliance, and shall comply with this subdivision.

(A) Determining Compliance with Groundwater Protection Criteria or the Background Concentration

Compliance with the groundwater protection criteria or the background concentration for each substance in groundwater is achieved when sampling locations used for compliance are representative of the subject groundwater plume, and either:

(i) All laboratory analytical results for such substance at all sampling locations are equal to or less than the groundwater protection criteria or the background concentration, whichever is applicable; or

(ii) The ninety-five percent upper confidence level of the arithmetic mean of a statistically representative sampling data set consisting of all laboratory analytical results for such substance for no less than twelve consecutive monthly samples, calculated individually for each sampling location, is equal to or less than the groundwater protection criteria or the background concentration, whichever is applicable.

(B) Determining Compliance with Surface-Water Protection Criteria or Water Quality Criteria

Compliance with the surface-water protection criteria for each substance groundwater is achieved when sampling locations are representative of the subject groundwater plume, and either:

(i) For sample locations in that portion of such groundwater plume which is upgradient of the area at which such groundwater discharges to the receiving surface water body:

(I) All laboratory analytical results for such substance are less than or equal to the surface-water protection criteria or, if applicable, the water quality criteria; or

(II) The ninety-five (95) percent upper confidence level of the arithmetic mean of a statistically representative sampling data set consisting of all laboratory analytical results for such substance for no less than twelve (12) consecutive monthly samples, calculated individually for each sampling location, is equal to or less than the surface-water protection criteria or, if applicable, the water quality criteria; or

(ii) The ninety-five (95) percent upper confidence level of the arithmetic mean of a statistically representative sampling data set consisting of all laboratory analytical results for such substance in the entire groundwater plume, collected to reflect seasonal variability on a quarterly basis, is equal to or less than the surface-water protection criteria or, if applicable, water quality criteria.

(C) Determining Compliance with Volatilization Criteria

(i) Compliance with volatilization criteria for each substance in groundwater is achieved when the sampling is representative of the subject groundwater plume and all laboratory analytical results for such substance are equal to or less than the applicable volatilization criteria for groundwater.

(ii) Compliance with volatilization criteria for each substance in soil vapor is achieved when the sampling is representative of the subject soil vapor, including during the heating and cooling seasons, and the results of all laboratory analytical results for such substance are equal to or less than the applicable volatilization criteria for soil vapor.

(D) Alternative Methods to Determine Compliance with the Groundwater Criteria

The commissioner may approve or deny in writing a request for an alternative to the methods prescribed in this subdivision to determine compliance with an applicable groundwater criteria. Such proposed alternative methods may be based upon emerging technologies and approaches for which guidance, a standard, or an industrial code has been published by a regulatory agency, governmental advisory group, or other recognized professional organization. A request under this subdivision shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include any other information that the commissioner deems necessary to evaluate such request. Any approval by the commissioner may specify conditions necessary to protect

human health and the environment.

~~(4) Upgradient Groundwater Plume~~

~~(A) In the circumstance where it is demonstrated that substances in a groundwater plume from an upgradient parcel are migrating or have migrated onto the subject downgradient parcel, the concentrations of such substances in the groundwater plume at the downgradient parcel may be equal to or less than the concentrations of such substances found in the groundwater plume at the boundary between such parcels, provided that:~~

~~(i) Soil on the downgradient parcel has been remediated and compliance with the standards for soil in section 22a-134tt-9 of the RBCRs have been achieved;~~

~~(ii) At the downgradient parcel, all exposure pathways to drinking water supply wells and from volatilization of volatile organic substances into buildings have been eliminated or mitigated to the extent necessary to protect human health; and~~

~~(iii) Such substances are not already present in a groundwater plume at the downgradient parcel.~~

~~(B) In the circumstance where it is demonstrated that substances in a groundwater plume from an upgradient parcel are migrating onto a downgradient parcel and such substances have co-mingled with the same substances found in a groundwater plume at the downgradient parcel, in addition to the requirements in subparagraph (A) of this subdivision:~~

~~(i) The co-mingled groundwater plume on the downgradient parcel may be equal to or less than the concentrations of such substances found in the groundwater plume at the boundary between such parcels; and~~

~~(ii) All exposure pathways to drinking water supply wells and from volatilization of volatile organic substances into buildings at all parcels impacted by the groundwater plume emanating from the downgradient parcel have been eliminated or mitigated to the extent necessary to protect human health.~~

~~(C) Notice of the use of this provision as part of remediation shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs and shall demonstrate compliance with this subdivision.~~

~~(D) This section does not apply to substances in a groundwater plume on a downgradient parcel where such substances are not migrating onto such parcel from an upgradient parcel or such substances are different than those migrating onto such parcel.~~

22a-134tt-10(i) Additional Polluting Substances

(1) Groundwater Protection Criteria for Additional Polluting Substances

(A) Any substance in groundwater for which a groundwater protection criterion is not specified in section 22a-134tt-App4 of the RBCRs, shall be remediated to the background concentration or to criteria obtained pursuant to this subdivision. A request under this subdivision shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include:

(i) A proposed risk-based groundwater protection criteria for each substance

calculated in accordance with section 22a-134tt-App8 of the RBCRs;

(ii) The laboratory reporting limit for each substance;

(iii) A description of the organoleptic properties of each substance; and

(iv) Any information about the health effects such substance may cause due to exposure not accounted for in the proposed risk-based groundwater protection criteria.

(B) The commissioner may approve or deny in writing a request made under subparagraph (A) of this subdivision. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that the requirements of this subdivision have been satisfied and that the proposed groundwater protection criteria will be protective of human health and the environment.

(C) Unless prohibited in writing by the commissioner, criteria approved by the commissioner pursuant to subparagraph (B) of this subdivision, may be the subject of a request for alternative criteria under subsection (d)(2) of this section.

(2) Surface-Water Protection Criteria for Additional Polluting Substances

(A) Any substance in groundwater for which a surface water protection criterion is not specified in section 22a-134tt-App5 of the RBCRs or for which there are no water quality criteria, shall be remediated to the background concentration or to criteria obtained pursuant to this subdivision. A request under this subdivision shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include:

(i) A proposed risk-based surface-water protection criteria for each substance calculated in accordance with section 22a-134tt-App8 of the RBCRs;

(ii) The laboratory reporting limit for each substance;

(iii) A description of the bioaccumulative properties of each substance; and

(iv) Any information about the ecological effects each substance may cause due to exposure not accounted for in the proposed risk-based surface-water protection criteria.

(B) The commissioner may approve or deny in writing a request made under subparagraph (A) of this subdivision. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that the requirements of this subdivision have been satisfied and that the proposed surface-water protection criteria will be protective of human health and the environment.

(C) Unless prohibited in writing by the commissioner, criteria approved by the commissioner pursuant to subparagraph (B) of this subdivision, may be the subject of a request for alternative criteria under section 22a-134tt-10(b) of the RBCRs.

(3) Volatilization Criteria for Additional Polluting Substances

(A) Any substance in groundwater for which a volatilization criterion are not specified in sections 22a-134tt-App6 or 22a-134tt-App 7 of the RBCRs, shall be remediated to the background concentration or to criteria obtained pursuant to this subdivision. Such

request may include target indoor air concentrations and volatilization criteria to apply to such substances in groundwater or soil vapor. A request under this subdivision shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include:

(i) A risk-based target indoor air concentration or volatilization criteria for each substance calculated in accordance with section 22a-134tt-App8 of the RBCRs;

(ii) The laboratory reporting limit for each substance;

(iii) A description of the odor threshold of each substance; and

(iv) Any information about the health effects each substance may cause due to exposure not accounted for in the proposed risk-based volatilization criteria.

(B) Such volatilization criteria shall ensure that such target indoor air concentrations will not be exceeded above the polluted groundwater.

(C) The commissioner may approve or deny in writing a request made under subparagraph (A) of this subdivision. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that the requirements of this subdivision have been satisfied and that the proposed volatilization criteria will be protective of human health and the environment.

(D) Unless prohibited in writing by the commissioner, criteria approved by the commissioner pursuant to subparagraph (C) of this subdivision, may be the subject of a request for alternative criteria under section 22a-134tt-10(c)(4) of the RBCRs.

22a-134tt-10(j) Additional Remediation of Groundwater

Nothing in the RBCRs shall preclude the commissioner from taking any action necessary to prevent or abate pollution, or to prevent or abate any threat to human health or the environment. If the presence of any substance impairs the aesthetic quality of any groundwater which is or can reasonably be expected to be a source of water for drinking or other uses, additional remediation shall be conducted in order to reduce the concentration of such substance to a concentration appropriate for such use.

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Sec. 22a-134tt-11.~~—~~ Certification and Verification

(a) Release records requiring ~~C~~certification or ~~V~~verification

(1) An LEP shall render a verification for each of the following release records:

(A) An immediate action report, provided such report is generated as the result of an immediate action required by section 22a-134tt-5 of the RBCRs to be verified by an LEP;

(B) A tier assignment, prepared pursuant to section 22a-134tt-6(c) of the RBCRs;

(C) A change in tier assignment, prepared pursuant to section 22a-134tt-6(c) of the RBCRs; and

(D) A release remediation closure report~~,~~ prepared pursuant to section 22a-134tt-12 of the RBCRs, except that a release closure report that relies only upon section 22a-134tt-8 of the RBCRs shall not require verification by an LEP.

(2) A PEP shall provide a certification or an LEP may render a verification for each of the following release records:

(A) An immediate action report, provided such report is generated as the result of an immediate action that may be certified as complete by a PEP pursuant to section 22a-134tt-5(g) of the RBCRs; and

(B) A release remediation closure report~~,~~ prepared pursuant to section 22a-134tt-12 of the ~~Regulations of Connecticut State Agencies~~RBCRs, provided that such release is remediated pursuant to section 22a-134tt-8 of the RBCRs.

(b) Form of Certification or Verification.

(1) An LEP shall verify a release record by:

(A) Signing or electronically signing the release record;

(B) Affixing the LEP's seal to the release record, either physically or electronically; and

(C) Providing any other information specified on the form prescribed by the commissioner for such release record which shall include, but may not be limited to, the LEP's name, business address, telephone number and electronic mail address.

(2) A PEP shall certify a release record by:

(A) Signing or electronically signing the release record;

(B) Providing the number and expiration date of the permit issued pursuant to section 22a-454 of the Connecticut General Statutes to the PEP or under which the named PEP is permitted; and

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(C) Providing any other information specified on the form prescribed by the commissioner for such release record which shall include, but may not be limited to, the PEP's name, business address, telephone number and electronic mail address.

(c) Release Remediation Directed by the Commissioner

If the commissioner has directed the remediation of a release, the commissioner may, notwithstanding the requirements of the RBCRs sign any release record. The commissioners signature on any release record shall be considered equivalent to a verification rendered by an LEP or a certification provided by a PEP for all purposes.

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Sec. 22a-134tt-12. – Release Remediation Closure Report

A release to the land and waters of the state shall be remediated to the applicable standards identified in the cleanup standards sections. Upon achieving such standard, a release remediation closure report that complies with the requirements of this section shall be prepared using a form prescribed by the commissioner, and shall be submitted to the commissioner if submission is required pursuant to ~~subsection (c)~~ subdivision (3) of this section. A release remediation closure report shall:

(1) Include the following information:

(A) The name, mailing address, electronic mail address, and telephone number of each creator or maintainer of the release;

(B) The location of the release, including the property address and geographic information system coordinates;

(C) The date on which the release was discovered;

(D) The date on which the release was reported to the commissioner, if the reporting of such release was required by regulations adopted pursuant to section 22a-134tt or 22a-450 of the Connecticut General Statutes;

(E) The date on which the first tier assignment for such release was submitted to the commissioner, if such an assignment was required by section 22a-134tt-6 of the RBCRs; and

(F) Any other information specified by the form prescribed by the commissioner, including, but not limited to, any release records or supporting documentation required to be prepared by the RBCRs.

(2) Be verified by an LEP or, if authorized by sections 22a-134tt-7 and 22a-134tt-8(a)(2) of the RBCRs, certified by a PEP, pursuant to section 22a-134tt-8(b) of the RBCRs;

(3) Be submitted to the commissioner if:

(A) The release is an emergent reportable release; or

(B) The release was required to be reported to the commissioner pursuant to section 22a-134tt-3 of the RBCRs;

(4) Be retained by the person who created or maintained such release for not less than 10 years, and, if not submitted previously to the commissioner, be submitted to the commissioner not more than 30 days following a request in writing for submission; and

(5) Unless rejected by the department pursuant to section 22a-134tt-13 of the RBCRs, ~~a release remediation closure report prepared pursuant to this section shall~~ indicate that a release has been

remediated to the standards specified by Chapter 445b of the Connecticut General Statutes and that, if the land and waters of the state impacted by such release remains in the condition and subject to the controls specified by the release remediation closure report, no further action regarding such release shall be required.

(6) Notwithstanding the requirements of this section, and section 22a-134tt-11 of the RBCRs, may~~the commissioner may,~~ in the commissioner's sole discretion, be issued by the commissioner ~~issue a release remediation closure report~~ if the commissioner determines that such release has achieved the standards specified in the cleanup standards sections. A release remediation closure report issued by the commissioner shall have the same force and effect as a release remediation closure report certified by a PEP or verified by an LEP.

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Sec. 22a-134tt-13.~~–~~ Audits

(a) Audit of Release Records

(1) The commissioner may conduct an audit of any release record verified by an LEP or certified by a PEP to determine compliance with Chapter 445b of the Connecticut General Statutes and the RBCRs. Such audit may be a screening audit, a focused audit, or a full audit. If no audit is conducted, no notification ~~will be provided~~shall be required.

(2) For the purposes of this section:

(A) a release record shall be in compliance if it satisfies each relevant requirement of Chapter 445b of the Connecticut General Statutes and RBCRs;

(B) "screening audit" means the administrative review of records by the commissioner in the manner specified by subsection (b) of this section;

(C) "focused audit" means the review of 1 release record by the commissioner, including requesting additional supporting information regarding the remediation of a release in the manner specified by subsection (c) of this section; and

(D) "full audit" means the thorough review of many or all release records associated with a release initiated after submission of a release remediation closure report, including requesting additional supporting information regarding the remediation of a release in the manner specified by subsection (d) of this section.

(b) Screening Audit

(1) The commissioner may conduct a screening audit of any release record verified by an LEP or certified by a PEP. Except as provided herein, a screening audit shall result in an outcome specified by subparagraph (B) of this subdivision not more than 180 days after submission. A screening audit:

(A) May be commenced and conducted without notice to person who verified or certified the release record or the person who created or maintained the release that is the subject of such release record, provided the commissioner may, in their sole discretion, notify any such person at any time;

(B) May review and assess a release record in its entirety, or any part thereof, to determine compliance. The commissioner's review may result in one of the following outcomes:

(i) Acceptance of the release record;

(ii) Rejection of the release record, if the commissioner determines the release record is not in compliance; or

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(iii) If additional information is necessary to determine whether the release record is in compliance, commencement of a focused audit or full audit, pursuant to subsections (c) and (d) of this subsection.

(2) If the commissioner determines a release record is not in compliance, the commissioner shall:

(A) Reject the release record, and shall Notify the person who verified or certified the release record and the person who created or maintained the release in writing;

(B) Retain any fee associated with the release record; and

(C) Require submission of a new release record that is in compliance, and may set a deadline for the submission of such record, provided that any deadline set pursuant to this subparagraph shall not extend the deadline for any fee associated with the release.

(3) If additional information is required to determine whether a release record is in compliance, the commissioner shall notify the person who verified or certified the release record and the person who created or maintained the release in writing and shall commence a focused audit or full audit. A notice of audit, sent pursuant to subsection (e)(2) of this section, shall satisfy the requirements of this subdivision.

(c) Focused Audit

(1) The commissioner may conduct a focused audit of any release record. Except as provided herein, a notice of audit commencing a focused audit shall be sent not more than 180 days after submission of a release record, and such focused audit shall result in an outcome specified by subparagraph (D) of this subdivision not more than 18 months after submission of such release record. A focused audit may be commenced without conducting a screening audit. A focused audit:

(A) Shall be commenced by providing a notice of audit to the person who verified or certified the release record and the person who created or maintained the release that is the subject of such record. Such notice shall:

(i) State the reason for such focused audit, which may include but shall not be limited to, an issue identified during a screening audit or the random selection of a release record; and

(ii) Specify additional information necessary for the commissioner to determine if the release record is in compliance, and the date by which such information shall be submitted;

(B) May evaluate a release record in its entirety, may be limited only to specific issues identified in a screening audit, or may be limited to specific issues selected by the Commissioner in their sole discretion for random audits;

(C) If, at any time after commencing a focused audit, the commissioner determines additional information is necessary to complete the audit, which may include, but shall not be limited to, responses to technical questions on the approach used to remediate of the release, the commissioner shall request such information in writing, and specify a deadline for the submission of such information. If the requested information is not provided in the time

required, the commissioner may determine the release record is not in compliance and reject the release record.

(D) Shall result in one of the following outcomes:

(i) Acceptance of the release record;

(ii) Rejection of the release record; or

(iii) Commencement of a full audit conducted pursuant to subsection (d) of this section, if a release remediation closure report has been submitted for such release.

(2) If the commissioner determines a release record is not in compliance, the commissioner:

(A) Shall reject the release record, and shall notify the person who verified or certified the release record and the person who created or maintained the release in writing of the reasons for such rejection;

(B) Shall retain any fee associated with the release record;

(C) Shall require submission of a new release record that is in compliance, and may set a deadline for the submission of such record, provided that any deadlier set pursuant to this subparagraph shall not extend the deadline for any fee associated with the release; and
(D) May, in addition to rejecting the release record pursuant to this subdivision, commence a full audit of each release record associated with the release by providing a notice of audit pursuant to subsection (d) of this section.

(d) Full Audit

(1) Not more than 180 days following the submission of a release remediation closure report, or, if a focused audit has been initiated pursuant to subsection (c)(1)(A) of this section, at any time before such focused audit reaches an outcome specified in subsection (c)(1)(D) of this section, the commissioner may a commence a full audit of the remediation of such release by providing a written notice of audit. A full audit shall result in an outcome specified by subparagraph (D) of this section not more than two years after submission of a release remediation closure report. A full audit may be commenced without conducting a screening audit or focused audit. A full audit:

(A) Shall be commenced by providing a notice of audit to the person who verified or certified the release remediation closure report and the person who created or maintained the release that is the subject of such release remediation closure report. Such notice shall:

(i) State the reason for the full audit, which may include but shall not be limited to, an issue identified during a screening audit, focused audit, or the random selection of a release record; and

(ii) Specify additional information necessary to determine if each record associated with the release is in compliance and the date by which such information shall be submitted;

(B) May evaluate a release record in its entirety, may be limited only to specific issues identified in a screening audit, or may be limited to specific issues selected by the Commissioner in their sole discretion for random audits;

(C) If, at any time after commencing a full audit, the commissioner determines additional information is necessary to complete the audit, which may include, but shall not be limited to, responses to technical questions on the approach to remediation of the release, the commissioner shall request such information in writing, and specify a deadline for the submission of such information. If the requested information is not provided in the time required, the commissioner may determine that the remediation is not in compliance and reject one or more release records associated with such release.

(D) (i) Shall result in one of the following outcomes:

(I) Acceptance of the release remediation closure report; or

(II) Rejection of one or more release records associated with the release.

(ii) If the commissioner rejects one or more release records regarding the remediation of the release, the commissioner shall specify the reasons for such rejection in writing and shall retain any fee associated with such release record. Upon rejection of any release record associated with a release, a new release remediation closure report shall be required to be submitted, in addition to the submission of any other record rejected by the commissioner. The commissioner may specify a timeline for the submission of additional release records and supporting information, including a new release remediation closure report. All provisions of the RBCRs shall remain in full force and effect until such time as all required release records regarding the remediation of such release, including a new release remediation closure report, have been accepted by the commissioner.

(e) No Audit Letters

(1) Any person who submits a release remediation closure report may request that the commissioner issue a letter indicating that such release remediation closure report will not be subject to a focused or full audit if the commissioner determines that no such audit is necessary.

(2) A request for a letter pursuant to subdivision (1) of this subsection shall be made in writing, on a form prescribed by the commissioner. Any such request shall be accompanied by a non-refundable fee of 500 dollars, payable in a manner prescribed by the commissioner.

(3) The commissioner may determine that a focused or full audit of a release remediation closure report will not be conducted after conducting a screening audit or without conducting a screening audit. If a no audit letter is issued pursuant to subdivision (1) of this subsection without conducting a screening audit, no screening audit may be conducted after such letter is issued.

(4) If a no audit letter is requested pursuant to this subsection, the commissioner shall have a goal of determining whether to conducted a focused or full audit of the subject release remediation closure report not more than 90 days after it is submitted. The commissioner shall report on the rate at which

this goal is achieved in any report prepared pursuant to section 22a-134uu of the Connecticut General Statutes.

(fe) Reopened Verifications and Certifications

(1) Notwithstanding any provision of this section, at any time following the submission of a release record verified by an LEP or certified by a PEP, the commissioner may commence a focused or full audit when:

(A) the commissioner has reason to believe that a verification or certification was obtained through the submittal of materially inaccurate or erroneous information, or otherwise misleading information material to the verification, or that misrepresentations were made in connection with the submittal of the verification;

(B) a verification is submitted pursuant to an order of the commissioner, in accordance with section 22a-134ss of the Connecticut General Statutes;

(C) any post-verification monitoring, or operations and maintenance, is required as part of a verification and which has not been completed;

(D) a verification relies upon an environmental land use restriction, and such environmental land use restriction was not recorded on the land records of the municipality in which such land is located, in accordance with section 22a-133o of the Connecticut General Statutes and applicable regulations;

(E) the commissioner determines that there has been a violation of the provisions of sections 22a-134qq to 22a-134tt, inclusive, of the Connecticut General Statutes; or

(F) the commissioner determines that information exists indicating that the remediation may have failed to prevent a substantial threat to public health or the environment.

(2) Such focused audit or full audit shall be commenced by providing the notice specified in subsections (c)(1) and (d)(1) of this section, which shall also include a statement of the reasons for reopening such verification. A focused or full audit conducted pursuant to this subsection shall follow the procedures set out in subsection (c) and (d) of this section, except that such audit shall not be required to reach an outcome in the time specified in subsections (c)(1)(D) and (d)(1)(D)(i) of this section.

(fg) Verification Necessary After Rejection

If a release remediation closure report certified by a PEP is rejected, the commissioner may determine whether such release remains eligible for certification by a PEP.

(gh) Frequency of Audits

(1) The commissioner shall have a goal of conducting an audit of:

(A) 10 percent of the releases assigned to tier 1A at the time that such release was initially assigned to a tier;

(B) 20 percent of the releases assigned to tier 1B at the time that such release was initially assigned to a tier;

(C) 10 percent of the releases assigned to tier 2 at the time that such release was initially assigned to a tier; and

(D) 5 percent of the releases assigned to tier 3 at the time that such release was initially assigned to a tier.

(2) For the purposes of subdivision (1) of this subsection, such audit:

(A) Shall be conducted using the procedures specified in this section;

(B) May be a full audit of all release records associated with such release or a screening or focused audit of one or more release records associated with such release; and

(C) May be conducted after the submission of a release remediation closure report, or may be conducted at any time following the submission of a certified or verified release record regarding such release.

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Appendix 1 to the RBCRs

Tier Checklist

TIER CHECKLIST

Please fill out this form from the beginning each time tiering is conducted. If this is a re-tiering, please include a copy of the last submitted Tier Checklist. If the release complies with the cleanup standards, tiering may not be necessary, and closure documentation should be submitted. Refer to the Tiering Checklist Instructions for more information on how to fill out and submit this form properly. The address in the headers will automatically update upon printing or print-previewing.

DEEP Use Only	Date Received: Record #: Release ID #: Release ID #	

Part I: General Information

Parcel Name (current or former name)
Parcel Name

Parcel Street Address
Parcel Address

City/ Town: City/Town
State: **CT**
ZIP: 00000

This property is described in the land records of:

Tax Assessor Town
Tax Assessor Town

Lot/Parcel ID: Lot/Parcel
Block: Block
Map: Map

Licensed Environmental Professional (LEP)

Name
Name

Company
Company Name

Address
Address

City/Town: City/Town
State: State
Zip: 00000

Creator / Maintainer

Name of Signatory for Creator / Maintainer
Name

Creator / Maintainer
Creator/Maintainer

Address
Address

City/Town: City/Town
State: State
Zip: 00000

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Phone	Phone
Phone	Phone
E-mail	E-mail
E-mail	E-mail

Part II: Verification Information

This tier assignment verification pertains to the following release:

Release ID #	Date of Discovery	Release Area Designation
Release ID #	mm/dd/yyyy	Release Area Name

Tier Assignment ☐ **1A** ☐ **1B** ☐ **2** ☐ **3**

☐ This is an Initial Tier Assignment

☐ This is a Tier Reassignment

Previous Tier Assignment: ☐ 1A ☐ 1B ☐ 2

LEP Verification

"I verify in accordance with §22a-134tt-11(a)(1) and §22a-133v-1(z) of the Regulations of Connecticut State Agencies (RCSA), that this Tier Assignment has been prepared pursuant to 22a-134tt-6(c) of the RCSA."

LEP Signature

LEP Printed/Typed Name
Name

Date of LEP Signature

LEP Seal

LEP License #
Number

Creator / Maintainer Signature

"In accordance with § 22a-134tt-6 of the Regulations of Connecticut State Agencies, I submit this Tier Checklist that has been verified and sealed by a licensed environmental professional (LEP), and the attached documentation, which has been approved in writing by an LEP."

Creator / Maintainer Authorized Signature

Creator / Maintainer Authorized Signatory Printed/Typed Name
Name

Date of Creator / Maintainer Signature

Part III: Tier Determination

Tier 1A

Answer the following questions. Any box checked in the Tier 1A Indicator column at right designates the release as Tier 1A.

		Tier 1A Indicator
1. Receptors are known and documented		
1a. A scoping level ecological risk assessment has been completed.	☐ Yes	☐ No
1b. A drinking water receptor survey has been completed.	☐ Yes	☐ No
1c. A vapor intrusion receptor survey has been completed.	☐ Yes	☐ No
2. Does/did the release require Immediate Action under RCSA § 22a-134tt-5?	☐ No *(Skip to line 3)* ☐ Yes *(Proceed to 2a)*	
2a. Immediate Action requirements have been met	☐ Yes	☐ No
3. Tier characterization is complete.	☐ Yes	☐ No

If any boxes in this column are checked, stop here. This release is Tier 1A. Otherwise proceed to Tier 1B determination.

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Tier 1B

If any of the Tier 1A indicators above are checked, do not proceed with Tier 1B determination.

Answer the following questions. Any box checked in the Tier 1B Indicator column at right designates the release as Tier 1B.

		Tier 1B Indicator
1. Groundwater has been impacted by the release.	☐ No *(Skip to line 2)* ☐ Yes *(Proceed to 1a)*	
1a. Groundwater plume migrates off the source parcel.	☐ No *(skip to line 2)* ☐ Yes *(proceed to 1b)*	
1b. Off-site groundwater plume exceeds applicable groundwater criteria.	☐ No	☐ Yes
2. The scoping level ecological risk assessment identified potential exposure pathways.	☐ No *(skip to line 3)* ☐ Yes *(proceed to 2a)*	
2a. A screening level ecological risk assessment has been completed.	☐ Yes	☐ No
3. For releases that include volatile organic substances, a vapor intrusion pathway is present.	☐ No *(skip to line 4)* ☐ Yes *(Proceed to 3a)*	
3a. Groundwater complies with volatilization criteria provisions in RCSA § 22a-134tt-10(c) .	☐ Yes	☐ No
4. A drinking water receptor pathway is present.	☐ No *(skip to line 5)* ☐ Yes *(Proceed to 4a)*	
4a. Groundwater complies with GWPC provisions RCSA § 22a-134tt-10(d).	☐ Yes	☐ No
5. A Remedial Action Plan has been prepared.	☐ Yes	☐ No

If any boxes in this column are checked, stop here. This release is Tier 1B. Otherwise proceed to Tier 2 determination.

Tier 2

If any of the Tier 1A or 1B indicators above are checked, do not proceed with Tier 2 determination.

Answer the following questions. Any box checked in the Tier 2 Indicator column at right designates the release as Tier 2.

		Tier 2 Indicator
1. All potential receptor pathways have been eliminated or investigations demonstrated that there are no receptor pathways (note: if vapor intrusion or drinking water pathways have not been eliminated, the release must be Tier 1B per question 3 under Tier 1B).	☐ Yes	☐ No
2. A scoping or screening level ecological risk assessment identified the need for a site-specific ecological risk assessment	☐ No *(Skip to line 3)* ☐ Yes *(Proceed to 2a)*	
2a. A site-specific ecological risk assessment has been completed and ecological risk has been addressed.	☐ Yes	☐ No
3. Soil remediation is/was required.	☐ No *(Skip to line 4)* ☐ Yes *(Proceed to 3a)*	
3a. Soil impacted by the release complies with the soil standards (including recording necessary EURs).	☐ Yes	☐ No
4. Groundwater complies with the groundwater standards (including completion of any applicable groundwater compliance monitoring).	☐ Yes * ☐ No *(Proceed to 4a)*	
4a. The only groundwater remediation remaining is MNA. Information required by RCSA § 22a-134tt-6(c)(3) has been submitted.	☐ Yes	☐ No

If any boxes in this column are checked, stop here. This release is Tier 2. Otherwise proceed to Tier 3 determination.

*If the release complies with the cleanup standards, tiering may not be necessary.

Tier 3

If any of the Tier 1A, 1B, or 2 indicators above are checked, do not proceed with Tier 3 determination.

Answer the following questions. Any box checked in the Tier 3 Indicator column at right designates the release as Tier 3.

		Tier 3 Indicator
MNA is being conducted in accordance with RCSA § 22a-134tt-10(h)	☐ No *	☐ Yes

If any boxes in this column are checked, this release is Tier 3.

*If the release complies with the cleanup standards, tiering may not be necessary.

Part IV: Attachments

Check all that apply and attach appropriate documentation to this form:

☐ Attachment A – Previous Tier Checklist (if this is a re-tiering)

☐ Attachment B – Supporting Documentation (see RCSA § 22a-134tt-6(c)

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Appendix 2 to the RBCRs

Direct Exposure Criteria for Soil

Substance	Residential DEC in mg/kg (ppm)	Industrial/ Commercial DEC in mg/kg (ppm)
Volatile Organic Substances		
Acetone	500	1,000
Acrylonitrile	1.1	11
Benzene	21	200
Bromoform	78	720
2-Butanone(MEK)	500	1,000
Carbon tetrachloride	4.7	44
Chlorobenzene	500	1,000
Chloroform	100	940
Dibromochloromethane	7.3	68
1,2-Dichlorobenzene	500	1,000
1,3-Dichlorobenzene	500	1,000
1,4-Dichlorobenzene	26	240
1,1-Dichloroethane	500	1,000
1,2-Dichloroethane	6.7	63
1,1-Dichloroethylene	1	9.5
cis-1,2-Dichloroethylene	500	1,000
trans-1,2-Dichloroethylene	500	1,000
1,2-Dichloropropane	9	84
1,3-Dichloropropene	3.4	32
Ethylbenzene	500	1,000

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Substance	Residential DEC in mg/kg (ppm)	Industrial/ Commercial DEC in mg/kg (ppm)
Volatile Organic Substances		
Ethylene dibromide (EDB)	0.007	0.067

Substance	Residential DEC in mg/kg (ppm)	Industrial/ Commercial DEC in mg/kg (ppm)
Volatile Organic Substances		
Methyl-tert-butyl-ether	500	1,000
Methyl isobutyl ketone	500	1,000
Methylene chloride	82	760
Styrene	500	1,000
1,1,1,2-Tetrachloroethane	24	220
1,1,2,2-Tetrachloroethane	3.1	29
Tetrachloroethylene	12	110
Toluene	500	1,000
1,1,1-Trichloroethane	500	1,000
1,1,2-Trichloroethane	11	100
Trichloroethylene	56	520
Vinyl chloride	0.32	3
Xylenes	500	1,000

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Substance	Residential DEC in mg/kg (ppm)	Industrial/ Commercial DEC in mg/kg (ppm)
Semi-volatile Organic Substances		
Acenaphthylene	1,000	2,500
Anthracene	1,000	2,500
Benzo(a)anthracene	1	7.8
Benzo(b)fluoranthene	1	7.8
Benzo(k)fluoranthene	8.4	78
Benzo(a)pyrene	1	1
Bis(2-chloroethyl)ether	1	5.2
Bis(2-chloroisopropyl)ether	8.8	82
Bis(2-ethyl hexyl)phthalate	44	410
Butyl benzyl phthalate	1,000	2,500
2-chlorophenol	340	2,500
Di-n-butyl phthalate	1,000	2,500
Di-n-octyl phthalate	1,000	2,500
2,4-Dichlorophenol	200	2,500
Fluoranthene	1,000	2,500
Fluorene	1,000	2,500
Hexachloroethane	44	410
Hexachlorobenzene	1	3.6
Naphthalene	1,000	2,500
Pentachlorophenol	5.1	48
Phenanthrene	1,000	2,500
Phenol	1,000	2,500

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Pyrene	1,000	2,500
Substance	**Residential DEC in mg/kg (ppm)**	**Industrial/ Commercial DEC in mg/kg (ppm)**
Inorganic Substances		
Antimony	27	8,200
Arsenic	10	10
Barium	4,700	140,000
Beryllium	2	2
Cadmium	34	1,000
Chromium, trivalent	3,900	51,000
Chromium, hexavalent	100	100
Copper	2,500	76,000
Cyanide	1,400	41,000
Lead	400	1,000
Mercury	20	610
Nickel	1,400	7,500
Selenium	340	10,000
Silver	340	10,000
Thallium	5.4	160
Vanadium	470	14,000
Zinc	20,000	610,000

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Substance	Residential DEC in mg/kg (ppm)	Industrial/ Commercial DEC in mg/kg (ppm)
Pesticides, PCBs and Extractable Total Petroleum Hydrocarbons		
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	20,000
Heptachlor epoxide	0.067	0.63
Heptachlor	0.14	1.3
Lindane	20	610
Methoxychlor	340	10,000
Toxaphene	0.56	5.2
PCBs (The use of the Industrial/Commercial DEC requires the parcel to be used pursuant to section 22a-134tt-9(b)(4), and in accordance with title 40 CFR Part 761)	1	10
TPH- Total Petroleum Hydrocarbons by EPA Method 418.1 (This method shall not be used for the analysis of samples collected after June 30, 2009)	500	2,500
Extractable Total Petroleum Hydrocarbons by CT ETPH Analysis (This method may be used for the analysis of samples collected on or after June 22, 1999)	500	2,500

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Appendix 3 to the RBCRs

Pollutant Mobility Criteria for Soil

Substance	GA Area PMC in mg/kg (ppm)	GB Area PMC in mg/kg (ppm)
Volatile Organic Substances		
Acetone	14	140
Acrylonitrile	0.01	0.1
Benzene	0.02	0.2
Bromoform	0.08	0.8
2-Butanone(MEK)	8	80
Carbon tetrachloride	0.1	1
Chlorobenzene	2	20
Chloroform	0.12	1.2
Dibromochloromethane	0.01	0.1
1,2-Dichlorobenzene	3.1	3.1
1,3-Dichlorobenzene	12	120
1,4-Dichlorobenzene	1.5	15
1,1-Dichloroethane	1.4	14
1,2-Dichloroethane	0.02	0.2
1,1-Dichloroethylene	0.14	1.4
cis-1,2-Dichloroethylene	1.4	14
trans-1,2-Dichloroethylene	2	20
1,2-Dichloropropane	0.1	1.0
1,3-Dichloropropene	0.01	0.1
Ethyl benzene	10.1	10.1
Ethylene dibromide (EDB)	0.01	0.1

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Substance	GA Area PMC in mg/kg (ppm)	GB Area PMC in mg/kg (ppm)
Volatile Organic Substances		
Methyl-tert-butyl-ether	2	20
Methyl isobutyl ketone	7	14
Methylene chloride	0.1	1.0
Styrene	2	20
1,1,1,2-Tetrachloroethane	0.02	0.2
1,1,2,2-Tetrachloroethane	0.01	0.1
Tetrachloroethylene	0.1	1
Toluene	20	67
1,1,1-Trichloroethane	4	40
1,1,2-Trichloroethane	0.1	1
Trichloroethylene	0.1	1.0
Vinyl chloride	0.04	0.40
Xylenes	19.5	19.5

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Substance	GA Area PMC in mg/kg (ppm)	GB Area PMC in mg/kg (ppm)
Semi-volatile Organic Substances		
Acenaphthylene	8.4	84
Anthracene	40	400
Benzo(a)anthracene	1	1
Benzo(b)fluoranthene	1	1
Benzo(k)fluoranthene	1	1
Benzo(a)pyrene	1	1
Bis(2-chloroethyl)ether	1	2.4
Bis(2-chloroisopropyl)ether	1	2.4
Bis(2-ethyl hexyl)phthalate	1	11
Butyl benzyl phthalate	20	200
2-chlorophenol	1	7.2
Di-n-butyl phthalate	14	140
Di-n-octyl phthalate	2	20
2,4-Dichlorophenol	1	4
Fluoranthene	5.6	56
Fluorene	5.6	56
Hexachloroethane	1	1
Hexachlorobenzene	1	1
Naphthalene	5.6	56
Pentachlorophenol	1	1
Phenanthrene	4	40
Phenol	80	800
Pyrene	4	40

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Substance	GA Area PMC in mg/kg (ppm)	GB Area PMC in mg/kg (ppm)
Pesticides and Extractable Total Petroleum Hydrocarbons		
Alachlor	0.230	0.4
Aldicarb	1	1
Atrazine	0.2	0.2
Chlordane	0.066	0.066
Dieldrin	0.007	0.007
2-4 D	1.4	14
Heptachlor epoxide	0.02	0.02
Heptachlor	0.013	0.013
Lindane	0.02	0.04
Methoxychlor	0.8	8
Simazine	0.8	8
Toxaphene	0.33	0.6
Total Petroleum Hydrocarbon by EPA Method 418.1 (This method shall not be used for the analysis of samples collected after June 30, 2009)	500	2,500
Extractable Total Petroleum Hydrocarbons by CT ETPH Analysis (This method may be used for the analysis of samples collected on or after June 22, 1999)	500	2,500

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Substances	GA Area PMC by TCLP or by SPLP in mg/L (ppm)	GB Area PMC by TCLP or by SPLP in mg/L (ppm)
Inorganic Substances and PCBs		
Antimony	0.006	0.06
Arsenic	0.05	0.5
Barium	1	10.0
Beryllium	0.004	0.04
Cadmium	0.005	0.05
Chromium, total	0.05	0.5
Copper	1.3	13
Cyanide (by SPLP only)	0.2	2
Lead	0.015	0.15
Mercury	0.002	0.02
Nickel	0.1	1.0
Selenium	0.05	0.5
Silver	0.036	0.36
Thallium	0.005	0.05
Vanadium	0.05	0.50
Zinc	5	50
PCBs	0.0005	0.005

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Appendix 4 to the RBCRs

Groundwater Protection Criteria

Substance	GWPC in µg/L (ppb)
Volatile Organic Substances	
Acetone	700
Acrylonitrile	0.5
Benzene	1
Bromoform	4
2-Butanone (MEK)	400
Carbon tetrachloride	5
Chlorobenzene	100
Chloroform	6
Dibromochloromethane	0.5
1,2-Dichlorobenzene	600
1,3-Dichlorobenzene	600
1,4-Dichlorobenzene	75
1,1-Dichloroethane	70
1,2-Dichloroethane	1
1,1-Dichloroethylene	7
cis-1,2-Dichloroethylene	70
trans-1,2-Dichloroethylene	100
1,2-Dichloropropane	5
1,3-Dichloropropene	0.5
Ethyl benzene	700
Ethylene dibromide (EDB)	0.05
Methyl-tert-butyl-ether	100

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Substance	GWPC in µg/L (ppb)
Volatile Organic Substances	
Methyl isobutyl ketone	350
Methylene chloride	5
Styrene	100
1,1,1,2-Tetrachloroethane	1
1,1,2,2-Tetrachloroethane	0.5
Tetrachloroethylene	5
Toluene	1,000
1,1,1-Trichloroethane	200
1,1,2-Trichloroethane	5
Trichloroethylene	5
Vinyl chloride	2
Xylenes	530

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Substance	GWPC in µg/L (ppb)
Semi-volatile Organic Substances	
Acenaphthylene	420
Anthracene	2,000
Benzo(a)anthracene	0.06
Benzo(b)fluoranthene	0.08
Benzo(k)fluoranthene	0.5
Benzo(a)pyrene	0.2
Bis(2-chloroethyl)ether	12
Bis(2-chloroisopropyl)ether	12
Bis(2-ethyl hexyl)phthalate	2
Butyl benzyl phthalate	1,000
2-chlorophenol	36
Di-n-butyl phthalate	700
Di-n-octyl phthalate	100
2,4-Dichlorophenol	20
Fluoranthene	280
Fluorene	280
Hexachloroethane	3
Hexachlorobenzene	1
Naphthalene	280
Pentachlorophenol	1
Phenanthrene	200
Phenol	4,000
Pyrene	200

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Substance	GWPC in µg/L (ppb)
Inorganic Substances	
Antimony	6
Arsenic	50
Asbestos (in mfl)	7
Barium	1,000
Beryllium	4
Cadmium	5
Chromium (total)	50
Copper	1,300
Cyanide	200
Lead	15
Mercury	2
Nickel	100
Selenium	50
Silver	36
Thallium	5
Vanadium	50
Zinc	5,000

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Substance	GWPC in µg/L (ppb)
Pesticides, PCBs and Extractable Total Petroleum Hydrocarbons	
Alachlor	2
Aldicarb	3
Atrazine	3
Chlordane	0.3
Dieldrin	0.002
2-4 D	70
Heptachlor epoxide	0.2
Heptachlor	0.4
Lindane	0.2
Methoxychlor	40
Simazine	4
Toxaphene	3
[PCB's]PCBs	0.5
Total Petroleum Hydrocarbon by EPA Method 418.1 (This method shall not be used for the analysis of samples collected after June 30, 2009)	500
Extractable Total Petroleum Hydrocarbons by CT ETPH Analysis (This method may be used for the analysis of samples collected on or after June 22, 1999)	250

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Appendix 5 to the RBCRs

Surface Water Protection Criteria

for Substances in Groundwater

Substance	SWPC in µg/L (ppb)
Volatile Organic Substances	
Acrylonitrile	20
Benzene	710
Bromoform	10,800
Carbon tetrachloride	132
Chlorobenzene	420,000
Chloroform	14,100
Dibromochloromethane	1,020
1,2-Dichlorobenzene	170,000
1,3-Dichlorobenzene	26,000
1,4-Dichlorobenzene	26,000
1,2-Dichloroethane	2,970
1,1-Dichloroethylene	96
1,3-Dichloropropene	34,000
Ethylbenzene	580,000
Methylene chloride	48,000
1,1,2,2-Tetrachloroethane	110
Tetrachloroethylene	88
Toluene	4,000,000
1,1,1-Trichloroethane	62,000
1,1,2-Trichloroethane	1,260
Trichloroethylene	2,340
Vinyl chloride	15,750

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Substance	SWPC in µg/L (ppb)
Semi-volatile Organic Substances	
Acenaphthylene	0.3
Anthracene	1,100,000
Benzo(a)anthracene	0.3
Benzo(b)fluoranthene	0.3
Benzo(k)fluoranthene	0.3
Benzo(a)pyrene	0.3
Bis(2-chloroethyl)ether	42
Bis(2-chloroisopropyl)ether	3,400,000
Bis(2-ethyl hexyl)phthalate	59
Di-n-butyl phthalate	120,000
2,4-Dichlorophenol	15,800
Fluoranthene	3,700
Fluorene	140,000
Hexachloroethane	89
Hexachlorobenzene	0.077
Phenanthrene	14
Phenol	92,000,000
Pyrene	110,000

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Substance	SWPC in µg/L (ppb)
Inorganic Substances	
Antimony	86,000
Arsenic	4
Asbestos (in mfl)	7
Beryllium	4
Cadmium	6
Chromium, trivalent	1,200
Chromium, hexavalent	110
Copper	48
Cyanide	52
Lead	13
Mercury	0.4
Nickel	880
Selenium	50
Silver	12
Thallium	63
Zinc	123

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Substance	SWPC in µg/L (ppb)
Pesticides and PCBs	
Chlordane	0.3
Dieldrin	0.1
Endrin	0.1
Heptachlor epoxide	0.05
Heptachlor	0.05
Toxaphene	1
PCBs	0.5

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Appendix 6 to the RBCRs

Volatilization Criteria for Groundwater

Volatile Substance	Residential Volatilization Criteria for Groundwater in µg/L (ppb)	Industrial/Commercial Volatilization Criteria for Groundwater in µg/L (ppb)
Acetone	50,000	50000
Benzene	215	530
Bromoform	75	2,300
2-Butanone (MEK)	50,000	50,000
Carbon Tetrachloride	5.3	14
Chlorobenzene	1,800	23,000
Chloroform	26	62
1,2-Dichlorobenzene	5,100	50,000
1,3-Dichlorobenzene	4,300	50,000
1,4-Dichlorobenzene	1,400	3,400
1,1-Dichloroethane	3,000	41,000
1,2-Dichloroethane	6.5	68
1,1-Dichloroethylene	190	920
1,2-Dichloropropane	7.4	58
1,3-Dichloropropene	11	360
Ethyl benzene	50,000	50,000
Ethylene dibromide (EDB)	0.30	11
Methyl-tert-butyl-ether	50,000	50,000
Methyl isobutyl ketone	13,000	50,000
Methylene chloride	160	2,200
Styrene	3,100	42,000

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Volatile Substance	Residential Volatilization Criteria for Groundwater in µg/L (ppb)	Industrial/Commercial Volatilization Criteria for Groundwater in µg/L (ppb)
1,1,1,2-Tetrachloroethane	2	64
1,1,2,2-Tetrachloroethane	1.8	54
Tetrachloroethylene	340	810
Toluene	23,500	50,000
1,1,1-Trichloroethane	6,500	16,000
1,1,2-Trichloroethane	220	2,900
Trichloroethylene	27	67
Vinyl chloride	1.6	52
Xylenes	21,300	50,000

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Appendix 7 to the RBCRs

Volatilization Criteria for Soil Vapor

Volatile Substance	Residential Volatilization Criteria for Soil Vapor in parts per million by volume (ppmv)	Residential Volatilization Criteria for Soil Vapor in milligrams per cubic meter (mg/m^3)	Industrial/ Commercial Volatilization Criteria for Soil Vapor in parts per million by volume (ppmv)	Industrial/ Commercial Volatilization Criteria for Soil Vapor in milligrams per cubic meter (mg/m^3)
Acetone	57	140	290	690
Benzene	0.78	2.5	1.4	4.6
Bromoform	0.04	0.42	0.98	10
2-Butanone (MEK)	130	376	230	690
Carbon Tetrachloride	0.06	0.38	0.12	0.75
Chlorobenzene	6.1	28	60	280
Chloroform	0.078	0.38	0.14	0.69
1,2-Dichlorobenzene	9.2	55	95	570
1,3-Dichlorobenzene	9.2	55	95	570
1,4-Dichlorobenzene	3	18	5.5	33
1,1-Dichloroethane	14	58	150	600
1,2-Dichloroethane	0.013	0.053	0.11	0.43
1,1-Dichloroethylene	1.9	7.6	7	28
1,2-Dichloropropane	0.021	0.098	0.13	0.58
1,3-Dichloropropene	0.035	0.16	0.89	4.0
Ethyl benzene	9.3	40	93	400
Ethylene dibromide (EDB)	0.0005	0.0056	0.007	0.053
Methyl-tert-butyl-ether	34	120	73	260

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Volatile Substance	Residential Volatilization Criteria for Soil Vapor in parts per million by volume (ppmv)	Residential Volatilization Criteria for Soil Vapor in milligrams per cubic meter (mg/m^3)	Industrial/ Commercial Volatilization Criteria for Soil Vapor in parts per million by volume (ppmv)	Industrial/ Commercial Volatilization Criteria for Soil Vapor in milligrams per cubic meter (mg/m^3)
Methyl isobutyl ketone	6.8	28	68	280
Methylene chloride	0.65	2.3	6.8	24
Styrene	9.3	39	95	400
1,1,1,2-Tetrachloroethane	0.009	0.062	0.22	1.5
1,1,2,2- Tetrachloroethane	0.0012	0.0083	0.028	0.19
Tetrachloroethylene	0.56	3.8	1	6.9
Toluene	42	160	180	690
1,1,1-Trichloroethane	70	380	130	690
1,1,2-Trichloroethane	0.31	1.7	3.1	17
Trichloroethylene	0.14	0.76	0.26	1.4
Vinyl chloride	0.041	0.11	1	2.6
Xylenes	38	170	160	690

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Appendix 8 to the RBCRs

Equations, Terms, and Values for Calculating Release-Specific Direct Exposure Criteria, Pollutant Mobility Criteria, Groundwater Protection Criteria, Surface Water Protection Criteria, and Volatilization Criteria, for Additional Polluting Substances and Alternative Volatilization Criteria.

(1) Direct Exposure Criteria

(A) Residential Direct Exposure Criteria shall be calculated using the following equations:

(i) For carcinogenic substances:

$$\mathrm{RDEC_{RB}} = \left(\frac{\mathrm{RL}}{\mathrm{CSF}}\right) \div \left[\!\left[\left(\frac{\mathrm{IR_{child}} \times \mathrm{ED_{child}} \times \mathrm{EF} \times \mathrm{CF}}{\mathrm{BW_{child}} \times \mathrm{AT_c}}\right) + \left(\frac{\mathrm{IR_{adult}} \times \mathrm{ED_{adult}} \times \mathrm{EF} \times \mathrm{CF}}{\mathrm{BW_{adult}} \times \mathrm{AT_c}}\right)\right]\!\right]$$

(ii) For non-carcinogenic substances:

$$\mathrm{RDEC_{RB}} = (\mathrm{RfD} \times \mathrm{HI}) \div \left[\!\left[\left(\frac{\mathrm{IR_{child}} \times \mathrm{ED_{child}} \times \mathrm{EF} \times \mathrm{CF}}{\mathrm{BW_{child}} \times \mathrm{AT_{child}}}\right) + \left(\frac{\mathrm{IR_{adult}} \times \mathrm{ED_{adult}} \times \mathrm{EF} \times \mathrm{CF}}{\mathrm{BW_{adult}} \times \mathrm{AT_{adult}}}\right)\right]\!\right]$$

(iii) The abbreviations in clauses (i) and (ii) of this subparagraph shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
AT_c	Averaging Time – carcinogens	25,550	days
AT_{adult}	Averaging Time – adult non-carcinogen	8,760	days
AT_{child}	Averaging Time – child non-carcinogen	2,190	days
BW_{adult}	Body Weight – adult	70	kg
BW_{child}	Body Weight – child	15	kg
CF	Conversion Factor	0.000001	kg/mg
CSF	Cancer Slope Factor	Substance-specific	$(\mathrm{mg/kg\text{-}day})^{-1}$
$RDEC_{RB}$	Residential Risk-based Direct Exposure Criterion	calculated	mg/kg

Terms	Description	Value	Units
ED_{adult}	Exposure Duration – adult non-carcinogen	24	years
ED_{child}	Exposure Duration – child non-carcinogen	6	years
EF	Exposure Frequency	365	days/year
HI	Hazard Index	1.0	unitless
IR_{adult}	Ingestion Rate – adult	100	mg/day
IR_{child}	Ingestion Rate – child	200	mg/day
RfD	Reference Dose	Substance-specific	mg/kg-day
RL	Target Cancer Risk Level	1.0E-06	unitless

(iv) If the residential Direct Exposure Criteria calculated pursuant to this subparagraph exceeds the following ceiling values, the ceiling value shall be used in lieu of the calculated value:

Volatile Organic Substances	Semi-volatile Substances	Pesticides, PCBs and ETPH	Inorganic Substances	Units
500	1,000	500	50,000	mg/kg

(v) The residential direct exposure criteria may be adjusted up to the laboratory reporting limit if the commissioner determines that the calculated residential risk-based direct exposure criteria is less than the laboratory reporting limit for such substance.

(B) Industrial/commercial Direct Exposure Criteria shall be calculated using the following equations:

(i) For carcinogenic substances:

$$\text{I/C DEC}_{\text{RB}} = \left(\frac{\text{RL}}{\text{CSF}}\right) \times \left(\frac{\text{BW} \times \text{AT}_{\text{c}}}{\text{IR} \times \text{ED} \times \text{EF} \times \text{CF}}\right)$$

(ii) For non-carcinogenic substances:

$$\text{I/C DEC}_{\text{RB}} = \left(\frac{\text{RfD} \times \text{HI} \times \text{BW} \times \text{AT}}{\text{IR} \times \text{ED} \times \text{EF} \times \text{CF}}\right)$$

(iii) The abbreviations in clauses (i) and (ii) of this subparagraph shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
AT_c	Averaging Time – carcinogens	25,550	days
AT	Averaging Time – non-carcinogen	9,125	days
BW	Body Weight – adult	70	kg
CF	Conversion Factor	0.000001	kg/mg
CSF	Cancer Slope Factor	substance-specific	$(mg/kg\text{-}day)^{-1}$
$I/CDEC_{RB}$	Industrial/Commercial Risk-based Direct Exposure Criterion	calculated	mg/kg
ED	Exposure Duration	25	years
EF	Exposure Frequency	250	days/year
HI	Hazard Index	1.0	unitless
IR	Ingestion Rate	50	mg/day
RfD	Reference Dose	substance-specific	mg/kg-day
RL	Target Cancer Risk Level	1.0E-06	unitless

(iv) If the industrial/commercial direct exposure criteria calculated pursuant to this subparagraph exceeds the following ceiling values, the ceiling value shall be used in lieu of the calculated value:

Volatile Substances	Semi-volatile Substances	Pesticides, PCBs and ETPH	Inorganic Substances	Units
1,000	2,500	1,000	50,000	mg/kg

(v) The industrial/commercial direct exposure criteria may be adjusted up to the laboratory reporting limit if the commissioner determines that the calculated industrial/commercial risk-based direct exposure criteria is less than the laboratory reporting limit for such substance.

(C) Managed Multifamily Residential Direct Exposure Criteria shall be calculated using the following equations:

(i) For non-carcinogenic substances:

$DEC_{C_MF_NC}$ (mg/kg) = (RfD x HI x $BW_{(0-6)}$ x AT_{c_res}) / ($SIR_{(0-6)_mf}$ x EF_{res} x $ED_{(0-6)}$ x CF_{soil})

(ii) For substances (excluding Trichloroethylene) that are carcinogenic, but not mutagenic:

DEC_{MFres_Cnm} (mg/kg) = (RL x AT)/(CSF x CF_{soil} x TSD_{mf})

Where:

TSD_{mf} (mg/kg) = SD_{0-6mf} + SD_{amf}

SD_{0-6mf} (mg/kg) = ($SIR_{(0-6)mf}$ x $ED_{(0-6)}$ x EF_{res}) / $BW_{(0-6)}$

SD_{amf} (mg/kg) = (SIR_{amf} x ED_a x EF_{res}) / BW_a

(iii) For substances (excluding Trichloroethylene) that are carcinogenic and mutagenic:

DEC_{MFres_Cm} = (RL x AT) / (CSF x CF_{soil} x $TSDM_{mf}$)

Where:

$TSDM_{mf}$ (mg/kg) = SD_{0-2mf} + SD_{2-6mf} + SD_{6-16mf} + $SD_{16-30mf}$

SD_{0-2mf} (mg/kg) = ($SIR_{(0-2)_mf}$ x $ADAF_{(0-2)}$ x $ED_{(0-2)}$ x EF_{res}) / $BW_{(0-2)}$

SD_{2-6mf} (mg/kg) = ($SIR_{(2-6)}$ x $ADAF_{(2-6)}$ x $ED_{(2-6)}$ x EF_{res}) / $BW_{(2-6)}$

SD_{6-16mf} (mg/kg) = ($IR_{(6-16)}$ x $ADAF_{(6-16)}$ x $ED_{(6-16)}$ x EF_{res}) / $BW_{(6-16)}$

$SD_{16-30mf}$ (mg/kg) = ($IR_{(16-30)}$ x $ADAF_{(16-30)}$ x $ED_{(16-30)}$ x EF_{res}) / $BW_{(16-30)}$

(iv) For Trichloroethylene:

DEC_{mf-TCE} = (RL x AT) / ((CSF_{TCE-M} x CF_{soil} x $TSDM_{mf}$) + (CSF_{TCE-C} x CF_{soil} x TSD_{mf}))

Where:

$TSDM_{mf}$ (mg/kg) = SD_{0-2mf} + SD_{2-6mf} + SD_{6-16mf} + $SD_{16-30mf}$

SD_{0-2mf} (mg/kg) = ($SIR_{(0-2)_mf}$ x $ADAF_{(0-2)}$ x $ED_{(0-2)}$ x EF_{res}) / $BW_{(0-2)}$

SD_{2-6mf} (mg/kg) = ($SIR_{(2-6)}$ x $ADAF_{(2-6)}$ x $ED_{(2-6)}$ x EF_{res}) / $BW_{(2-6)}$

SD_{6-16mf} (mg/kg) = ($IR_{(6-16)}$ x $ADAF_{(6-16)}$ x $ED_{(6-16)}$ x EF_{res}) / $BW_{(6-16)}$

$SD_{16-30mf}$ (mg/kg) = ($IR_{(16-30)}$ x $ADAF_{(16-30)}$ x $ED_{(16-30)}$ x EF_{res}) / $BW_{(16-30)}$

TSD_{mf} (mg/kg) = SD_{0-6mf} + SD_{amf}

$SD_{0\text{-}6mf}$ (mg/kg) = ($SIR_{(0\text{-}6)_mf}$ x $ED_{(0\text{-}6)}$ x EF_{res}) / $BW_{(0\text{-}6)}$

SD_{amf} (mg/kg) = (SIR_a x ED_a x EF_{res}) / BW_a

(v) The abbreviations in clauses (i) to (iv), inclusive, of this subparagraph shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Exposure Values for Soil Exposures - Managed Multifamily Residential			
Terms	Description	Value	Units
Criteria Types			
$DEC_{C_MF_NC}$	Direct Exposure Criteria for Soil Exposures to Child Residents in a Managed Multifamily Residential Setting	Chemical Specific	mg/kg
$DEC_{A_MF_NC}$	Direct Exposure Criteria for Soil Exposures to Adult Residents in a Managed Multifamily Residential Setting	Chemical Specific	mg/kg
$DEC_{SW_MF_NC}$	Direct Exposure Criteria for Soil Exposures to Site Workers in a Managed Multifamily Residential Setting Non Cancer	Chemical Specific	mg/kg
$DEC_{SW_MF_C}$	Direct Exposure Criteria for Soil Exposures to Site Workers in a Managed Multifamily Residential Setting (Carcinogen)	Chemical Specific	mg/kg
DEC_{MFres_Cnm}	Direct Exposure Criteria for Soil Exposures to Child and Adult Residents in a Managed Multifamily Residential Setting (Carcinogens)	Chemical Specific	mg/kg
DEC_{MFres_Cm}	Direct Exposure Criteria for Soil Exposures to Child and Adult Residents in a Managed Multifamily Residential Setting (Mutagens)	Chemical Specific	mg/kg
$DECmf_{\text{-}TCE}$	Direct Exposure Criteria for Soil Exposures to Child and Adult Residents in a Managed Multifamily Residential Setting (Trichloroethylene)	Chemical Specific	mg/kg
Variables			

ADAF(0-2)	Age Dependent Adjustment Factor for mutagenic cancer risk - 0-2 years	10	unitless
ADAF(16-30)	Age Dependent Adjustment Factor for mutagenic cancer risk - ages 16-30 years	1	unitless
ADAF(2-6)	Age Dependent Adjustment Factor for mutagenic cancer risk - ages 2-6 years	3	unitless
ADAF(6-16)	Age Dependent Adjustment Factor for mutagenic cancer risk - ages 6-16 years	3	unitless
SDa_mf	Soil dose for adult residents in Multifamily Residential setting	5475	mg/kg
SD(0-6)_mf	Soil dose for ages 0-6 in Multifamily Residential setting	12658.95954	mg/kg
SD(0-2)_mf	Soil dose for ages 0-2 in Multifamily Residential setting	64,035.09	mg/kg
SD(2-6)_mf	Soil dose for ages 2-6 in Multifamily Residential setting	25,317.92	mg/kg
SD(6-16)_mf	Soil dose for ages 6-16 in Multifamily Residential setting	22,955.97	mg/kg
SD(16-30)_mf	Soil dose for ages 16-30 in Multifamily Residential setting	3,421.88	mg/kg
AT	Averaging Time -Carcinogens	25,550	days
ATa_PRec	Averaging Time - Adult Non-carcinogen (passive recreationexposure)	8,760	days
ATa_res	Averaging Time - Adult Non-carcinogen (residential exposure)	8,760	days
ATc_PRec	Averaging Time - Child Non-carcinogen (passive recreation exposure)	2,190	days
ATc_res	Averaging Time - Child Non-carcinogen (residential exposure)	2,190	days
ATsw_mf	Averaging Time Adult site worker non-carcinogen MultiFamily Residential Exposure Scenario	9,125	days
BW(0-2)	Body Weight - ages 0-2 years	11.4	kg
BW(0-6)	Body Weight - ages 0-6 years	17.3	kg
BW(16-30)	Body Weight - ages 16-30 years	80	kg
BW(2-6)	Body Weight - ages 2-6 years	17.3	kg
BW(6-16)	Body Weight - ages 6-16 years	47.7	kg
BWa	Body Weight - Adult	80	kg
CFsoil	Conversion Factor (kg/mg) for soil	0.000001	kg/mg
CSF	Cancer Slope Factor	chem specific	chem specific

CSF_{TCE-C}	Cancer Slope Factor for Trichloroethylene carcinogenic risks	chem specific	chem specific
CSF_{TCE-M}	Cancer Slope Factor for Trichloroethylene for mutagenic risks	chem specific	chem specific
ED(0-2)	Exposure Duration - ages 0-2 years	2	years
ED(0-6)	Exposure Duration - ages 0-6 years	6	years
ED(16-30)	Exposure Duration - ages 16-30 years	14	years
ED(2-6)	Exposure Duration - ages 2-6 years	4	years
ED(6-16)	Exposure Duration - ages 6-16 years	10	years
EDa	Exposure Duration - Adult	24	years
EDsw_mf	Exposure Duration site worker residential multifamily	25	years
EFres	Exposure Frequency Residential	365	days/year
EFsw_mf	Exposure Frequency site worker residential multifamily	250	days/year
HI	Hazard Index	1	unitless
TSDmf	Total Soil Dose for children and adults in a Multifamily Residential setting for eposures carcinogens	18,134.0	mg/kg
TSDMmf	Total Soil Dose for children and adults in a Multifamily Residential setting for exposures to mutagens	115,730.9	mg/kg
RfD	Reference Dose	chem specific	mg/kg/d
RL	Risk Level	0.000001	unitless
SIR(0-2)_mf	Soil Ingestion Rate - Residential Multifamily (ages 0 - 2 years)	100	mg/day
SIR(0-6)_mf	Soil Ingestion Rate - (ages 0-6 years) Residential Multifamily	100	mg/day
SIR(16-30)_mf	Soil Ingestion Rate -Residential Multifamily (age 16-30)	50	mg/day
SIR(2-6)_mf	Soil Ingestion Rate - Residential Multifamily (ages 2-6 years)	100	mg/day
SIR(6-16)_mf	Soil Ingestion Rate - (ages 6-16 years)	60	mg/day
SIRa_mf	Soil Ingestion Rate - Adult Residential Multifamily	50	mg/day
SIRsw_mf	Soil Ingestion Rate - Site Worker Residential Multifamily	100	mg/day

(D) Passive Recreation Direct Exposure Criteria shall be calculated using the following equations:

(i) For non-carcinogenic substances:

$DEC_{C_PRec_NC}$ (mg/kg) = (RfD x HI x $BW_{(0-6)}$ x AT_{c_PRec}) / ($SIR_{(0-6)_PRec}$ x EF_{PRec} x $ED_{(0-6)}$ x CF_{soil})

(ii) For substances (except Trichloroethylene) that are carcinogenic, but not mutagenic:

DEC_{PRrec_Cnm} (mg/kg) = (RL x AT)/(CSF x CF_{soil} x TSD_{PRec})

Where:

TSD_{PRec} (mg/kg) = $SD_{0-6PRec}$ + SD_{aPRec}

$SD_{0-6PRec}$ (mg/kg) = ($SIR_{(0-6)_PRec}$ x $ED_{(0-6)}$ x EF_{PRec}) / $BW_{(0-6)}$

SD_{aPRec} (mg/kg) = (SIR_{aPRec} x ED_a x EF_{PRec}) / BW_a

(iii) For substances (except Trichloroethylene) that are carcinogenic and mutagenic:

DEC_{PRec_Cm} = (RL x AT) / (CSF x CF x $TSDM_{PRec}$)

Where:

$TSDM_{PRec}$ (mg/kg) = $SD_{0-2PRec}$ + $SD_{2-6PRec}$ + $SD_{6-16PRec}$ + $SD_{16-30PRec}$

$SD_{0-2PRec}$ (mg/kg) = ($SIR_{(0-2)_PRec}$ x $ADAF_{(0-2)}$ x $ED_{(0-2)}$ x EF_{PRec}) / $BW_{(0-2)}$

$SD_{2-6PRec}$ (mg/kg) = ($SIR_{(2-6)_PRec}$ x $ADAF_{(2-6)}$ x $ED_{(2-6)}$ x EF_{PRec}) / $BW_{(2-6)}$

$SD_{6-16PRec}$ (mg/kg) = ($SIR_{(6-16)_PRec}$ x $ADAF_{(6-16)}$ x $ED_{(6-16)}$ x EF_{PRec}) / $BW_{(6-16)}$

$SD_{16-30PRec}$ (mg/kg) = ($SIR_{(16-30)_Prec}$ x $ADAF_{(16-30)}$ x $ED_{(16-30)}$ x EF_{PRec}) / $BW_{(16-30)}$

(iv) For Trichlorethylene

$DEC_{PRecTCE}$ = (RL x AT) / ((CSF_{TCE-M} x CF_{soil} x $TSDM_{PRec}$) + (CSF_{TCE-C} x CF_{soil} x TSD_{PRec}))

Where:

$TSDM_{PRec}$ (mg/kg) = $SD_{0-2PRec}$ + $SD_{2-6PRec}$ + $SD_{6-16PRec}$ + $SD_{16-30PRec}$

$SD_{0-2PRec}$ (mg/kg) = ($SIR_{(0-2)_PRec}$ x $ADAF_{(0-2)}$ x $ED_{(0-2)}$ x EF_{PRec}) / $BW_{(0-2)}$

$SD_{2-6PRec}$ (mg/kg) = ($SIR_{(2-6)_PRec}$ x $ADAF_{(2-6)}$ x $ED_{(2-6)}$ x EF_{PRec}) / $BW_{(2-6)}$

$SD_{6-16PRec}$ (mg/kg) = ($SIR_{(6-16)_PRec}$ x $ADAF_{(6-16)}$ x $ED_{(6-16)}$ x EF_{PRec}) / $BW_{(6-16)}$

$SD_{16-30PRec}$ (mg/kg) = ($SIR_{(16-30)_Prec}$ x $ADAF_{(16-30)}$ x $ED_{(16-30)}$ x EF_{PRec}) / $BW_{(16-30)}$

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TSD_{PRec} (mg/kg) = $SD_{0\text{-}6PRec} + SD_{aPRec}$

$SD_{0\text{-}6PRec}$ (mg/kg) = $(SIR_{(0\text{-}6)_PRec} \times ED_{(0\text{-}6)} \times EF_{PRec}) / BW_{(0\text{-}6)}$

SD_{aPRec} (mg/kg) = $(SIR_{aPRec} \times ED_a \times EF_{PRec}) / BW_a$

(iv) The abbreviations in clauses (i) to (iv), inclusive, of this subparagraph shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Exposure Values for Soil Exposures - Passive Recreational			
Terms	Description	Value	Units
Criteria Types			
$DEC_{C_PRec_NC}$	Direct Exposure Criteria for Soil Exposures to Children aged 0-6 years in a Passive Recreation Setting (Non Cancer)	Chemical Specific	mg/kg
$DEC_{A_PRec_NC}$	Direct Exposure Criteria for Soil Exposures to Adult Residents in a Passive Recreation Setting (Non cancer)	Chemical Specific	mg/kg
DEC_{PRec_Cnm}	Direct Exposure Criteria for Soil Exposures to Children and Adults in a Passive Recreation Setting (carcinogens)	Chemical Specific	mg/kg
DEC_{PRec_Cm}	Direct Exposure Criteria for Soil Exposures to Chidren and Adults in a Passive Recreation Setting (Mutagens)	Chemical Specific	mg/kg
$DECPRec_{_TCE}$	Direct Exposure Criteria for Soil Exposures to Children and Adults in a Passive Recreation Setting (Trichloroethylene)	Chemical Specific	mg/kg
Variables			
ADAF(0-2)	Age Dependent Adjustment Factor for mutagenic cancer risk - 0-2 years	10	unitless
ADAF(16-30)	Age Dependent Adjustment Factor for mutagenic cancer risk - ages 16-30 years	1	unitless
ADAF(2-6)	Age Dependent Adjustment Factor for mutagenic cancer risk - ages 2-6 years	3	unitless
ADAF(6-16)	Age Dependent Adjustment Factor for mutagenic cancer risk - ages 6-16 years	3	unitless
SDa_Prec	Soil dose for adult residents in Multifamily Residential setting	4680	mg/kg
SD(0-6)_PRec	Soil dose for ages 0-6 in Multifamily Residential setting	7213.872832	mg/kg

SD(0-2)_PRec	Soil dose for ages 0-2 in Multifamily Residential setting	36,491.23	mg/kg
SD(2-6)_PRec	Soil dose for ages 2-6 in Multifamily Residential setting	14,427.75	mg/kg
SD(6-16)_PRec	Soil dose for ages 6-16 in Multifamily Residential setting	13,081.76	mg/kg
SD(16-30)_PRec	Soil dose for ages 16-30 in Multifamily Residential setting	2,925.00	mg/kg
AT	Averaging Time -Carcinogens	25,550	days
ATa_PRec	Averaging Time - Adult Non-carcinogen (passive recreationexposure)	8,760	days
ATc_PRec	Averaging Time - Child Non-carcinogen (passive recreation exposure)	2,190	days
BW(0-2)	Body Weight - ages 0-2 years	11.4	kg
BW(0-6)	Body Weight - ages 0-6 years	17.3	kg
BW(16-30)	Body Weight - ages 16-30 years	80	kg
BW(2-6)	Body Weight - ages 2-6 years	17.3	kg
BW(6-16)	Body Weight - ages 6-16 years	47.7	kg
BWa	Body Weight - Adult	80	kg
CFsoil	Conversion Factor (kg/mg) for soil	0.000001	kg/mg
CSF	Cancer Slope Factor	chem specific	chem specific
CSF_{TCE-C}	Cancer Slope Fator for Trichloroethylene non-mutagenic risks	chem specific	chem specific
CSF_{TCE-M}	Cancer Slope Fator for Trichloroethylene for mutagenic risks	chem specific	chem specific
ED(0-2)	Exposure Duration - ages 0-2 years	2	years
ED(0-6)	Exposure Duration - ages 0-6 years	6	years
ED(16-30)	Exposure Duration - ages 16-30 years	14	years
ED(2-6)	Exposure Duration - ages 2-6 years	4	years
ED(6-16)	Exposure Duration - ages 6-16 years	10	years
EDa	Exposure Duration - Adult	24	years
EF_PRec	Exposure Frequency Recreation	208	days/year
HI	Hazard Index	1	unitless
TSDMPRec	Total Soil Dose for children and adults in a Passive Recreation setting for exposures to mutagens	66,925.7	mg/kg
TSDPRec	Total Soil Dose for children and adults in a Passive Recreation setting for exposures to Carcinogens	11,893.9	mg/kg
RfD	Reference Dose	chem specific	mg/kg/d
RL	Risk Level	0.000001	unitless

$SIR_{(0-2)_PRec}$	Soil Ingestion Rate - Passive Recreation ages 0-2 years	100	mg/day
$SIR_{(0-6)_PRec}$	Soil Ingestion Rate - Passive Recreation ages 0-6 years	100	mg/day
$SIR_{(16-30)_PRec}$	Soil Ingestion Rate - Passive Recreation ages 16-30 years	75	mg/day
$SIR_{(2-6)_PRec}$	Soil Ingestion Rate - Passive Recreation ages 2-6 years	100	mg/day
SIR_{a_PRec}	Soil Ingestion Rate - Passive Recreation Adult	75	mg/day
$SIRc_{(6-16)_PRec}$	Soil Ingestion Rate - Passive Recreation Ages 6-16 years	60	mg/day

(2) Pollutant Mobility Criteria

(A) Pollutant Mobility Criteria for inorganic substances shall be calculated using the following equations:

(i) For GA area groundwater classification:

$$\mathrm{PMC_{mg/L}} = \mathrm{GWPC} \times \mathrm{CF}$$

(ii) For GB area groundwater classification:

$$\mathrm{PMC_{mg/L}} = \mathrm{GWPC} \times \mathrm{CF} \times \mathrm{DF}$$

(B) Pollutant Mobility Criteria for organic substance shall be calculated using the following equations:

(i) For GA area groundwater classification:

$$\mathrm{PMC_{mg/kg}} = \mathrm{GWPC} \times \mathrm{CF} \times \mathrm{AAF}$$

(ii) For GB area groundwater classification:

$$PMC_{mg/kg} = GWPC \times CF \times AAF \times DF$$

(C) The abbreviations in subparagraphs (A) and (B) of this subdivision shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
AAF	Analytical Adjustment Factors	20	unitless
CF	Conversion Factor	0.001	mg/µg
DF	Dilution Factor	10	unitless
GWPC	Groundwater Protection Criteria	substance-specific	µg/L
PMC	Pollutant Mobility Criteria	calculated	mg/kg or mg/L

(3) Groundwater Protection Criteria

(A) Groundwater Protection Criteria shall be calculated for carcinogenic substances using the following equation:

$$GWPC = \left(\frac{RL}{CSF}\right) \times \left(\frac{BW \times AT}{IR \times EF \times ED \times CF}\right)$$

(B) Groundwater Protection Criteria shall be calculated for non-carcinogenic substances using the following equation:

$$GWPC = \frac{RfD \times HI \times BW \times AT \times SA}{IR \times EF \times ED \times CF}$$

(C) The abbreviations in subparagraphs (A) and (B) of this subdivision shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

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Terms	Description	Value	Units
AT	Averaging Time	25,550	days
BW	Body Weight	70	kg
CSF	Cancer Slope Factor	substance-specific	$(mg/kg\text{-}day)^{-1}$
CF	Conversion Factor	0.001	mg/µg
ED	Exposure Duration	70	years
EF	Exposure Frequency	365	days/year
GWPC	Risk-based Groundwater Protection Criterion	calculated	µg/L
HI	Hazard Index	1.0	unitless
IR	Ingestion Rate	2	L/day
RfD	Reference Dose	substance-specific	mg/kg-day
RL	Target Cancer Risk Level	1.0E-06	unitless
SA	Source Allocation	0.2	unitless

(D) If the Groundwater Protection Criteria calculated pursuant to subparagraph (A) or (B) of this subdivision exceeds the following ceiling values, the ceiling value shall be used in lieu of the calculated value:

Volatile Substances	Semi-volatile Substances	Pesticides, PCBs, and ETPH	Inorganic Substances	Units
1,000	1,000	1,000	50,000	µg/L

(E) The groundwater protection criteria may be adjusted up to the laboratory reporting limit if the commissioner determines that the calculated risk-based groundwater protection criteria is less than the laboratory reporting limit for such substance.

(F) The groundwater protection criteria may be adjusted down to the organoleptic threshold if the commissioner determines that the calculated risk-based groundwater protection criteria is higher than the organoleptic threshold for such substance.

(4) Surface Water Protection Criteria

(A) Determining Water Quality Criteria

For substances that have no water quality criteria in the water quality standards, such criteria shall be determined using EPA's national recommended water quality criteria and, if no such criteria are available, then by using the following:

(i) Determining the Water Quality Criteria for Chronic Aquatic Life

(I) In accordance with title 40 CFR 132 Appendix A (Great Lakes Water Quality Initiative Methodologies for Development of Aquatic Life Criteria and Values);

(II) Using the Tier 1 protocols for calculating a Criterion Continuous Concentration; or

(III) If insufficient information is available to use the Tier 1 Criterion Continuous Concentration procedure, using the Tier 2 protocols for calculating a Secondary Continuous Concentration.

(ii) Calculating the Water Quality Criteria for Human Health for Fish Consumption:

(I) For carcinogenic substances:

$$\mathrm{WQC} = \frac{\mathrm{RL} \times \mathrm{BW} \times \mathrm{CF}}{\mathrm{CSF} \times \mathrm{FC} \times \mathrm{BAF}}$$

(II) For non-carcinogenic substances:

$$\mathrm{WQC} = \frac{\mathrm{RfD} \times \mathrm{BW} \times \mathrm{CF\ x\ RSC}}{\mathrm{FC} \times \mathrm{BAF}}$$

(III) The abbreviations in subclauses (I) and (II) of this clause shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
BAF	Bioaccumulation Factor	substance-specific	unitless
BW	Body Weight	70	kg

CF	Conversion Factor	1,000	µg/mg
CSF	Cancer Slope Factor	substance-specific	$(mg/kg\text{-}day)^{-1}$
FC	Fish Consumption Rate	0.0175	kg/d
RfD	Reference Dose	substance-specific	mg/kg-day
RL	Risk Level	1.00E-06	unitless
WQC	Water Quality Criteria	calculated	µg/L
RSC	Relative Source Contribution	0.2	unitless

(B) Calculating the Surface Water Protection Criteria

The risk-based surface water protection criteria shall be calculated, for the lower of aquatic life or human health water quality criteria:

(i) Water quality criteria for freshwater chronic aquatic life protection as determined using subparagraph (A) of this subdivision, multiplied by ten (10); or

(ii) Water quality criteria for human health for fish consumption calculated using subparagraph (A) of this subdivision, multiplied by the applicable flow factor multiplied by ten (10), using the following values:

Flow Factor	Substance Risk Level
1	For known human carcinogens or substances which may bioaccumulate BCF>100
2	For non-carcinogenic substances
3	For carcinogenic substances

(C) If the Surface Water Protection Criteria calculated pursuant to subparagraph (B) of this subdivision exceeds the following ceiling values, the ceiling value shall be used in lieu of the calculated value:

Volatile Substances	Semi-volatile Substances	Pesticides, PCBs and ETPH	Inorganic Substances	Units
10,000	10,000	10,000	10,000	µg/L

(D) The surface water protection criteria may be adjusted up to the laboratory reporting limit if the commissioner determines that the calculated risk-based surface water protection criteria is less than the laboratory reporting limit for such substance.

(5) Volatilization Criteria

(A) Residential Target Indoor Air Concentrations shall be calculated using the following equations:

(i) For carcinogenic substances:

$$\mathrm{TAC} = \frac{\mathrm{RL} \times \mathrm{BW} \times \mathrm{AT_c} \times \mathrm{CF}}{\mathrm{CSF_i} \times \mathrm{CexpF} \times \mathrm{CsensF} \times \mathrm{IR_{air}} \times \mathrm{EF} \times \mathrm{ED}}$$

(ii) For non-carcinogenic substances:

$$\mathrm{TAC} = \frac{\mathrm{HQ} \times \mathrm{BW} \times \mathrm{RfD_i} \times \mathrm{AT} \times \mathrm{CF}}{\mathrm{CexpF} \times \mathrm{IR_{air}} \times \mathrm{EF} \times \mathrm{ED}}$$

(iii) The abbreviations in this subparagraph shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
AT	Averaging Time – non-carcinogen	10,950	days
AT_c	Averaging Time – carcinogen	25,550	days
BW	Body Weight	70	kg
CexpF	Children's Exposure Factor	2	unitless
CF	Conversion Factor	1,000	µg/mg
CsensF	Children's Sensitivity Factor CsensF = 1 for non-carcinogens and non-mutagenic carcinogens. CsensF = 2 for mutagenic carcinogens	substance-specific	unitless
CSF_i	Cancer Slope Factor – Inhalation	substance-specific	$(mg/kg\text{-}day)^{-1}$
ED	Exposure Duration	30	years
EF	Exposure Frequency	350	days/year
HQ	Hazard Quotient	1	unitless
IR_{air}	Inhalation Rate – air	20	m^3/day
RfD_i	Reference Dose – inhalation	substance-specific	mg/kg-day
RL	Risk Level	1.00E-06	unitless
TAC	Target Indoor Air Concentration	calculated	$\mu g/m^3$

(iv) If the residential Target Indoor Air Concentration calculated pursuant to clause (i) or (ii) of this subparagraph exceeds a ceiling value of 500 $\mu g/m^3$, the ceiling value shall be used in lieu of the calculated value.

(B) Industrial/Commercial Target Indoor Air Concentrations shall be calculated using the following equations:

(i) For carcinogenic substances:

$$\mathrm{TAC} = \frac{\mathrm{RL} \times \mathrm{BW} \times \mathrm{AT_c} \times \mathrm{CF}}{\mathrm{CSF_i} \times \mathrm{IR_{air}} \times \mathrm{EF} \times \mathrm{ED}}$$

(ii) For non-carcinogenic substances:

$$\mathrm{TAC} = \frac{\mathrm{HQ} \times \mathrm{BW} \times \mathrm{RfD_i} \times \mathrm{AT} \times \mathrm{CF}}{\mathrm{IR_{air}} \times \mathrm{EF} \times \mathrm{ED}}$$

(iii) The abbreviations used in this subparagraph shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
AT	Averaging Time – non-carcinogen	9,125	days
AT_c	Averaging Time – carcinogen	25,550	days
BW	Body Weight	70	kg
CF	Conversion Factor	1,000	µg/mg
CSF_i	Cancer Slope Factor – inhalation	substance-specific	$(mg/kg\text{-}day)^{-1}$
ED	Exposure Duration	25	years
EF	Exposure Frequency	250	days/year
HQ	Hazard Quotient	1	unitless
IR_{air}	Inhalation Rate – air	10	m^3/day
RfD_i	Reference Dose – inhalation	substance-specific	mg/kg-day
RL	Risk Level	1.00E-06	unitless
TAC	Target Indoor Air Concentration	substance-specific	µg/m^3

(iv) If the industrial/commercial Target Indoor Air Concentration calculated pursuant to clause (i) or (ii) of this subparagraph exceeds a ceiling value of 500 µg/m^3, the ceiling value shall be used in lieu of the calculated value.

(C) Volatilization Criteria shall be calculated using the following equations:

(i) For Volatilization Criteria for Groundwater:

$$GWVC = \frac{TAC}{CF \times \alpha \times H}$$

(ii) If the groundwater volatilization criteria calculated pursuant to (i) this subparagraph exceeds a ceiling value of 50,000 µg/L, the ceiling value shall be used in lieu of the calculated value.

(iii) For Volatilization Criteria for Soil Vapor:

$$SVVC_{mg/m^3} = \frac{TAC}{CF \times \alpha}$$

$$SVVC_{ppmv} = SVVC_{mg/m^3} \times \left(\frac{MV}{MW}\right)$$

(iv) The attenuation factor for diffusion and advection (α) shall be calculated using the following equations:

$$\alpha = \frac{A \times e^{B}}{e^{B} + A + (A/C) \times (e^{B} - 1)}$$

$$A = \frac{D^{eff}{}_{T} \times A_B}{Q_B \times L_T} \quad \textbf{or} \quad A = \frac{D^{eff}{}_{T}}{E_B \times (V_B/A_B) \times L_T}$$

$$B = \frac{Q_{soil} \times L_{crack}}{D^{eff}{}_{crack} \times \eta \times A_B} \quad \textbf{or} \quad B = \left(\left(\frac{Q_{soil}}{Q_B}\right) \times E_B \times \left(\frac{V_B}{A_B}\right) \times L_{crack}\right) / \left(D^{eff}{}_{crack} \times \eta\right)$$

$$C = \frac{Q_{soil}}{Q_B}$$

$$D^{eff}{}_{T} = \frac{L_T}{\left(L_{vadose}/D^{eff}{}_{vadose}\right) + \left(L_{cap}/D^{eff}{}_{cap}\right)}$$

$$D^{eff}{}_{crack} = D^{air} \times \left(\frac{\theta_{V-crack}{}^{3.33}}{\theta_{T-crack}{}^{2}}\right) + \left(\frac{D^{water}}{H}\right) \times \left(\frac{\theta_{m-crack}{}^{3.33}}{\theta_{T-crack}{}^{2}}\right)$$

$$D^{eff}{}_{vadose} = D^{air} \times \left(\frac{\theta_{V-vadose}{}^{3.33}}{\theta_{T-vadose}{}^{2}}\right) + \left(\frac{D^{water}}{H}\right) \times \left(\frac{\theta_{m-vadose}{}^{3.33}}{\theta_{T-vadose}{}^{2}}\right)$$

$$D^{eff}{}_{cap} = D^{air} \times \left(\frac{\theta_{V-cap}{}^{3.33}}{\theta_{T-cap}{}^{2}}\right) + \left(\frac{D^{water}}{H}\right) \times \left(\frac{\theta_{m-cap}{}^{3.33}}{\theta_{T-cap}{}^{2}}\right)$$

(v) The abbreviations used in this subparagraph shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
α	Attenuation Factor for Diffusion and Advection	calculated	unitless
A_B	Surface Area of the Enclosed Space in Contact with Soil	site-specific	m^2
CF	Conversion Factor	1,000	L/m^3 or µg/mg
D^{air}	Molecular Diffusion Coefficient in Air	substance-specific	m^2/d
$D^{eff}{}_T$	Total Effective Diffusion	calculated	m^2/d
$D^{eff}{}_{crack}$	Effective Diffusion Through Foundation Cracks	calculated	m^2/d
$D^{eff}{}_{cap}$	Effective Diffusion Through Capillary Fringe	calculated	m^2/d
$D^{eff}{}_{vadose}$	Effective Diffusion Through Vadose Zone	calculated	m^2/d
D^{water}	Molecular Diffusion Coefficient in Water	substance-specific	m^2/d
D^{water}/D^{air}	Ratio of Molecular Diffusion in Water to Air = D^{water}/D^{air}	calculated	unitless
E_B	Enclosed Space Air Exchange Rate	site-specific	1/day
GWVC	Groundwater Volatilization Criteria	calculated	µg/L
H	Henry's Law Constant	substance-specific	unitless
k	Soil Vapor Permeability	site-specific	cm^2
L_T	Depth from foundation to source	site-specific	m
L_{cap}	Thickness of Capillary Fringe	site-specific	m
L_{crack}	Foundation Thickness	site-specific	m
L_{vadose}	Thickness of Vadose Zone = $L_T - L_{cap}$	calculated	m
MV	Molar Volume (at standard conditions)	24.45	L
MW	Molecular Weight	substance-specific	g/mol
η	Fraction of Enclosed Space Area Open for Vapor Intrusion	site-specific	m^2/m^2
θ_{m-cap}	Volumetric Moisture Content in Cracks in Capillary Fringe	site-specific	unitless
θ_{T-cap}	Total Porosity in Capillary Fringe	site-specific	unitless

Terms	Description	Value	Units
$\theta_{V\text{-}cap}$	Volumetric Vapor Constant in Capillary Fringe	calculated	unitless
$\theta_{m\text{-}crack}$	Volumetric Moisture Content in Cracks	site-specific	unitless
$\theta_{T\text{-}crack}$	Total Porosity in Crack	site-specific	unitless
$\theta_{V\text{-}crack}$	Volumetric Vapor Content in Cracks	calculated	unitless
$\theta_{m\text{-}vadose}$	Volumetric Moisture Content in Vadose Zone	site-specific	unitless
$\theta_{T\text{-}vadose}$	Total Porosity in Vadose Zone	site-specific	unitless
$\theta_{V\text{-}vadose}$	Volumetric Vapor Content in Vadose Zone	calculated	unitless
ΔP	Indoor-Outdoor Air Pressure Difference	site-specific	g/ms^2
Q_B	Enclosed Space Volumetric Air Flow Rate	site-specific	m^3/d
Q_{soil}	Pressure Driven Soil Gas Flow Rate from the subsurface into the enclosed space	site-specific	m^3/d
Q_{soil}/Q_B	Ratio of Soil Gas Intrusion Rate to Building Ventilation Rate = Q_{soil}/Q_B	calculated	unitless
R_{crack}	Effective Crack Radius or Width = $\eta A_B/X_{crack}$	calculated	m
SVVC	Soil Vapor Volatilization Criteria	calculated	mg/m^3
TAC	Target Indoor Air Concentration calculated using subparagraph (A) or (B), as applicable	substance-specific	$\mu g/m^3$
μ	Viscosity of Air	calculated	g/ms
VB	Enclosed Space Volume	site-specific	m^3
V_B/V_A	Ratio of Enclosed Space Volume to Exposed Surface Area = V_B/V_A	calculated	m
X_{crack}	Total Length of Cracks through which Soil Gas Vapors are Flowing	calculated	m
Z_{crack}	Crack Opening Depth Below Grade	calculated	m

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Appendix 9 to the RBCRs

Equations, Terms, and Values for Calculating Release-Specific Alternative Pollutant Mobility Criteria

(1) Release-Specific Pollutant Mobility Criteria shall be calculated using the following equation:

$$\text{Alt PMC} = \text{GWC} \times \text{DF}\left(\text{K}_\text{d} + \frac{(\theta_\text{w} + \theta_\text{a}\text{H}')}{\rho_\text{b}}\right)$$

(2) The abbreviations in subdivision (1) of this Appendix, shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
Alt PMC	Alternative Pollutant Mobility Criteria	calculated	mg/kg
GWC	Groundwater Criteria Goal	substance-specific (lowest of groundwater criteria applicable to release area*)	mg/L
DF	Dilution Factor	20 or calculated in accordance with section 22a-134tt-9(c)(3)(B)(iv) of the RSRs with F_{adj} = 0	unitless
K_d	Distribution Coefficient (for organic contaminants may be approximated by: K_{oc}*f_{oc})	substance-specific (see table below for inorganic substances)	L/kg
K_{oc}	Organic Carbon Partition Coefficient	substance-specific (see table below for organic substances)	L/kg
f_{oc}	Soil Fraction of Organic Carbon	0.001 or tested for site-specific value (max value = 0.006)	kg/kg
θ_w	Water-filled Soil Porosity	0.28 or tested for site-specific value	L_{water}/L_{soil}
θ_a	Air-filled Soil Porosity	0.15 or tested for site-specific value	L_{air}/L_{soil}
H'	Henry's Law Constant	substance-specific (see tables below)	unitless
ρ_b	Dry Soil Bulk Density	1.5 or tested for site-specific value	kg/L

* *The "lowest of groundwater criteria applicable to release area" is intended to be the criteria in Appendices C, D, and E.*

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Soil Organic Carbon-Water Partition Coefficient (K_{oc}) and Henry's Law Constant (H') Values for Organic Substances

Substance	K_{oc} (L/kg)	H' (Dimensionless)
Acenaphthylene	6,800	4.51E-03
Acetone	0.575	1.75E-03
Acrylonitrile	2	4.10E-03
Alachlor	310	4.30E-07
Aldicarb	24.6	5.89E-08
Anthracene	23,500	2.67E-03
Atrazine	360	1.21E-07
Benzene	62	2.26E-01
Benzo(*a*)anthracene	358,000	1.37E-04
Benzo(*a*)pyrene	969,000	4.63E-05
Benzo(*b*)fluoranthene	1,230,000	4.55E-03
Benzo(*k*)fluoranthene	1,230,000	3.40E-05
Bis(2-chloroethyl)ether	76	7.38E-04
Bis(2-chloroisopropyl)ether	360	3.03E-03
Bis(2-ethylhexyl)phthalate	111,000	4.18E-06
Bromoform	126	2.18E-02
2-Butanone (MEK)	10	1.12E-03
Butyl benzyl phthalate	13,700	5.17E-05
Carbon tetrachloride	152	1.20E+00
Chlordane	51,300	1.99E-03
Chlorobenzene	224	1.61E-01
Chloroform	53	1.39E-01
2-Chlorophenol	398	1.60E-02

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Substance	K_{oc} (L/kg)	H' (Dimensionless)
Dibromochloromethane (Chlorodibromomethane)	63.1	3.21E-02
1,2-Dichlorobenzene (*o*)	379	7.95E-02
1,3-Dichlorobenzene (*m*)	700	1.08E-01
1,4-Dichlorobenzene (*p*)	616	1.12E-01
1,1-Dichloroethane	53	2.23E-01
1,2-Dichloroethane	38	4.51E-02
1,1-Dichloroethylene	65	6.11E-01
cis-1,2-Dichloroethylene	35.5	1.70E-01
trans-1,2-Dichloroethylene	38	3.80E-01
2,4-Dichlorophenol	159	1.30E-04
2,4-Dichlorophenoxyacetic acid (2,4-D)	29.6	1.45E-06
1,2-Dichloropropane	47	1.16E-01
1,3-Dichloropropene	27	1.44E-01
Dieldrin	25,500	6.19E-04
Di-*n*-butyl phthalate	1,570	3.85E-08
Di-*n*-octyl phthalate	140,000	2.74E-03
Ethylbenzene	204	1.41E-01
Ethylene dibromide (EDB)	66	2.76E-02
Fluoranthene	49,100	6.60E-04
Fluorene	7,710	2.61E-03
Heptachlor	9,530	4.47E-02
Heptachlor epoxide	83,200	3.90E-04
Hexachlorobenzene	80,000	5.41E-02
?-HCH (Lindane)	1,350	5.74E-04
Hexachloroethane	1,780	1.59E-01

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Substance	K_{oc} (L/kg)	H' (Dimensionless)
Methoxychlor	80,000	6.48E-04
Methyl isobutyl ketone	65	5.33E-03
Methyl-tert-butyl-ether (MTBE)	34	2.42E-02
Methylene chloride	10	1.31E-01
Naphthalene	1,190	1.98E-02
Pentachlorobenzene	32,100	2.87E-02
Pentachlorophenol	7,960	1.00E-06
Phenanthrene	21,200	9.43E-04
Phenol	28.8	1.63E-05
Pyrene	68,000	4.51E-04
Simazine	147	3.85E-08
Styrene	912	1.07E-01
1,1,1,2-Tetrachloroethane	86	4.51E-01
1,1,2,2-Tetrachloroethane	79	1.56E-02
Tetrachloroethylene	265	8.36E-02
Toluene	140	2.74E-01
Toxaphene	95,800	2.46E-04
1,1,1-Trichloroethane	135	9.47E-01
1,1,2-Trichloroethane	75	3.73E-02
Trichloroethylene	94	3.74E-01
Vinyl chloride	18.6	1.14E+00
Xylenes	1,700	2.16E-01

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Distribution Coefficient (K_d) and Henry's Law Constant (H') Values for Inorganic Substances

Substance	K_d (L/kg)	H' (Dimensionless)
Antimony	45	-
Arsenic	25	-
Barium	12	-
Beryllium	26	-
Cadmium	17	-
Chromium (hexavalent or total)	31	-
Chromium (trivalent only)	1,900	-
Copper	35	-
Cyanide	9.9	-
Lead	900	-
Mercury	0.06	4.67E-01
Nickel	18	-
Silver	0.13	-
Selenium	17	-
Thallium	45	-
Vanadium	1,000	-
Zinc	18	-

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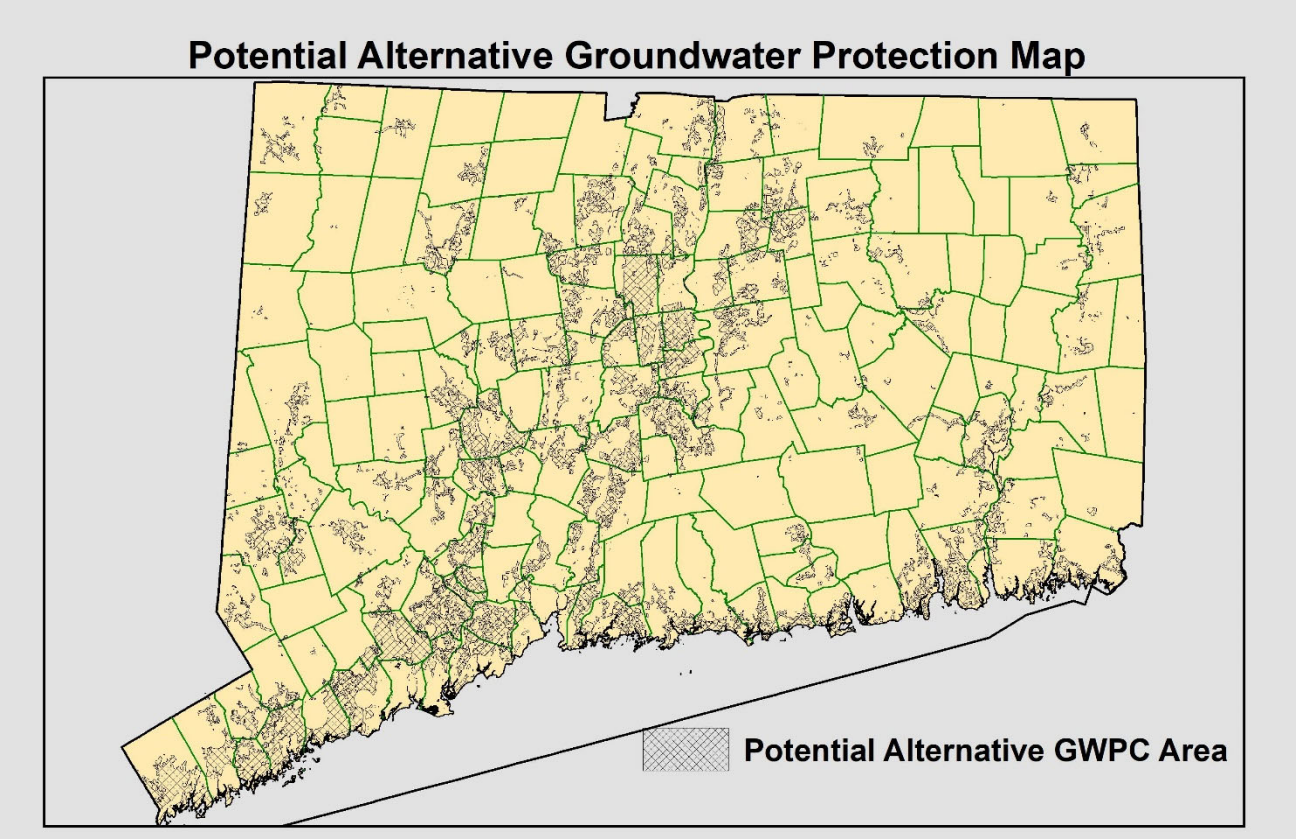
Appendix 10 of the RBCRs

Potential Alternative Groundwater Protection Criteria Map, dated December 22, 2020



The map in this Appendix is for use in accordance with section22a-134tt-10(d)(2) of the RBCRs. The department shall make this map, titled "Potential Alternative Groundwater Protection Criteria Map" dated December 22, 2020, as provided in this Appendix, available on the department's Internet website and shall also make such map available during regular business hours at the Department of Energy and Environmental Protection, Division of Water Protection and Land Reuse, 79 Elm Street, 2nd floor, Hartford, Connecticut.

If a reader is viewing said map in hard copy or on the DEEP website, any such area shaded in the color or using a similar designation is an area where a potential alternative groundwater protection area has been identified. If a reader is viewing such map on the eRegs system, any area shaded in a cross-hatched pattern is an area where a potential alternative groundwater protection area has been identified.

Appendix 11 to the RBCRs

Managed Multifamily Residential Direct Exposure Criteria for Soil

Substance	Multifamily DEC (mg/kg)
Acenaphthylene	1,000
Acetone	500
Acrylonitrile	0.41
Alachlor	87
Aldicarb	173
Anthracene	1,000
Antimony	35
Arsenic	10
Atrazine	52
Barium	34,600
Benzene	4
Benzo(a)anthracene	2.2
Benzo(a)pyrene	0.22
Benzo(b)fluoranthene	2.2
Benzo(k)fluoranthene	22
Beryllium	35
Bis(2-chloroethyl)ether	1.3
Oxybis, 2,2'- (1-chloropropane) (Bis(2-Chloroisopropyl)ether)	1,000
Bis(2-ethyl hexyl)phthalate	~~101~~17
Bromoform	28
Butanone, 2-	500
Butyl benzyl phthalate	1,000
Cadmium	17
Carbon tetrachloride	20
Chlordane	4
Chlorobenzene	500
Chloroform	500
Chlorophenol, 2-	865
Chromium, hexavalent	~~0~~.44
Chromium, trivalent	50,000
Copper	519
Cyanide	109
D, 2,4-	173
Dibromochloromethane	2.6

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Substance	Multifamily DEC (MG/KG)
Dichlorobenzene, 1,2-	500
Dichlorobenzene, 1,3-	346
Dichlorobenzene, 1,4-	261
Dichloroethane, 1,1-	500
Dichloroethane, 1,2-	2.4
Dichloroethylene, 1,1-	500
Dichloroethylene, cis-1,2-	346
Dichloroethylene, trans-1,2-	500
Dichlorophenol, 2,4-	519
Dichloropropane, 1,2-	39
Dichloropropene, 1,3-	2.2
Dieldrin	0.09
Di-n-butyl phthalate	260
Di-n-octyl phthalate	1,000
Endrin	52
Ethylbenzene	128
Ethylene dibromide	0.11
Fluoranthene	1,000
Fluorene	1,000
Heptachlor epoxide	~~0.31~~.15
Heptachlor	~~0.15~~.31
Hexachlorobenzene	0.88
Hexachloroethane	35
Lead	400
Lindane	1.3
Mercury - inorganic	52
Methoxychlor	346
Methyl isobutyl ketone	500
Methyl tert butyl ether	500
Methylene chloride	110
Naphthalene	1,000
Nickel	346
Pentachlorophenol	0.55
Phenanthrene	1,000
Phenol	~~7.3~~1000
Polychlorinated biphenyls (PCBs)	0.71
Pyrene	1,000

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Substance	Multifamily DEC(mg/kg)
Selenium	865
Silver	865
Simazine	500
Styrene	~~3.1~~500
Tetrachloroethane, 1,1,1,2-	8.5
Tetrachloroethane, 1,1,2,2-	1.1
Tetrachloroethylene	500
Thallium	1.7
Toluene	346
Toxaphene	0.20
Trichloroethane, 1,1,1-	500
Trichloroethane, 1,1,2-	24.7
Trichloroethylene	14.6
Vanadium	156
Vinyl chloride	0.31
Xylenes	500
Zinc	50,000
Extractable TPH by ETPH Analysis	500

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Appendix 12 to the RBCRs

Passive Recreation Direct Exposure Criteria for Soil

Substance	Passive Rec DEC (mg/kg)
Acenaphthylene	1,000
Acetone	500
Acrylonitrile	0.70
Alachlor	152
Aldicarb	304
Anthracene	1,000
Antimony	61
Arsenic	10
Atrazine	91
Barium	50,000
Benzene	7
Benzo(a)anthracene	3.8
Benzo(a)pyrene	0.38
Benzo(b)fluoranthene	3.8
Benzo(k)fluoranthene	38
Beryllium	61
Bis(2-chloroethyl)ether	2
Oxybis, 2,2'- (1-chloropropane) (Bis(2-Chloroisopropyl)ether)	1,000
Bis(2-ethyl hexyl)phthalate	~~154~~30
Bromoform	48
Butanone, 2-	500
Butyl benzyl phthalate	1,000
Cadmium	30
Carbon tetrachloride	31
Chlordane	6
Chlorobenzene	500
Chloroform	500
Chlorophenol, 2-	1,000
Chromium, hexavalent	~~1~~.76
Chromium, trivalent	50,000
Copper	911
Cyanide	191
D, 2,4-	304
Dibromochloromethane	4.5

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Substance	Passive Rec DEC (mg/kg)
Dichlorobenzene, 1,2-	500
Dichlorobenzene, 1,3-	500
Dichlorobenzene, 1,4-	398
Dichloroethane, 1,1-	500
Dichloroethane, 1,2-	4.2
Dichloroethylene, 1,1-	500
Dichloroethylene, cis-1,2-	500
Dichloroethylene, trans-1,2-	500
Dichlorophenol, 2,4-	911
Dichloropropane, 1,2-	60
Dichloropropene, 1,3-	3.8
Dieldrin	0.13
Di-n-butyl phthalate	455
Di-n-octyl phthalate	1,000
Endrin	91
Ethylbenzene	195
Ethylene dibromide	0.19
Fluoranthene	1,000
Fluorene	1,000
Heptachlor epoxide	0.48
Heptachlor	0.24
Hexachlorobenzene	1.34
Hexachloroethane	54
Lead	400
Lindane	2.0
Mercury - inorganic	91
Methoxychlor	500
Methyl isobutyl ketone	500
Methyl tert butyl ether	500
Methylene chloride	190
Naphthalene	1,000
Nickel	607
Pentachlorophenol	0.95
Phenanthrene	1,000
Phenol	~~12.7~~1000
Polychlorinated biphenyls (PCBs)	1.1
Pyrene	1,000

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Substance	Passive Rec DEC (mg/kg)
Selenium	1,518
Silver	1,518
Simazine	500
Styrene	~~5.4~~500
Tetrachloroethane, 1,1,1,2-	14.6
Tetrachloroethane, 1,1,2,2-	1.9
Tetrachloroethylene	500
Thallium	3.0
Toluene	500
Toxaphene	0.35
Trichloroethane, 1,1,1-	500
Trichloroethane, 1,1,2-	37.7
Trichloroethylene	~~24.7~~24
Vanadium	273
Vinyl chloride	0.53
Xylenes	500
Zinc	50,000
Extractable TPH by ETPH Analysis	500

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Note: In accordance with the changes made by PA 16-32, the Fiscal Note no longer contains information regarding the impact of the proposed regulation on small businesses. Each agency must separately complete the revised Regulatory Flexibility Analysis as published by the Office of Policy & Management.

FISCAL NOTE

Date: July 12, 2024

Agency Submitting Proposed Regulation: Department of Energy & Environmental Protection Proposed

Regulation Title: Release-Based Cleanup Regulations

Regulations Statutory Authority: § 22a-6(a) and 22a-134tt of the Connecticut General Statutes

Other Agencies Affected: All agencies that have the capacity to create or maintain a release of various pollutants into the lands or waters of the state

Effective Date Used In Estimate: July 1, 2026

Estimate Prepared By: Brendan Schain

Telephone Number: (860) 424-3172

ESTIMATE OF COST OR REVENUE IMPACT OF PROPOSED REGULATION

Agency: Department of Energy and Environmental Protection

Fund Affected: General

	First Year	**Second Year**	**Third Year**
Number of Positions			
Personal Services	0	0	0
Other Expenses	0	0	0
Equipment	0	0	0
Grants	0	0	0
Total State Cost or Savings	GF – Potential Revenue Gain	GF – Potential Revenue Gain	GF – Potential Revenue Gain
Estimated Revenue Gain or Loss	GF – Potential Revenue Gain	GF – Potential Revenue Gain	GF – Potential Revenue Gain
Total Net State Cost or Savings	GF – Potential Revenue Gain	GF – Potential Revenue Gain	GF – Potential Revenue Gain

Explanation of State Impact:

This proposed Release Based Cleanup Regulations ("RBCRs") implement Public Act 20-9 by sunsetting the Connecticut Property Transfer Act ("Transfer Act") - the primary program for the cleanup of pollution in Connecticut - and transitioning to a release-based cleanup program. This

transition will align Connecticut with 48 other states and will remove barricades to the redevelopment of parcels of real property subject to the Transfer Act. Creating this new alignment, and removing the barricades erected by the Transfer Act, will increase economic activity and redevelopment across the state, create new jobs, and generate new revenues for the state and its municipalities. The Department has worked with economists from the Department of Economic and Community Development ("DECD") to assess the financial impacts of adopting the RBCRs and shifting to a release-based cleanup program.

The Transfer Act is a product of the era in which it was adopted; at that time, people had to be told to investigate property for pollution. The Transfer Act requires certain properties to be investigated, and sets a stringent standard for that investigation. The requirement to "prove the negative" and demonstrate that pollution is not present on Transfer Act sites is time consuming and expensive, and hampers the transfer and redevelopment of real property to which it applies. Today, market forces drive investigation. Developers and lenders routinely investigate for pollution. Neither Public Act 20-9 nor the RBCRs require investigation, and neither sets a standard for such investigation. Instead, both set out a process for addressing known pollution after it has been discovered. Removing the Transfer Act requirement to prove the negative is key to unleashing the economic activity anticipated by the DECD analysis.

In 2020, when considering the fiscal impacts of Public Act 20-9, the Office of Fiscal Analysis ("OFA") determined that, "[t]o the extent that the bill facilitates the sale and redevelopment of real property, there is a potentially significant grand list expansion in municipalities where such sale and redevelopment occur. Any impact would vary based on the type of redevelopment that occurs." This increased economic activity would benefit the state as well as its municipalities.

The adverse economic impacts of the Transfer Act have been well studied. In a March 2019 report, for example, the Connecticut Economic Resource Center ("CERC") estimated that, between 2014 and 2018, the Transfer Act cost the state nearly 8,000 jobs and more than $170,000,000 in state and local revenues "not collected" because of "foregone operations."

Gains from vacant sites becoming active For purposes of preparing this fiscal note, economists from DECD updated the CERC analysis using current data. (Copies of the 2019 CERC report is attached for reference.) To perform their analysis, DECD used a published regional estimated industrial property vacancy rate of 3.6%. Assuming a best case scenario for economic activity generated as a result of the sunset of the Transfer Act and transition to a release-based cleanup program, DECD estimated the potential economic activity if all the vacant sites became active, including the economic impacts of adding 15 workers per site, would create 4,451 total jobs and generate $23.1 million in net state revenues annually. The assumptions used likely result in overstating the impacts from increased activity on vacant industrial sites alone. But the Transfer Act also impacts other types of properties: commercial sites and sites being redeveloped for residential use. Applying that broader scope supports the conclusion that Transfer Act-related lost opportunities have cost the state and its municipalities tens of millions of dollars in tax revenue and thousands of new jobs—and that the transition to a release-based approach will do the reverse.

Additional jobs Analyzing only the economic impact of returning vacant properties to productive use may understate the positive economic impacts of the transition to a release-based cleanup system. The CERC also considered the economic impacts of forgone "operational" jobs - jobs that may have been created but for the Transfer Act. In DECD's updated analysis of the 2019 CERC analysis, if sites were not stuck in the Transfer Act, it could have created 4,350 direct manufacturing jobs and generated $113.8 million dollars in additional net state revenues over the last five years.

Savings from modernizing and streamlining the standards The RBCRs will also implement important, changes to Connecticut's cleanup standards that will translate into savings for developers and, as a consequence, for the state. A release-based program applies common cleanup endpoints to all discovered pollution above a threshold that poses a risk to human health or the environment - not just such levels of pollution on the small universe of Transfer Act sites. These risk-based updates are both necessary and protective of human health. The proposed RBCRs introduce a series of new, risk-based approaches to addressing pollution intended to make redevelopment more efficient and less expensive while still protecting human health and the environment. For example, one new approach allows polluted fill – found in Connecticut's cities and along its coast – to be managed in place on properties used for industrial and commercial activities using a "permit by rule." Previously, the top four feet of polluted fill was required to be removed and replaced with four feet of clean material, and a costly and time consuming Environmental Use Restriction was required to prevent disturbance of the imported material. Limiting the excavation, disposal, and replacement of polluted soil will save developers significant amounts of money, and the switch from an Environmental Use Restriction to a permit by rule will save months and tens of thousands of dollars per site. Because Connecticut provides grant funding to remediation projects, this new fill provision will also save the state millions of dollars in grant funding that can be reallocated to support other redevelopment projects. Based on an analysis of the 20 recent remediation projects awarded some $62,434,697 in loan and grant assistance since 2017, it is estimated that $10,728,991 – or an average of $536,450 per site – was spent to remove, dispose and replace polluted fill and prepare and record Environmental Use Restrictions to prevent the disturbance of the imported soil. It is estimated that the shift to managing polluted fill in place using a permit by rule will save approximately 17% across future DECD funded remediation projects.

No impact from changes to requirements for new releases The RBCRs also apply to new releases (or "spills"). The Regulations largely codify existing processes, while also creating unified endpoints and durable closure documents for those releases. To the extent the state (or a municipality) has operations that cause spills, significant fiscal impacts are not anticipated, given that reporting and response will largely remain unchanged.

No staff resource impacts The Department believes that the RBCRs can be implemented within its existing staff resources, although some realignment of staff will be necessary.

Some increase in revenues from fees collected For the years from 2017 to 2022, the Transfer Act generated just over $500,000 annually in fees deposited in the General Fund. The proposed regulations assess fees at the end of the first year following discovery if releases have not yet

been remediated. Annual fees will be assessed thereafter until remediation is complete, and additional fees are assessed if extensions of remediation timelines are needed. The fees to be assessed have been set at levels that will encourage timely remediation and can be conservatively estimated to exceed the Transfer Act revenues deposited into the General Fund due to the broader applicability of the program, but at about half the corresponding fee in Massachusetts to ensure that such fees do not create a new barrier to economic development.

Municipal Impact:

The Transfer Act has burdened the state's municipalities with brownfields that are difficult to redevelop and detract from the vibrancy of our communities. The analysis above focuses on estimating impacts caused by sites subject to the Transfer Act, but many brownfields have sat – vacant and abandoned – because owners are avoiding the cleanup and investigation requirements imposed by the Transfer Act upon sale of such properties. When manufacturing moved to other regions or off-shore, some companies recognized that selling their Connecticut mills and factories would require a comprehensive and expensive investigation and cleanup. Many companies avoided the requirement to investigate pursuant to the Transfer Act by abandoning their mills and factories, allowing them to crumble rather than selling them for productive reuse. Some of these sites are in urban centers, others are community gateways, and others form the nexus of villages across the state. All are obstacles to creating vibrant, sustainable communities.

While, as OFA indicated at the time of adoption of Public Act 20-9, municipal impact would vary based on the type of redevelopment to occur, OFA and the Department agree that "[t]o the extent that the bill facilitates the sale and redevelopment of real property, there is a potentially significant grand list expansion in municipalities where such sale and redevelopment occur."

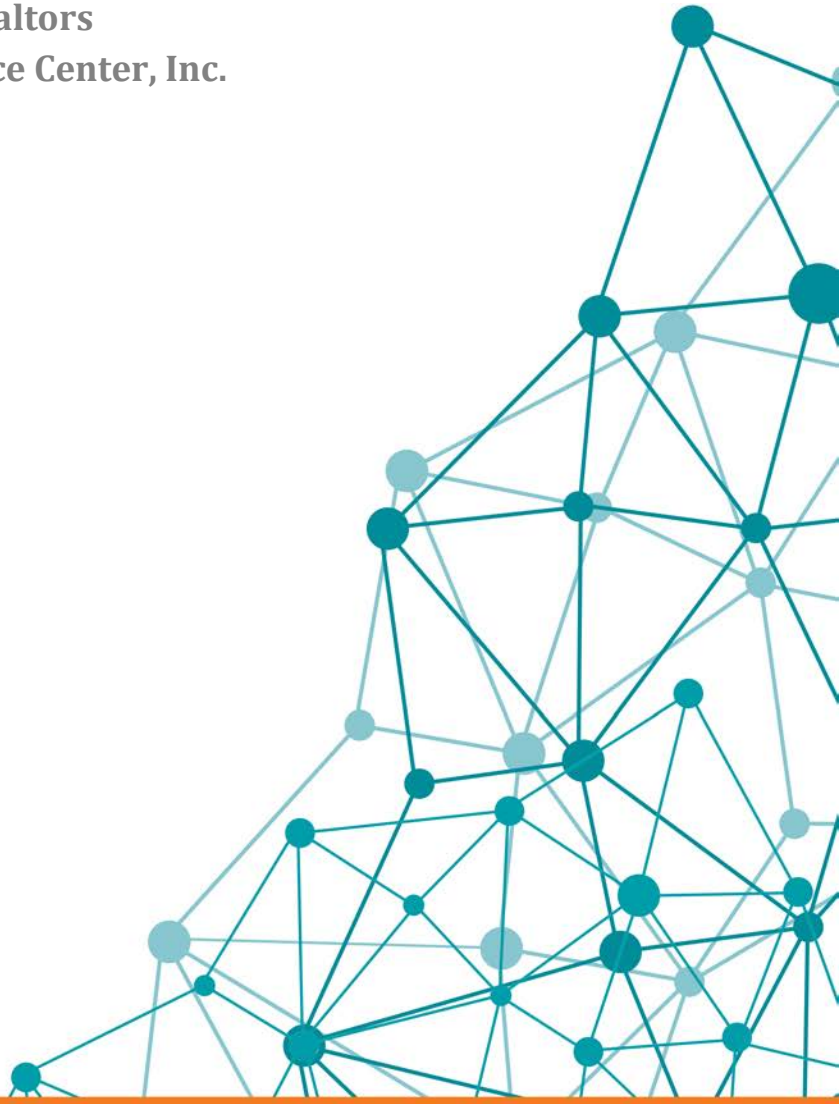
Municipalities also own polluted sites, in many instances to facilitate their redevelopment. Many of those sites are owned through the state's brownfield liability relief programs. Those programs would be unchanged, and PA 20-9 provides them with a safe harbor from the RBCRs. It is important to note, however, that sites in brownfields programs can take advantage of the new, risk-based, cleanup standards provisions, potentially saving municipalities and their partners millions of dollars.

As stated above, the RBCRs also apply to new releases (or "spills"). Given that reporting and response to these new releases will largely remain unchanged, significant fiscal impacts are not anticipated where a municipality owns a property upon which a new release occurs.

Connecticut Property Transfer Act: Economic Impacts and Effects

Prepared for Connecticut Association of Realtors
Prepared by Connecticut Economic Resource Center, Inc.

March 2019



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The Connecticut Economic Resource Center, Inc. (CERC) is a nonprofit corporation and public-private partnership that drives economic development in Connecticut by providing research-based data, planning and implementation strategies to foster business formation, recruitment and growth. CERC has proven and relevant expertise providing clients with the knowledge and insight they need to gain a competitive advantage. CERC is a pioneer in the development of programs, technologies and capabilities to support effective economic development and offers a complete range of services from economic impact analysis, strategic planning, data gathering and communications, to outreach, site selection and business assistance. CERC has earned a reputation for excellence in Connecticut's economic development community through our accomplished, professional staff, commitment to customer service, and connection to a network of strategic partners.

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EXECUTIVE SUMMARY

Attracting businesses to locate in Connecticut cities and towns is critical to the economic growth strategy that will help solve the state's fiscal problems, according to the newly-elected Governor. All new economic activity in the state will occur on a piece of real estate. In Connecticut, and much of the industrial Northeast and Midwest sections of our country, there is a legacy of properties that have environmental challenges, often complicating or limiting real estate investment that creates new economic activity. It is important for the health and safety of Connecticut's citizens and for potential users of challenged properties that they be remediated. It is also important for the state to remove impediments to economic development when possible.

In Connecticut, the Property Transfer Act was enacted to encourage the clean-up of environmentally challenged properties. However, in current practice the statute has negatively impacted economic growth without achieving many of the desired environmental outcomes.

The Transfer Act, adopted in 1985 in response to hazardous waste conditions, has been amended over the subsequent years in attempts to ease compliance burdens while still maintaining adequate protections. The Transfer Act was also amended to recognize the creation of the brownfield remediation and revitalization program and its coverage of many possible Transfer Act sites.

Today, only Connecticut and New Jersey have this restrictive type of Transfer Act legislation. Transactions are being delayed or abandoned, as outlined in the report's data and case studies sections, even though they may present conditions that fall outside of the legislative intent, such as:

- An entire property may be subject to the Transfer Act because of a release, historic use, or disposal of waste on a selected portion;
- Clean properties may be subject to the Transfer Act because of a temporary use or one-time shipment of waste, requiring additional time and money to prove the site is clean; and
- Properties become establishments under the Transfer Act that would not otherwise be considered in need of remediation under existing environmental regulations (particularly when due to history of agricultural or other use), creating an unfair double-standard.

These stalled or lost deals can lead to significant lost opportunities for economic growth, as described in the economic impact section. Delays in needed environmental cleanup can also result.

The potential impacts of the Transfer Act are widespread: there were over 470 filings with the Department of Energy and Environmental Protection (DEEP) in the past five years (2014-2018), and 7,200 filings under the Transfer Act since its adoption. These filings are spread across 158 of Connecticut's 169 municipalities.

CERC collected dozens of case studies from local brokers, environmental attorneys, Licensed Environmental Professionals (LEPs), economic developers, commercial developers and real estate

professionals who have experience with the Transfer Act. These case studies estimated financial effects of the delays and halted deals. CERC then calculated economic impacts associated with these delays and losses of deals. Assuming the recent active filings in the Transfer Act program are not completed in 2019, CERC applied projected costs of the most conservative of the sample properties to show that the state would experience a loss of over 7,000 jobs that otherwise would have located in Connecticut. These jobs would have generated over 20,000 estimated jobs via direct, indirect, and induced effects, as other companies in Connecticut increased production to meet the needs of these initial businesses and as the employees spent their earnings on household consumption in the state. The businesses represented by these filings would have generated an estimated $178 million in tax revenues for the state and local governments in 2019. Likewise, over 380 construction workers would have been employed at some point in the five years to make improvements to the properties represented by the filings in the DEEP database, with almost 400 additional jobs generated due to this construction work. The one-time tax impact of the construction spending would have been almost $5 million for state and local governments.

Transfer Act amendments, to greatly reduce the turnaround time for verifications and approvals and to permit transfers to go forward once a notice of Transfer Act waiver has been filed, are being proposed and should be considered.

TRANSFER ACT CASE STUDIES

While it is certainly important to identify and remediate properties with environmental contamination, the Transfer Act currently captures a number of properties that are low risk, requiring a significant investment of time and resources to prove that no release occurred. Furthermore, the current regulations can result in significant expense and time delays, causing lost deals and impeding the cleanup (where applicable) and re-use or redevelopment of the properties. Anecdotally, some of the issues raised include:

- An entire property may be subject to the Transfer Act because of a release, historic use, or disposal of waste on a selected portion;
- Clean properties may be subject to the Transfer Act because of a temporary use or one-time shipment of waste, requiring additional time and money to prove the site is clean; and
- Properties become establishments under the Transfer Act that would not otherwise be considered in need of remediation under existing environmental regulations, creating an unfair double-standard.

The following examples illustrate the types of barriers to re-use and redevelopment that properties subject to the Transfer Act have encountered.

Entire property subject to the Transfer Act due to a release, historical use, or disposal of waste from a selected portion

A New York company won contracts with the two Connecticut casinos and needed 30,000-50,000 square feet of high-tech light manufacturing space for 25 employees. The first building they looked at on the shoreline was well suited, but it was subject to the Transfer Act because another building in the same condominium association had manifested over 100 kilograms of hazardous waste. The second building the company selected formerly housed a printing company and it was questionable whether it might also be a Transfer Act site. The company then requested that the broker show them buildings in Rhode Island, since the Transfer Act would not be an issue there.

A Bloomfield property was part of a multi-building development, with a surplus 10-acre parcel slated to be sold to an end-user for construction of a 20,000 square foot facility. The phase 1 study surfaced little concern for contamination but noted the property might be subject to the Transfer Act due to a historical use. Neither the buyer nor seller wanted to pay for the additional investigation that would be required under the Transfer Act nor did they want to go through the certification process, so the sale was cancelled.

Uncontaminated properties may be subject to the Transfer Act because of a temporary use or one-time shipment of waste

An office building in Hartford was deemed an establishment due to the disposal of limited amounts of printing ink, because a business on the second floor had printed its own brochures. The only contaminants found after testing were the pesticides used on the trees. However, the property was transferred several times, requiring filings each time.

A small, light industrial building in Naugatuck was deemed an establishment after the printer switched to water-based inks and disposed of old inks. The seller spent around $75,000 on environmental investigations, and no contamination was found. The first buyer walked away, as the environmental investigations took longer than they were willing to wait. A second deal is pending, for a purchase price $50,000 lower due to the property's Transfer Act status.

A warehouse for a moving company in Stamford had a one-time disposal of waste paint from 1999 and is now subject to the Transfer Act. The seller will need to investigate the property and prove no spills happened.

A corporate training center and former seminary (with no history of manufacturing use) was deemed an establishment due to the disposal of old paint.

Properties that become "establishments" due to the Transfer Act would otherwise not be considered in need of remediation under existing environmental regulations

A 50,000 square foot building in Wallingford was under contract to an end user who was going to invest $3 million and employ over 20 people. However, a former tenant had made a one-time

manifested shipment of over 100 kilograms of waste, after cleaning out a closet when moving. The only significant finding from the environmental investigation was that 40 to 90 years ago, legally-approved pesticides were used on what was then an orchard. The pending sale fell through as lawyers from both sides and two environmental firms spent over a year to investigate and determine whether the site was subject to the Transfer Act; the buyer walked away due to the lengthy delay. The present owner needs to spend $200,000 to put a membrane over the area where the pesticides were used, and the building is 90% vacant.

In the 1980's, a buyer purchased land that the U.S. Army Corps had filled with harbor dredging materials and foundry sands, with CT Department of Environmental Protection oversight and approval. The new owner developed the property as a commercial/industrial subdivision. In the intervening years, different tenants shipped hazardous waste off site, typically when they vacated the property, causing multiple parcels to become establishments. There have been no releases from the tenants' operations (warehouses, research labs, etc.) but the urban fill exceeds DEEP's current standards. The landlord cannot now sell these industrial lots without entering the Transfer Act program and remediating the fill that the state had authorized to be placed there. There are now half a dozen properties that are so stigmatized. Their neighbors, sitting on exactly the same fill, are not deemed establishments.

Well-formulated amendments to the Transfer Act have the potential to significantly reduce the number of uncontaminated or already-remediated properties that are subject to unnecessary regulation and to create consistency across various state regulations, while preserving important environmental protections.

TRANSFER ACT FILINGS BY TOWN

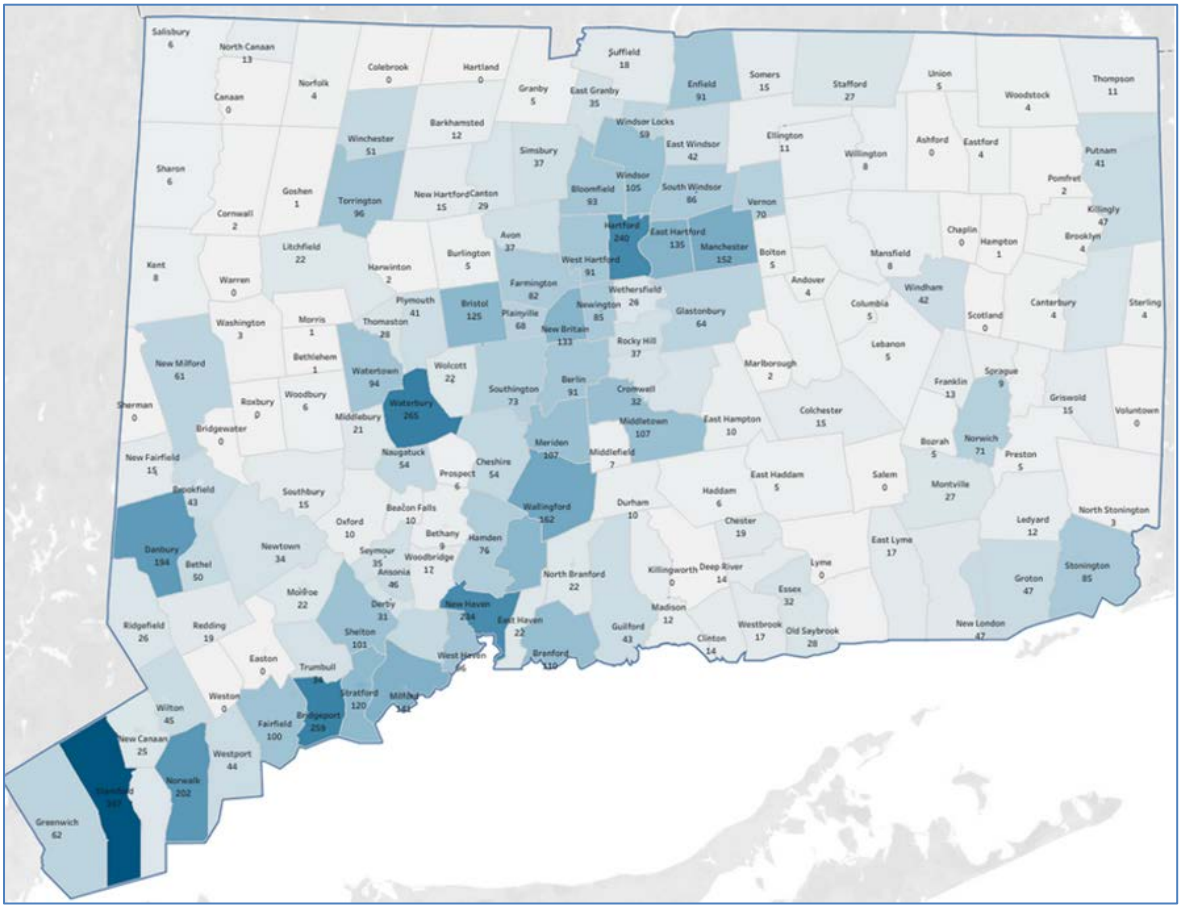
Stakeholders generally assert that the Transfer Act, as it is currently written, suppresses commerce because transactions take longer to close or do not happen at all. In addition, there can be an environmental impact because the current statute may discourage some contaminated properties from being remediated. Even "potentially contaminated" properties, which may not need any remediation, are stigmatized as it is easier to build on a greenfield site than to incur the time delays and added expense imposed by the Transfer Act.

These potential impacts of the Transfer Act are widespread: there have been over 7,200 filings since the Transfer Act began in 1985, spread across 158 of Connecticut's 169 municipalities.[1] One hundred thirty-five municipalities have had at least 5 filings. The largest number of filings have been from Connecticut's larger cities: Stamford has had close to 400, while Waterbury, Bridgeport,

[1] A full list of contaminated or potentially contaminated sites in the state, including those who have completed filings under the transfer act, can be found on the State of Connecticut Department of Energy and Environmental Protection website:
https://www.ct.gov/deep/cwp/view.asp?a=2715&q=325018&depNav_GID=1626

Hartford, New Haven, and Norwalk have had over 200 each. The full tally of filings by municipality is in Appendix B. Please note these figures include only known Transfer Act Program properties that have filed forms with DEEP; they do not include any properties that are covered by the Transfer Act, but for which no forms have been filed.

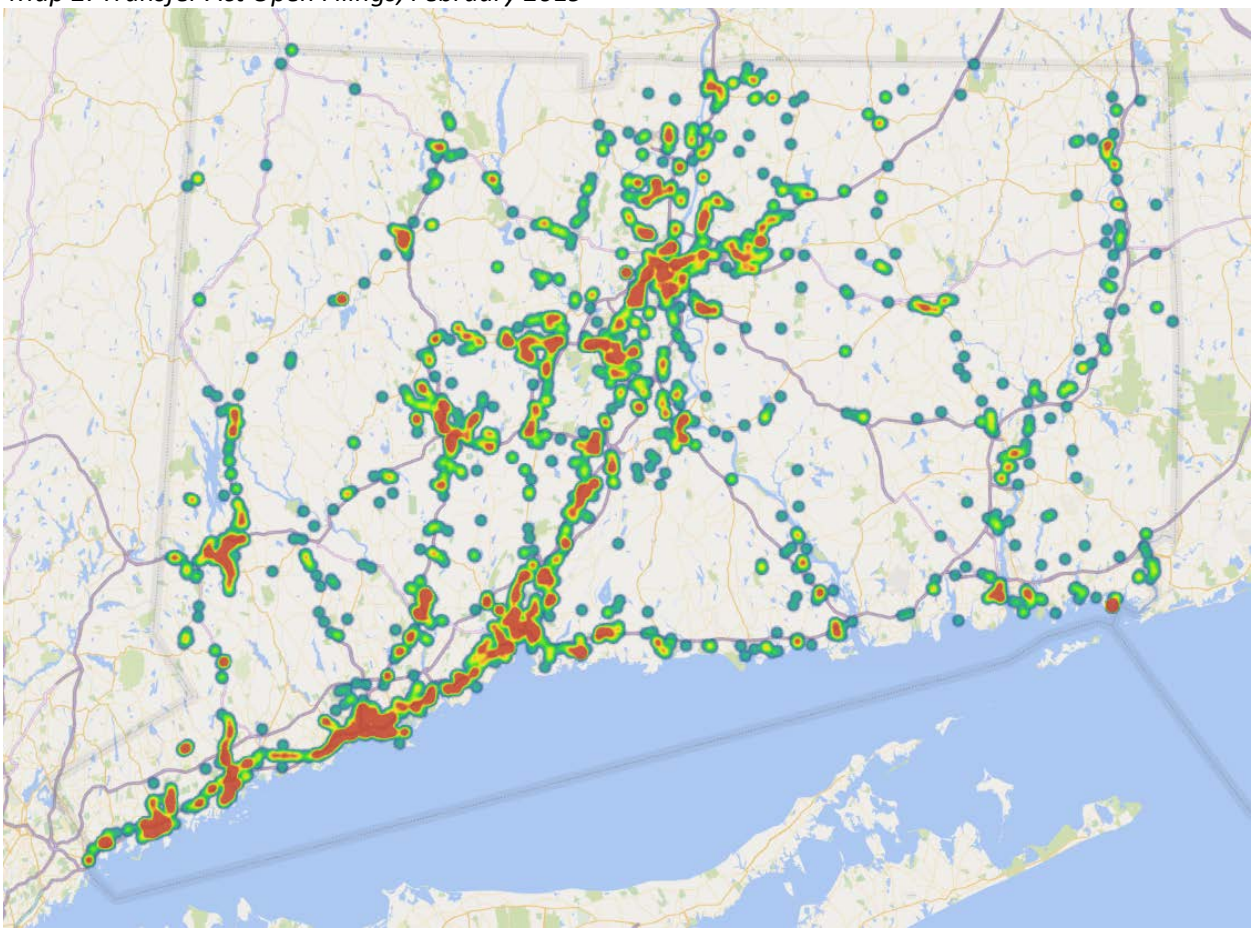
Map 1: Transfer Act Filings by Municipality



Source: Connecticut Department of Energy and Environmental Protection; CERC analysis

Of the 7,200 filings, approximately 42% are considered closed, while the rest remain active. As seen in Map 2, these open sites are spread throughout the state, with higher concentrations in the larger cities and along the state's highways and commercial/industrial corridors.

Map 2: Transfer Act Open Filings, February 2019



Source: Connecticut Department of Energy and Environmental Protection; Ryer Associates analysis

TRANSFER ACT IMPACTS

The decision to leave properties as is and vacant, rather than selling them under the Transfer Act for new uses, has an impact on the economy of the State of Connecticut. This impact is due to:

1. Foregone ongoing operations employment as the potential purchasing company chooses to place their facility in another state rather than deal with the delays caused by the Transfer Act, and
2. Foregone construction employment, as the purchasing company would likely have made repairs, rehabilitation, or demolition and building of new facilities on the property.

These jobs may not be foregone forever, but rather delayed significantly due to the Transfer Act process. The impacts are felt most heavily in larger municipalities, which have a high number of Establishments due to former historical uses. The same jobs can more easily go to less populated areas that still have greenfield sites available, or out of state.

In addition to the jobs lost directly by companies locating outside Connecticut and not conducting construction activities on the Transfer Act properties, jobs are also lost indirectly, as other Connecticut companies do not need to increase production due to purchases by the businesses that chose not to locate in Transfer Act establishments. The state's economy is also affected through induced effects of the foregone employment – had those jobs existed, the workers would have spent a significant portion of their earnings on household purchases at other businesses in the state.

Furthermore, had those construction and ongoing operations jobs existed, the workers and businesses would have paid taxes to the state and local governments. These lost tax revenues would have been beneficial to the state and local governments dealing with regular budget deficits.

Table 1 shows the annual impacts of the Transfer Act on the State of Connecticut from three case study properties, assuming the sale. These case studies were presented by real estate professionals or developers as lost opportunities resulting from the burdens of the Transfer Act.

Property 1, which would have employed 25 people and cost $3 million in improvements to the property, resulted in the biggest total impacts on the state: 25 foregone jobs due to the lost construction alone via direct, indirect, and induced impacts, and a total of 51 jobs lost due to the direct, indirect, and induced impacts of the regular operations on the site. The foregone construction would have increased tax revenues by over $128,000, while the foregone operations would have resulted in lost tax revenues of over $288,000 to the state and local government each year. The impacts from foregone construction on the other two properties were much smaller, as these properties were expected to need less improvement upon purchase. The annual impacts on employment and taxes from Properties 2 and 3 would also have been smaller than for Property 1, due to smaller expected employment at those facilities.

Table 2: Annual Impacts of Transfer Act on Sample Properties

	Property 1	Property 2	Property 3
Industry	Grocery wholesaler	Manufacturer of plumbing fixtures	Manufacturer of aircraft parts
Anticipated effects of property sale			
Estimated cost of improvements	$3,000,000	$200,000	$200,000
Operational jobs created	25	15	20
One-time impacts of foregone construction			
Total jobs not created	25	2	2
Local and state tax revenues not collected	$128,234	$8,548	$8,548
Annual impacts of foregone operations			
Total jobs not created	51	42	58
Local and state tax revenues not collected	$281,165	$287,280	$354,073

Sources: Data provided by Connecticut Association of Realtors; Emsi; CERC calculations.

While some of these impacts might seem small when considering individual properties, the impact overall on employment and tax revenues in the state could be much bigger. *Table 2* shows the estimated impacts for Form III filings received between 2014 to 2018 and listed in the DEEP property transfer database.[2] There were over 470 filings in the database for the five years that were likely still active or pending.

Assuming these filings are not completed in 2019 and that these filings were for properties with the same projected employment and improvement costs as Property 2, the most conservative of the three sample properties in *Table 1*, the state would experience a loss of over 7,000 jobs that otherwise would have been available in the state in the absence of the Transfer Act delays or decisions to purchase a facility in another state (*Table 2*). These jobs would have generated over 20,000 estimated jobs via direct, indirect, and induced effects, as other companies in Connecticut increased production to meet the needs of these initial businesses and as the employees spent their earnings on household consumption in the state. The businesses represented by these filings would have generated an estimated $178 million in tax revenues for the state and local governments in 2019. Likewise, over 380 construction workers would have been employed at some point in the five years to make improvements to the properties represented by the filings in the DEEP database, with almost 400 additional jobs generated due to this construction work. The one-time tax impact of the construction spending would have been almost $5 million for state and local governments.

[2] Filings included in this total were for those parties that have filed Form III, which indicates the property's environmental conditions are unknown or there was hazardous waste or pollution released but the property has not yet been remediated. Filings were also classified in the database with status codes indicating the filing was still active or pending (codes A, D, DL, L, LD, P). Duplicate filings by address were removed from the database.

Table 3: Estimated Impacts of Transfer Act on Filings from 2014 to 2018 in DEEP Database

	Transfer Act Filings
Anticipated effects of property sales	
Estimated cost of improvements	*$94,600,000*
Operational jobs created	*7,095*
Impacts of foregone construction	
Total jobs not created	*777*
Local and state tax revenues not collected	*$4,984,879*
Impacts of foregone operations	
Total jobs not created	*20,088*
Local and state tax revenues not collected	*$177,989,649*

Sources: Data provided by Connecticut Association of Realtors; Emsi; CERC calculations.

These calculations are related to the lost economic activity for deals that fell through; without counting funds spent to investigate properties with no contamination, or without including losses due to time delays or filing fees.

CONCLUSION

It is important for the health and safety of Connecticut's citizens and for the attractiveness of the state as a place to do business that polluted properties be remediated. However, it is also important for the state to remove impediments to economic development when possible. Therefore, the Property Transfer Act and its regulations present hurdles for developers and need to be examined for possible amendment to ease undue restrictions.

The Transfer Act, adopted in 1985 in response to hazardous waste conditions, has been amended over the subsequent years in attempts to ease compliance burdens while still maintaining adequate protections. The Transfer Act was also amended to recognize the creation of the brownfield remediation and revitalization program and its coverage of many possible Transfer Act sites. Additional analysis is needed to compare the numbers and conditions of properties subject to the provisions of the two legislated programs.

Today, only Connecticut and New Jersey have this restrictive type of Transfer Act legislation. Properties that fall outside the legislative intent may be subject to its requirements. Transactions are being delayed or abandoned, which can lead to significant lost opportunities for economic growth. Delays in needed environmental cleanup can also result.

The potential impacts of the Transfer Act are widespread: there were over 470 filings with DEEP in the past five years (2014-2018) that are likely still active or pending. A total of over 7,200 filings have been made under the Transfer Act since its adoption and these have represented properties in 158 of Connecticut's 169 municipalities.

Transfer Act amendments, to greatly reduce the turnaround time for verifications and approvals and to permit transfers to go forward once a notice of Transfer Act waiver filing has been made, are being proposed and should be considered.

APPENDIX A: BACKGROUND AND LEGISLATIVE HISTORY

Attracting businesses to locate in Connecticut cities and towns is critical to the economic growth strategy that will help solve the state's fiscal problems, according to the newly-elected Governor. Economic growth needs to be a goal for entities beyond the traditional Department of Community and Economic Development, including the private businesses that are here, as well as state agencies that can help or hinder growth, such as the Departments of Labor, Transportation, Revenue Services, and Energy and Environmental Protection, according to the Governor's public pronouncements. To be most effective, this initiative must include a review of the benefits and costs associated with statutes and regulations that are involved when a business makes location decisions, including the Property Transfer Law.

In 1985 the Connecticut General Assembly enacted sections of the C.G.S. Hazardous Waste Chapter that are known as the "Property Transfer Law" (Sections 22a-134 through 22a-134e) (Transfer Act), after finding that improper management of hazardous wastes had caused contamination to the state's water, soil and air, endangering the health and safety of citizens. The overarching purpose of the Transfer Act was to address hazardous waste facilities in a manner that would protect health and safety while complying with the federal Resource Conservation and Recovery Act of 1976 (42 USC 6901 et seq.)

The Transfer Act requires that transferors (as defined) of certain real properties and business operations on or from which hazardous waste was generated or handled in the past must, upon transfer (generally, any change in ownership) of the property, disclose environmental conditions to the transferee and to regulators and comply with any applicable requirements to investigate and remediate conditions. The Act provides that when a transferor does not comply with its provisions that transferor is deemed strictly liable to the transferee for all costs of remediation and is subject to a judgment for damages caused by the failure to comply with the Act.

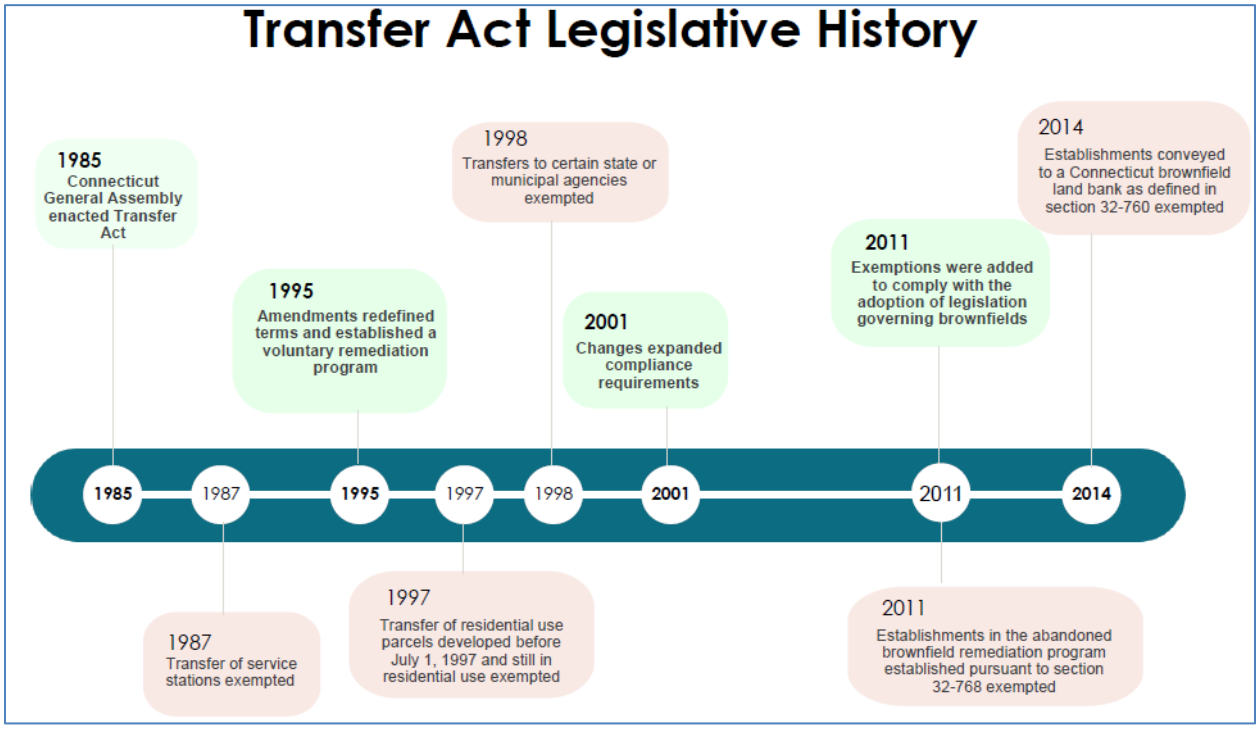
Establishments covered by the Transfer Act are those properties where hazardous waste is or was generated, or where such waste was handled, or where a dry cleaning, furniture stripping or vehicle body repair business was operated. Transfers of properties and businesses under the Act require investigation of environmental conditions and the filing of forms with the Department of Energy and Environmental Protection (DEEP). The particular forms to be filed are determined by the conditions and whether the transfer involves real property, a business operation or both.

The Transfer Act Program, administered by the Remediation Division of the Bureau of Water Protection and Land Reuse of DEEP, further advises that "When transferring an establishment where there has been a release of a hazardous waste or a hazardous substance, the parties negotiate who will sign the Property Transfer Form as the Certifying Party to investigate the parcel

and remediate pollution caused by any release of a hazardous waste or hazardous substance from the establishment."

Since its enactment, the Transfer Act has been amended many times. Significant amendments in 1995 redefined terms and established a voluntary remediation program. Changes in 2001 expanded compliance requirements. In 2011, exemptions were added to comply with the adoption of legislation governing brownfields. Some notable exemptions to the Act's applicability include:

- 1987-transfer of service stations exempted
- 1997-transfer of residential use parcels developed before July 1, 1997 and still in residential use exempted
- 1998-transfers to certain state or municipal agencies exempted
- 2011-establishments in the abandoned brownfield remediation program established pursuant to section 32-768 exempted
- 2014-establishments conveyed to a Connecticut brownfield land bank as defined in section 32-760 exempted



The history of amendments to sections 22a-134 [Definitions] and 22a-134a [Transfer of establishments] follows.

The history of amendments to sections 22a-134 [Definitions] and 22a-134a [Transfer of establishments]:

Section 22a-134 History: P.A. 87-475 redefined "establishment" to apply to those operating on or after May 1, 1967, and to include dry cleaning, furniture stripping, painting and auto body operations and added definitions of "service stations" and "transfer of a service station"; P.A. 95-183 added Subdiv. (1) (A) to (M), inclusive, re exclusions from the definition of "transfer of establishment"; amended Subdiv. (3) to redefine "establishment" to mean any real property or business operation from which on and after November 1, 1980, there was generated, except as the result of remediation activities, more than 100 kilograms of hazardous waste in any one month and to make other grammatical adjustments for consistency; amended Subdiv. (4) to redefine "hazardous waste" to include waste identified in accordance with the federal Resource Conservation and Recovery Act or by the commissioner in regulations and polychlorinated biphenyls in concentrations greater than 50 parts per million and to exclude lead paint abatement wastes; deleted former Subdiv. (5) defining "negative declaration" and renumbered the remaining Subdivs. accordingly; amended the renumbered Subdiv. (5) to specify that "service station" means a retail operation which does not otherwise meet the definition of "establishment"; amended the renumbered Subdiv. (6) to add Subparas. (A) to (M), inclusive, re exclusions from the definition of "transfer of a service station"; and added new Subdivs. (7) to (20), inclusive, providing definitions for "certifying party", "party associated with the transfer of an establishment", "remediation standards", "parcel", "Form I", "Form II", "Form III", "Form IV", "person", "remediate", "licensed environmental professional", "environmental condition assessment form", "pollution", and "verification"; P.A. 96-113 redefined "transfer of establishment" to add provision re providing environmental condition assessment form to commissioner for conveyance of certain portions of parcels and to exclude conveyances of service stations, redefined "establishment" to make technical clarifications, deleted a definition of "transfer of a service station", redefined "party" to explicitly include former operators of establishments and the state, redefined "Form II" to add provision re determination that no remediation is necessary, redefined "Form IV" to add provision re accompanying documentation and added the definition of "vehicle", renumbering Subdivs. as necessary, effective May 24, 1996; P.A. 97-218 redefined "transfer of establishment" in Subdiv. (1) to exclude conveyances of parcels developed solely for residential use prior to July 1, 1997, where such use has not changed; amended Subdiv. (3)(B) to provide that in that category of "establishment", the waste is generated at a different location; redefined "certifying party" in Subdiv. (6) to specify that investigation of parcel be in accordance with prevailing standards and guidelines and that remediation be in accordance with the remediation standards; redefined "form I" in Subdiv. (10) to clarify that declaration is based on an investigation of the property in accordance with the prevailing standards and guidelines; redefined "form II" in Subdiv. (11) to provide that remediation of the parcel is in accordance with the remediation standards; redefined "form III" in Subdiv. (12) to provide that the investigation is in accordance with prevailing standards and guidelines; and redefined "form IV" in Subdiv. (13) to provide that the certification be accompanied by a determination by the commissioner or a licensed environmental professional under Secs. 22a-134a or 22a-133x and that the investigation is in accordance with prevailing standards and guidelines; P.A. 98-253 added Subdiv. (l)(P) excluding from the definition of "transfer of establishment" conveyances to certain state or municipal agencies; Dec. Sp. Sess. P.A. 98-1 added Subdiv. (1)(Q) re conveyance to a limited liability company established to assemble

properties to effectuate the purposes of the Patriots Stadium Enabling Act, effective January 12, 1999; P.A. 99-225 deleted said Subdiv. (1)(Q) and added new Subparas. (Q), (R) and (S) regarding exemptions for certain transactions involving certain partnership properties, amended Subdiv. (3) to clarify a provision excepting remediation activities from the definition of "establishment", and amended Subdivs. (6), (10), (11), (12), and (13) to require adoption of regulations on or before January 1, 2002, providing standards for investigation of contaminated parcels; P.A. 99-241 deleted Subdiv. (1)(Q) re conveyance of parcel to limited liability company established to assemble properties to effectuate purposes of the Patriots Stadium Enabling Act, and added a limited liability company established to assemble properties for development of the convention center facilities, sportsplex and related parking facilities site, effective July 1, 1999 (Revisor's note: In codifying the provisions of P.A. 99-225 and 99-241, as they affect Subdiv. (1), the Revisors retained the words "or (Q) any conveyance of a parcel", which were deleted by P.A. 99-225, so as to add the amendment to Subpara. (Q) contained in P.A. 99-241, and relettered new Subparas. (Q), (R) and (S), contained in P.A. 99-225, to (R), (S) and (T), respectively); P.A. 00-140 amended Subdiv. (1)(Q) to make a technical change, substitute "acquisition" for "assembly", delete references to former convention center facilities, sportsplex and related parking facilities and add reference to the overall project as defined in Sec. 32-651, effective May 2, 2000; P.A. 01-204 redefined "transfer of establishment", "establishment", "certifying party", "party associated with the transfer of an establishment", "Form I", "Form II", "Form III", "Form IV", "environmental condition assessment form", "verification" and "vehicle", defined "business operation", "corporate reorganization not substantially affecting the ownership of an establishment", "Form IV verification", "hazardous substance" and "sediment", and made technical changes; June Sp. Sess. 01-9 revised effective date of P.A. 01-204 but without affecting this section; P.A. 03-218 amended Subdiv. (1)(B) by adding "or foreclosure of a municipal tax lien" and made a technical change (1)(E), amended Subdiv. (10)(B) by adding "based on an investigation of the parcel in accordance with the prevailing standards and guidelines", and amended Subdiv. (11) by making technical changes and, in Subpara. (C), by adding "verification", effective July 1, 2003; P.A. 03-19 made technical changes in Subdivs. (1), (11), (21) and (24), effective May 12, 2003; P.A. 06-76 amended Subdiv. (1) to make technical changes, to add Subpara. (V) re universal waste, and to add Subpara. (W) re residential common interest community, amended Subdiv. (10) to require verification from licensed environmental professional to be in writing, amended Subdivs. (10) and (11)(A) to require additional verification that no discharge, spillage, uncontrolled loss, seepage or filtration of hazardous waste or substances has occurred at any portion of the establishment, and added Subdivs. (26) and (27) defining "universal waste" and "universal waste transfer facility", respectively; P.A. 06-184 amended Subdiv. (1)(B) by redefining "transfer of establishment" to include tax warrant sales pursuant to Sec. 12-157, effective June 9, 2006; P.A. 07-81 amended Subdiv. (19) to redefine "verification" to require that written opinion be on a form prescribed by commissioner; P.A. 08-124 made technical changes in Subdiv. (1)(L) and (V), effective June 2, 2008; P.A. 09-235 redefined "transfer of establishment" in Subdiv. (1), effective July 9, 2009, and added Subdiv. (28) defining "interim verification", effective October 1, 2009; pursuant to P.A. 11-80, "Commissioner of Environmental Protection" was changed editorially by the Revisors to "Commissioner of Energy and Environmental Protection", effective July 1, 2011; P.A. 11-141 amended Subdiv. (1) by adding Subparas. (X), (Y) and (Z) re establishment in abandoned brownfield cleanup program, transfer of title from bankruptcy court or municipality to a nonprofit organization and establishment in brownfield remediation and revitalization program, effective

July 8, 2011; P.A. 11-241 amended Subdiv. (1) by deleting former Subpara. (R) re conversion of general or limited partnership to limited liability company and redesignating existing Subparas. (S) to (W) as Subparas. (R) to (V), effective January 1, 2014; P.A. 12-32 amended Subdiv. (1) by adding new Subpara. (R) re conversion of general or limited partnership to limited liability company, redesignating existing Subparas. (R) to (V) as Subparas. (S) to (W) and adding Subpara. (X) re acquisition of establishment in abandoned brownfield cleanup program, Subpara. (Y) re transfer of title from bankruptcy court or municipality to a nonprofit organization and Subpara. (Z) re establishment in brownfield remediation and revitalization program, effective January 1, 2014; P.A. 12-183 amended Subdiv. (1) by adding Subpara. (AA) re conveyance to effectuate project certified and approved pursuant to Sec. 32-9v, effective June 15, 2012; P.A. 12-196 amended Subdiv. (1) by adding provisions, codified by the Revisors as Subpara. (BB), re conveyance of certain airport properties, effective June 15, 2012; pursuant to June 12 Sp. Sess. P.A. 12-1, "Connecticut Development Authority" was changed editorially by the Revisors to "Connecticut Innovations, Incorporated" in Subdiv. (1)(P), effective July 1, 2012; P.A. 13-308 amended Subdiv. (1) by replacing reference to Sec. 32-9kk with reference to Sec. 32-760, making a technical change and adding reference to remedial action and redevelopment municipal grant program in Subpara. (B) and by making a technical change in Subpara. (X), effective July 1, 2013; P.A. 14-88 amended Subdiv. (1)(B) to redefine "transfer of establishment" by adding references to exercise of eminent domain by a municipality and amended Subdiv. (3) to redefine "establishment" by adding provision re removal or abatement of building materials and making technical changes, effective June 3, 2014; P.A. 17-214 amended Subdiv. (1) to redefine "transfer of establishment" by adding reference to Connecticut brownfield land bank in Subpara. (B) and by adding Subpara. (CC) re conveyance of establishment to Connecticut brownfield land bank, added Subdiv. (29) defining "Connecticut brownfield land bank", and made a technical change, effective July 1, 2017.

Section 22a-134a History: P.A. 87-475 added Subsec. (d) regarding liens against real estate on which a service station was transferred and in operation on or after May 1, 1967, and added Subsec. (e) authorizing the commissioner to adopt regulations; P.A. 87-589 made technical changes in Subsec. (d); P.A. 95-183 amended Subsec. (a) to add a reference to Sec. 22a-134e, deleted former Subsecs. (b) and (c) and relettered the remaining Subsecs. accordingly, amended the relettered Subsec. (b) to change "cleaned up" to "remediated", added new Subsec. (d) re submittal of Form I or II, new Subsec. (e) re submittal of Form II or IV, new Subsec. (f) re review of Form III or IV, new Subsec. (g) re verification of forms by environmental professional, new Subsecs. (h) and (i) re a schedule for remediation, new Subsec. (j) re notice of remediation, new Subsec. (k) re orders to file or remediate, new Subsec. (l) re construction of the Transfer Act with regard to innocent landowners and new Subsec. (m) re transfers covered by previous filings (Revisor's note: P.A. 88-230, 90-98, 93-142 and 95-220 authorized substitution of "judicial district of Hartford" for "judicial district of Hartford-New Britain" in public and special acts of the 1995 session of the General Assembly, effective September 1, 1998); P.A. 96-113 amended Subsec. (d) to provide that a transferor shall submit a copy of any Form III or IV to the transferee and amended Subsec. (k) to expand range of orders authorized under that subsection, effective May 24, 1996; P.A. 99-225 amended Subsec. (f) to require verification of investigations and to require adoption of regulations on or before January 1, 2002, providing standards for investigation of contaminated parcels and amended Subsec. (m) to provide that eligibility for the exemption under that subsection on the basis of a filing of a Form I or II is limited to filings of such forms after October 1, 1995, to require verification of investigations by

licensed environmental professionals and to require adoption of regulations before January 1, 2002, providing standards for investigation of contaminated parcels; P.A. 01-204 deleted former Subsec. (b) re liens pursuant to Sec. 22a-452 and redesignated existing Subsecs. (c) to (m) as Subsecs. (b) to (l), amended Subsec. (c) to clarify that a Form I or II submission must be complete, require the commissioner to notify the transferor no later than 90 days after the submission of a Form I or Form II if the commissioner deems the Form I or Form II incomplete, require the transferor, rather than the certifying party, to submit a complete Form III or Form IV if the transferor is unable to submit a Form I or Form II, require such Form III or Form IV to be prepared and signed by a party associated with the transfer, and require the transferor to prepare and sign the proper form if no other party associated with the transfer does so, amended Subsec. (d) to require the certifying party to a Form I, Form III or Form IV, if requested in writing by the commissioner, to submit copies of technical plans, reports and other supporting documentation of the investigation of the parcel or remediation of the establishment and make a technical change for purposes of gender neutrality, amended Subdiv. (e) to change the commissioner's notification deadline from within 15 days of receipt to no later than 30 days after receipt, make a technical change for purposes of gender neutrality, eliminate the requirement for adoption of regulations on or before January 1, 2002, and delete provision re parcels subject to an order, consent order, or stipulated judgment, amended Subsec. (f) to include a hazardous substance at the establishment in Subdiv. (1) and to substitute “establishment” for “parcel” in Subdivs. (3) to (5), amended Subsec. (g) to make the subsection applicable to a certifying party to a Form III or Form IV, require the certifying party to submit a schedule for investigating and remediating the establishment, rather than the parcel, require the commissioner to notify the certifying party if the commissioner determines that the commissioner's review and written approval is necessary, delete provisions re submission of copies of technical plans and reports, provide that the certifying party shall investigate the parcel and remediate the establishment, require the certifying party to submit a verification that the establishment has been remediated, require that the certifying party submit, as applicable, a Form IV verification and make technical changes, amended Subsec. (h) to apply to certifying parties to a Form III or Form IV, provide that commissioner's notification state approval of the investigation of the parcel and remediation of the establishment is required, provide that schedule is to apply to the investigation of the parcel and remediation of the establishment, provide that the certifying party is to submit a schedule for the submission for scopes of work and submit the scopes of work, and make technical changes, amended Subsec. (i) to apply to certifying parties to a Form III or Form IV and, in Subdivs. (2) and (3), to substitute “establishment” for “parcel”, amended Subsec. (j) to allow the commissioner to issue an order to any person who fails to file a form or files an incomplete or incorrect form, allow the commissioner to issue an order to the transferor or transferee, or both, requiring a filing, substitute “establishment” for “parcel” and make conforming changes, amended Subsec. (l) to make technical changes and delete requirement for adoption of regulations on or before January 1, 2002, and added Subsec. (m) re failure of commissioner to comply with notice provisions of section does not limit commissioner's ability to enforce provisions of the Transfer Act; June Sp. Sess. P.A. 01-9 revised effective date of P.A. 01-204 but without affecting this section; P.A. 03-19 made a technical change in Subsec. (l), effective May 12, 2003; P.A. 03-82 amended Subsec. (a) by adding provision re person appointed by court to sell, convey or partition real property or as a trustee in bankruptcy shall not be deemed a party associated with the transfer of an establishment and shall not be required to comply with Secs. 22a-

134 to 22a-134e; P.A. 03-218 added “Form II” to the introductory language in Subsec. (d), amended Subsec. (d)(2) by replacing “Form II” with “Form III”, replaced “establishment” with “parcel” in Subsec. (i)(3)(B), and replaced “22a-134f” with “22a-134e” in Subsec. (m), effective July 1, 2003; P.A. 06-76 amended Subsec. (g) to designate existing language as Subdiv. (1), make a technical change, add provision re schedule specified by commissioner, replace provision re submission of independent verification with language re submission of a final verification and reliance on verification for a portion of the establishment and add Subdiv. (2) re remediation of a portion of an establishment, and amended Subsec. (h) to designate existing language as Subdiv. (1), make technical changes and add Subdiv. (2) re remediation of a portion of an establishment; P.A. 07-81 amended Subsec. (e) to provide that certifying party shall use a licensed environmental professional for verification unless notified that commissioner's review is required, to require that investigation be performed in accordance with prevailing standards and guidelines and to make technical changes, amended Subsec. (g)(1) to add reference to Subsec. (h) as an exception, to change deadline for submission of schedule from 30 to 75 days after receipt of the notice, to add provisions re deadlines of 2 years and 3 years, respectively, for notification of completion of the investigation or initiation of the remediation, to specify that commissioner's review may be required at any time and to make technical changes, and amended Subsec. (k) to replace reference to Sec. 22a-134(a) with reference to Sec. 22a-134a; P.A. 07-233 amended Subsec. (e) to require certifying party to use a licensed environmental professional to verify investigation and remediation, to add exception for review required by the commissioner, to require commissioner to respond not later than 45 days after receipt of an environmental condition assessment form from anyone who submitted a Form III before October 1, 1995, re whether a licensed environmental professional can be used, and to add to the licensed environmental professional's charge in such cases verification that investigation was done according to prevailing standards and guidelines, amended Subsec. (g) to add exception as provided in Subsec. (h), to give certifying party 75, rather than 30, days to submit investigation and remediation schedule, to provide that the 75 days starts upon notice that form is complete, to require certifying party to provide commissioner with documentation that investigation and a remedial action plan are done, and to allow commissioner to prescribe the form for all verifications, and added Subsec. (e)(3) re audits, effective July 1, 2007; P.A. 08-124 made technical changes in Subsecs. (g) and (h), effective June 2, 2008; P.A. 09-235 redesignated existing Subsec. (g)(1) as Subsec. (g)(1)(A) to Subsec. (g)(1)(C), amended Subsec. (g)(1)(A) to delete references to Form IV and require schedule to provide that remediation support a verification or interim verification within specified time frame, amended Subsec. (g)(1)(B) to make provisions applicable to certifying party that submitted a Form III or Form IV before October 1, 2009, and require certifying party to achieve remediation standards to support final verification, amended Subsec. (g)(1)(C) to require certifying party that submits a Form III or Form IV after October 1, 2009, to meet remediation standards to support final or interim verification not later than 8 years after notice that the Form III or Form IV is complete, and to allow for filing extension, and added Subsec. (g)(1)(D) and Subsec. (g)(1)(E) re groundwater; pursuant to P.A. 11-80, “Department of Environmental Protection” was changed editorially by the Revisors to “Department of Energy and Environmental Protection”, effective July 1, 2011; P.A. 11-141 added Subsec. (n) re execution of Form III or Form IV not requiring certifying party to investigate or remediate, effective July 8, 2011; P.A. 14-88 amended Subsec. (g)(2) by designating existing provisions as Subpara. (A) and amending same to add “Notwithstanding the date the Form III or Form IV was submitted” and

add references to interim verification, and by adding Subpara. (B) re certifying party who submits interim verification on or before December 31, 2014, and amended Subsec. (g)(3) by adding reference to interim verification in Subpara. (A) and making a technical change in Subpara. (C)(v), effective June 3, 2014.

APPENDIX B: APPLICATIONS UNDER TRANSFER ACT PROGRAM, BY MUNICIPALITY

TOWN	Number of Applications
Andover	4
Ansonia	46
Avon	37
Barkhamsted	12
Beacon Falls	10
Berlin	91
Bethany	9
Bethel	50
Bethlehem	1
Bloomfield	93
Bolton	5
Bozrah	5
Branford	110
Bridgeport	259
Bristol	125
Brookfield	43
Brooklyn	4
Burlington	5
Canterbury	4
Canton	29
Cheshire	54
Chester	19
Clinton	14
Colchester	15
Columbia	5
Cornwall	2
Coventry	8

Cromwell	32
Danbury	194
Danielson	4
Darien	23
Deep River	14
Derby	31
Durham	10
East Granby	35
East Haddam	5
East Hampton	10
East Hartford	135
East Haven	22
East Lyme	17
East Windsor	42
Eastford	4
Ellington	11
Enfield	91
Essex	32
Fairfield	100
Farmington	82
Franklin	13
Glastonbury	64
Goshen	1
Granby	5
Greenwich	62
Griswold	15
Groton	47
Guilford	43
Haddam	6
Hamden	76
Hampton	1
Hartford	240
Harwinton	2
Hebron	5
Kent	8
Killingly	47
Lebanon	5
Ledyard	12
Lisbon	5
Litchfield	22

Madison	12
Manchester	152
Mansfield	8
Marlborough	2
Meriden	107
Middlebury	21
Middlefield	7
Middletown	107
Milford	141
Monroe	22
Montville	27
Morris	1
Naugatuck	54
New Britain	133
New Canaan	25
New Fairfield	15
New Hartford	15
New Haven	234
New London	47
New Milford	61
Newington	85
Newtown	34
Norfolk	4
North Branford	22
North Canaan	13
North Haven	125
North Stonington	3
Norwalk	202
Norwich	71
Old Lyme	3
Old Saybrook	28
Orange	52
Oxford	10
Plainfield	29
Plainville	68
Plantsville	1
Plymouth	41
Pomfret	2

Portland	30
Preston	5
Prospect	6
Putnam	41
Redding	19
Ridgefield	26
Rocky Hill	37
Salisbury	6
Saybrook	1
Seymour	35
Sharon	6
Shelton	101
Simsbury	37
Somers	15
South Windsor	86
Southbury	15
Southington	73
Sprague	9
Stafford	27
Stamford	397
Sterling	4
Stonington	85
Stratford	120
Suffield	18
test Town	1
Thomaston	28
Thompson	11
Tolland	10
Torrington	96
Trumbull	34
Union	5
Unionville	1
Vernon	70
Wallingford	162
Washington	3
Waterbury	265
Waterford	19
Watertown	94
West Hartford	91
West Haven	96

Westbrook	**17**
Westport	**44**
Wethersfield	**26**
Willington	**8**
Wilton	**45**
Winchester	**51**
Windham	**42**
Windsor	**105**
Windsor Locks	**59**
Wolcott	**22**
Woodbridge	**17**
Woodbury	**6**
Woodstock	**4**
TOTAL	**7,247**

REGULATORY FLEXIBILITY ANALYSIS
(FORMERLY SMALL BUSINESS IMPACT STATEMENT

SECTION A

Date: July 12, 2024

Agency Submitting the Proposed Regulation: Department of Energy and Environmental Protection

Proposed Regulation Title: "Release-Based Cleanup Regulations" or "RBCRs"

Prior to or concomitant with the posting of a notice pursuant to C.G.S. § 4-168a, as amended by Public Act 16-32, each agency shall prepare a regulatory flexibility analysis. Agencies must complete this document and upload it into the eRegulations System prior to posting the Notice of Intent described in C.G.S. § 4-168(a)(1). This document will automatically publish to eregulations.ct.gov at the time the filing agency posts the Notice of Intent.

Reminder: Pursuant to C.G.S. § 4-168a(c), prior to the adoption of any proposed regulation that may have an adverse impact on small businesses, each agency shall notify the Department of Economic and Community Development and the joint standing committee of the General Assembly having cognizance of matters relating to commerce of its intent to adopt the proposed regulation.

Scope and Objectives of the Proposed Regulation (mandatory for all filers):

In 2020, the General Assembly directed the Department to develop regulations to transition to a release based cleanup system and sunset the Transfer Act. The proposed Release Based Cleanup Regulations (RBCRs) update and consolidate Connecticut's rules for cleaning up pollution released to the lands and waters of the state of oil or petroleum, or chemical liquids or solids, liquid or gaseous products, or hazardous waste (a "release"). This change is necessary to bring Connecticut into alignment with the 48 other states, including Massachusetts, with release-based cleanup systems. Currently, the cleanup of such releases is regulated through scattered statutes and regulations. The proposed regulation consolidates these regulatory programs and restructures the procedures by which historical and contemporaneous releases are discovered and remediated. Importantly, it does not fundamentally alter the current-state obligation of entities that created or maintain releases, which is, of course, to clean them up.

Pursuant to section 22a-134(1) of the General Statutes, the proposed regulations will also sunset the Connecticut Property Transfer Act ("Transfer Act") going forward. The Transfer Act requires businesses to investigate certain properties and sets a stringent standard for that investigation. At the time the Transfer Act was enacted, businesses had to be directed to look for pollution; today, we now know that the requirement to "prove the negative" and demonstrate that pollution is not present is time consuming and expensive and hampers the transfer and redevelopment of real property. Today, market forces drive investigation. Business, often at the request of lenders, routinely investigate for pollution. The proposed regulations provide a clear path and new, cost-effective tools for those businesses to address known releases and achieve the state's cleanup standards.

Please check the appropriate box:

☐ The regulatory action will not have an effect on small businesses. *If you check this box, do not complete SECTION B.*

☒ The regulatory action will have an effect on small businesses, but will not have an adverse effect on such small businesses. *If you check this box, complete SECTION B.*

☐ The regulatory action may have an adverse effect on small businesses, but no alternatives considered would be both as effective in achieving the purpose of the action and less burdensome to potentially affected small business. *Note: alternatives considered may include those listed in C.G.S. § 4-168a(b)(6). If you check this box, complete SECTION B.*

☐ The regulatory action will have an adverse effect on small businesses that cannot be minimized in a manner that is consistent with public health, safety and welfare. *If you check this box, complete SECTION B.*

SECTION B

For regulatory actions which affect or may affect small businesses, please provide responses to the following:

Types of Businesses Potentially Affected by the Proposed Regulation:

The proposed RBCRs require any "person" who "creates" or "maintains" a release to the land and waters of the state to take action to address that release. Public Act 20-9 authorized the Commissioner to adopt the RBCRs and directed that, on adoption, the RBCRs will sunset the Transfer Act, which required certain businesses to investigate and remediate pollution on real property they owned or used. The definition of "person" in Public Act 20-9 and the proposed regulations includes all types of business entities. Generally speaking, small businesses that use oil or petroleum, or chemical liquids or solids, liquid or gaseous products, or hazardous waste will be more likely to be subject to the proposed regulation by causing a new release or initiating an investigation that discovers a historical release.

Businesses may have "created" releases in the past or may "create" releases in the future, which may be subject to the RBCRs. Under the RBCRs, a business may be "maintaining" a release if it owns real property where pollution occurred in the past and has knowledge of the pollution. RBCRs create no obligation for businesses that do not have knowledge of a release. Most small businesses that have purchased property prior to the effective date of the RCBRs will have previously completed an investigation and cleanup of historical releases as part of its acquisition and often as a prerequisite to obtaining a mortgage or loan that uses the property as collateral. For those businesses, the RBCRs would typically become implicated when there is new release of pollution created by the businesses.

While the changes introduced by the RCBRs make broad changes to the cleanup programs, the RCBRs don't fundamentally change any obligation on businesses or greatly expand current practices by businesses related to new spill response or cleanup of discovered historical releases. Existing laws requiring the reporting, investigation and remediation of pollution – such as the Transfer Act and the requirement to report new releases in Conn. Gen. Stat. § 22a-450 and the regulations that implement it – apply broadly to businesses in the state. While the RBCRs make important changes to how pollution will be investigated and set a unified cleanup standard after discovery, the scope of businesses subject to regulation will not change dramatically.

Total Number of Small Businesses Potentially Subject to the Proposed Regulation:

When adopted, the RBCRs will potentially apply to all small businesses that own real property or conduct business in the state. Applicability is determined based on whether the business created or maintained a release to the land and waters of the state, not based on any specific type of small business or a defined set of business activities.

Will small businesses, in order to comply with the proposed regulation, have additional requirements as listed in C.G.S. § 4-168a(b)(4)? If so, identify the requirements and provide an explanation for each.

Possibly; the answer depends on many factors, including the degree to which small businesses would have otherwise adequately addressed releases. Connecticut law requires all known pollution to be remediated, and sets the state's cleanup standards (currently adopted as the Remediation Standards Regulations) as the threshold levels or risk reduction approaches that must be achieved in environmental media for a release to be considered cleaned up. The Transfer Act applies to some business operations and real properties owned by small businesses, based on historical operation and land use, regardless of the presence of actual pollution. The Transfer Act imposes very specific and stringent requirements for the investigation and remediation of pollution. All small businesses are subject to the requirement to report new releases (or spills) to the Department, and to appropriately address those spills.

The RBCRs create a comprehensive program for addressing all releases of pollution, including requirements to report, investigate, and remediate pollution upon discovery. Therefore, some small businesses may be required to create, file or issue additional reports; implement additional recordkeeping procedures; hire or contract with additional professionals, including, but not limited to, lawyers, accountants, engineers, auditors or inspectors; or pay additional fees.

But it is equally possible that many small businesses will be relieved of the burden to take those actions under the RBCRs. Some small businesses, such as those that would otherwise be subject to the Transfer Act or those that would, through the normal course of their business, investigate and remediate pollution releases to the state's cleanup standards, will have *fewer* requirements under the proposed regulations; they will no longer be required to comprehensively investigate real property to a standard specified by the Department, will no longer have to pay to remove certain polluted fill, or may have lower fees associated with other remediation efforts. For small businesses that would be subject to the Transfer Act, the costs associated with "proving the negative" – demonstrating conclusively that no pollution is present – are significant. Consultants, such as LEPs, are required, and attorneys are often needed to navigate the complexities of the Transfer Act.

As noted, under the Transfer Act, the requirement to file reports, hire professionals and pay fees is determined by historical land use or business operations, regardless of the presence of actual pollution. In contrast, the RBCRs do not impose those obligations unless and until actual pollution is discovered. Small business can choose whether or not to investigate potential historical releases. The RCBRs do not require an investigation of a release, let alone investigation of an entire property.

Has the agency communicated with small businesses or small business organizations in developing the proposed regulation and the regulatory flexibility analysis, if applicable? If so, to what extent?

DEEP developed the proposed regulation, with extensive public consultation, pursuant to § 22a-134tt of the Connecticut General Statutes. Since December of 2020, DEEP has convened monthly meetings to develop this regulation with a Release Based Cleanup Working Group that has included the Department of Economic and Community Development, members of the joint standing committee having cognizance of matters relating to the environment and commerce, environmental transaction attorneys, commercial real estate brokers, licensed environmental professionals, representative from the Connecticut Manufacturers' Collaborative, representatives of environmental advocacy groups, representatives of the Environmental Professionals Organization of Connecticut, municipal representatives, representatives from the brownfields working group established pursuant to section 32-770 of the general statutes, representatives of the Connecticut Conference of Municipalities and the Connecticut Council of Small Towns, representatives of the Council on Environmental Quality, and other members of the general public.

The proposed regulation is the result of years of coordination between DEEP and the entities listed above, many of which speak for small businesses or are small business organizations themselves.

Since providing a draft of the proposed RBCRs to the Release Based Cleanup Working Group on December 28, 2023, the Department has conducted extensive additional stakeholder outreach, including fifteen presentations to business and industry groups, attorneys, chambers of commerce, and real estate developers and financiers.

Does the proposed regulation provide alternative compliance methods for small businesses that will accomplish the objectives of applicable statutes while minimizing the adverse impact on small businesses? If so, to what extent?

The proposed regulation provides numerous paths to achieving the cleanup standards for many releases, depending on the land use at the site of the release, the material released, and the preferences of the responsible party. The proposed regulations also introduce a series of new, risk-based approaches to cleaning up pollution intended to make cleanups faster and less expensive while still protecting public health and the environment. These include "permits by rule" for historical fill and inaccessible soil under pavement; new "exposure scenarios" for managed multi-family residential development and passive recreation; and a series of "early exit" provisions for new releases and releases of home heating fuel.

The proposed regulations also relieve many small businesses of the requirements of the Transfer Act. Under the RBCRs, Any investigation for pollution will now be driven by business needs and the market, not a statutory mandate. Many small businesses will have the flexibility to chose when, and to what extent, to look for pollution. This significant change, which will align Connecticut more closely with 48 other states, including Massachusetts, is critical to removing barriers to redevelopment and growing the state's economy through increased business activity.

State of Connecticut
Regulation of

Department of Energy and Environmental Protection Concerning
Release-Based Cleanup Regulations

Sec. 1. The Regulations of Connecticut State Agencies are amended by adding sections 22a-134tt-1 to 22a-134tt-13, inclusive, and sections 22a-134tt-App1 to 22a-134tt-App-13, inclusive as follows:

(NEW) **Sec. 22a-134tt-1. Definitions and Miscellaneous Provisions**

(a) Definitions

For the purposes of the RBCRS, the following terms have the following meanings:

(1) "Accessory uses of land" means any use of a parcel of land that is not the primary use of that parcel of land;

(2) "Active recreation" means any activity that is not "passive recreation" as it is defined in these regulations;

(3) "Active remediation" means remediation other than monitored natural attenuation;

(4) "Application of pesticides" means the spraying, spreading, injection, placement, or other use of pesticides at a parcel for the pesticide's intended purpose, but does not include other releases of pesticides such as those from the handling, mixing, storing, spilling, leaking or disposing of pesticides, or releases of pesticides from equipment cleaning or repair;

(5) "Aquifer protection area" has the same meaning as provided in section 22a-354h of the Connecticut General Statutes;

(6) "Area of influence" has the same meaning as provided in section 22a-354b-1(a) of the Regulations of Connecticut State Agencies;

(7) "Areal extent of a groundwater plume" means the surface area beneath which groundwater is polluted by a release and in which one or more substances from such release or mobilized by such release is present at a concentration above the laboratory reporting limit;

(8) "Assessment of the secondary containment system" means an inspection or examination of a secondary containment system to ensure it is free of cracks, gaps, or voids and is functioning as designed and intended;

(9) "Association or professional property management company" means a common interest community association, homeowners association, or company authorized to monitor compliance with declarations, bylaws, lease agreements, or other documents enforceable by such association or company and to maintain a parcel of land;

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(10) “Audit” means the commissioner’s review of an LEP verification or PEP certification pursuant to section 22a-134tt-13 of the RBCRs;

(11) “Automotive exhaust” means the substances which are byproducts of the reaction within an internal combustion engine and are expelled by those automobiles which rely on internal combustion engines for propulsion;

(12) “Background concentration” means the concentration of a substance in soil or groundwater that, based on a validated conceptual site model, is:

(A) In the general geographic vicinity of a release; and

(B) Either:

(i) Naturally occurring; or

(ii) Minimally affected by human influences at concentrations equal to or less than criteria specified in the RBCRs;

(13) “Base annual fee” means the fee calculated and paid the first time a release is assigned to a tier pursuant to section 22a-134tt-6(f)(2)(A) of the RBCRs;

(14) “Carcinogenic substance” means a substance defined as a “carcinogen” by federal or state agencies and for which a quantitative health risk extrapolation is available;

(15) “Certification” means the written opinion of a permitted environmental professional on a form prescribed by the commissioner that the remediation of a release satisfies the standards established in regulations adopted pursuant to section 22a-134tt;

(16) “CFR” means the Code of Federal Regulations;

(17) “Change in tier assignment” means the assignment of a release to a different tier following the process specified in section 22a-134tt-6(c)(2) of the RBCRs;

(18) “Characterization” means determining the nature and extent of a release in accordance with prevailing standards and guidelines;

(19) “Chloride-based, inorganic salt” means an inorganic substance containing chloride, including sodium chloride, calcium chloride, magnesium chloride or any other inorganic substance containing chloride;

(20) “Cleanup standards sections” means sections 22a-134tt-7 to 22a-134tt-10, inclusive, of the RBCRs;

(21) "Commissioner" means the Commissioner of Energy and Environmental Protection or the designated agent of the commissioner;

(22) “Closure characterization” means characterization of a release such that the horizontal and vertical extent of such release is delineated to the points at which it is no longer detected or that the extent of such release has otherwise been determined in a manner consistent with

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prevailing standards and guidelines provided such standards and guidelines shall not specify delineation to the point at which a release is no longer detected for all releases or in all circumstances;

(23) "Conceptual site model" means a representation in three dimensions of environmental conditions at a release area that is developed through a multi-phased investigative approach which validates such representation with information about, including, but not limited to, a substance's release, fate and transport, and pathway to human and environmental receptors;

(24) "Date of tier assignment" means the date specified by section 22a-134tt-6(c)(4)(D) of the RBCRs;;

(25) "Demarcation layer" means a brightly-colored, tear-resistant, environmentally-stable marker layer installed at an appropriate depth, suitable to indicate the presence of polluted soil beneath such layer;

(26) "Department" means the Department of Energy and Environmental Protection;

(27) "Dilution factor" means the ratio by which the concentration of a substance dissolving into soil water is reduced by dilution with groundwater or surface water, as applicable;

(28) "Dilution and attenuation factor" or "Dilution attenuation factor" means the ratio by which the concentration of a substance dissolving into soil water is reduced by dilution with groundwater and by sorption to unsaturated or saturated soil, or by degradation, transformation or stabilization of the substance;

(29) "Diminishing state groundwater plume" means a groundwater plume that has been characterized seasonally and in three dimensions, provided that the characterization of such plume:

(A) Is consistent with a validated conceptual site model; and

(B) Demonstrates that such plume:

(i) Is not migrating, or has very limited potential to migrate, in any direction; and

(ii) Is comprised only of substances whose concentrations have decreased and will continue to decrease over time, except for the concentrations of related breakdown components, provided it is demonstrated that concentrations of such breakdown components are not a known risk to human health and the environment. For purposes of this clause, "breakdown components" means constituent compounds that result from the alteration of an original compound in the environment;

(30) "Direct exposure criteria" or "DEC" means the criteria identified in section 22a-134tt-App2 of the RBCRs, alternative direct exposure criteria approved by the commissioner pursuant to section 22a-134tt-9(d) of the RBCRs, or direct exposure criteria approved by the commissioner pursuant to section 22a-134tt-9(b)(7) of the RBCRs;

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(31) “Downgradient” means in the direction of the maximum rate of decrease of hydraulic head;

(32) “Downgradient area” with respect to a release of a substance means the area bounded by:

(A) The width of the release area of such substance perpendicular to the direction of groundwater flow;

(B) Two side boundary lines parallel to the downgradient direction of groundwater flow extending from the two endpoints of said width to the downgradient parcel boundary; and

(C) The downgradient parcel boundary extending between the two side boundary lines, excluding any portion of such downgradient area that is either affected by any other release of such substance or beneath an existing permanent structure;

(33) “Dwelling unit” means a single family home or a section of a larger structure where a person or family eats, lives, and sleeps, such as a multi-family house, apartment, mobile home, or set of rooms;

(34) “Drinking water supply well” means an artificial excavation constructed by any method for the purpose of obtaining or providing water for drinking or other domestic, industrial, commercial, agricultural, recreational or irrigation use, or other outdoor water use;

(35) “Emergent reportable release” means a release to the land and waters of the state discovered by an observed change in conditions that is required to be reported by regulations adopted pursuant to section 22a-450 of the Connecticut General Statutes;

(36) “Engineered control” means any physical barrier, system, technology or method that prevents exposure to polluted soil, or minimizes migration of liquids or vapor through such soil, and complies with the other requirements specified in section 22a-134tt-9(f)(2) of the RBCRs;

(37) “Environmental land use restriction” or “ELUR” has the same meaning as provided in section 22a-133q-1(3) of the Regulations of Connecticut State Agencies;

(38) “Environmental use restriction” or “EUR” has the same meaning as provided in section 22a- 133q-1(4) of the Regulations of Connecticut State Agencies;

(39) “Environmentally isolated soil” means polluted soil which is above the seasonal high water table and is not subject to infiltration in accordance with section 22a-134tt-9(c)(5)(A) of the RBCRs, thereby preventing the leaching of pollutants from such soil into groundwater;

(40) “EPA” means the United States Environmental Protection Agency;

(41) “ETPH” means extractable total petroleum hydrocarbons;

(42) “EUR regulations” has the same meaning as provided in section 22a-133q-1(7) of the Regulations of Connecticut State Agencies;

PROPOSED

(43) "Excess lifetime cancer risk" means the estimated probability that an individual's exposure to a substance could result in cancer;

(44) "Exigent condition" means a condition which exists or occurs as a result of a release that the commissioner determines, in the commissioner's sole discretion, requires the department to respond to such release to abate such a condition;

(45) "Existing release" means a release discovered through the laboratory analysis of samples taken from the land and waters of the state;

(46) "Fertilizer" means the substances identified as fertilizers in section 22-111b of the Connecticut General Statutes;

(47) "GA area" means an area where the groundwater classification is GA, GAA, or GAAs;

(48) "GB area" means an area where the groundwater classification is GB;

(49) "Ground surface" means any horizontal surface at or near ground level, including, but not limited to, soil, grass, sidewalks, and driveways;

(50) "Groundwater" means that portion of "waters" as defined in section 22a-423 of the Connecticut General Statutes at or below the water table;

(51) "Groundwater classification" means the groundwater classification established in the water quality standards;

(52) "Groundwater criteria" means surface water protection criteria, water quality criteria, volatilization criteria, groundwater protection criteria, and background concentration, as applicable;

(53) "Groundwater divide" means a line on the water table from which the water table slopes downward in both directions away from such line;

(54) "Groundwater monitoring well" means a well constructed for the purpose of aquifer testing, obtaining samples of ground water quality and/or measurement of ground water level;

(55) "Groundwater plume" means groundwater that has been impacted by a release and is emanating from a release area and in which one or more substances from such release is present at a concentration above the laboratory reporting limit;

(56) "Groundwater protection criteria" or "GWPC" means the criteria identified in section 22a-134tt-App4 of the RBCRs, alternative groundwater protection criteria calculated by an LEP or approved by the commissioner pursuant to section 22a-133k-10(d)(2) of the RBCRs, or groundwater protection criteria approved by the commissioner pursuant to section 22a-134tt-10(i)(1) of the RBCRs;

(57) "Hardscape" means man-made features that are incorporated into landscaped areas, including walkways constructed with asphalt, concrete, or pavers; gravel parking areas and

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driveways; paved or gravel storm water features; placement of natural rock; rip-rap; and non-vegetated retaining walls;

(58) "Hazard index" means the calculation of the potential for non-cancer health effects as a result of exposure to one or more substances with the same or similar modes of toxic action or toxic endpoints;

(59) "Historically impacted material" means polluted material that will be managed in accordance with the conditional exemption for historically impacted material pursuant to section 22a-134tt-9(j) of the RBCRs;

(60) "Home heating fuel" means any petroleum-based fuel, including any petroleum product regulated pursuant to chapter 250 of the Connecticut General Statutes, used as the primary source of residential heating or domestic hot water;

(61) "Hydraulic gradient" means the change in hydraulic head per unit distance;

(62) "Hydraulic head" means the elevation to which water rises in a piezometer or a well;

(63) "Immediate action" means the remediation necessary to comply with the requirements established by section 22a-134tt-5 of the RBCRs;

(64) "Immobilization" or "Immobilize" means the act of binding a substance to create a solid that is resistant to leaching and eliminates or virtually eliminates the mobility of a substance from such solid, including, but not limited to, solidification to physically bind or enclose a substance within a stabilized mass, stabilization through chemical reactions between a stabilizing agent and a substance, or encapsulation by coating a substance;

(65) "Impervious surface" means a surface composed of any material that prevents infiltration of water into the soil which shall include, but is not limited to, concrete or bituminous concrete;

(66) "Improved surface" means an area of soil uniformly covered by pavement, concrete, stone, or other similar material except any secondary containment system;

(67) "Inaccessible soil" means soil that meets at least one of the following conditions:

(A) Is more than four feet below the ground surface;

(B) Is more than two feet below a paved ground surface comprised of bituminous concrete that, at a minimum, is three inches thick or reinforced concrete that, at a minimum, is four inches thick;

(C) Is beneath a building or other permanent structure;

(D) Is polluted material:

PROPOSED

(i) Beneath a paved ground surface comprised of bituminous concrete that, at a minimum, is three inches thick or reinforced concrete that, at a minimum, is four inches thick; and

(ii) That exceeds the applicable direct exposure criteria solely due to:

(I) Semi-volatile organic substances or petroleum hydrocarbons that are normal constituents of bituminous concrete; or

(II) Metals at concentrations that are equal to or less than two times the applicable direct exposure criteria; or

(E) Is located beneath concrete or bituminous concrete and complies with the applicable requirements of subparagraphs (B) and (C) of subdivision (3) of subsection (b) of section 22a-134tt-9 of the RBCRs.

(68) "Incidental Public Roadway Release" means an existing release of asphalt or asphalt byproducts, petroleum hydrocarbons, or other substances to asphalt or soil in the right of a public roadway that is present due to the operation of passenger motor vehicles and is not a significant existing release, or is a release of chloride-based, inorganic salt.

(69) "Indoor air" means the portion of the atmosphere interior to buildings;

(70) "Immediate action plan" means a plan prepared pursuant to section 22a-134tt-5(j) of the RBCRs;

(71) "Immediate action report" means a report prepared pursuant to section 22a-134tt-5(k) of the RBCRs;

(72) "Industrial/commercial activity" means any activity related to the commercial production, distribution, manufacture or sale of goods, services, or any other activity which is not a residential activity;

(73) "Industrial/commercial direct exposure criteria" means the criteria identified as industrial/commercial direct exposure criteria in section 22a-134tt-App2 of the RBCRs, alternative direct exposure criteria approved by the commissioner pursuant to section 22a-134tt-9(d) of the RBCRs, or direct exposure criteria approved by the commissioner pursuant to section 22a-133k-9(b)(7) of the RBCRs;

(74) "Industrial/commercial volatilization criteria" means the criteria identified as industrial/commercial volatilization criteria in sections 22a-134tt-App6 and 22a-134tt-App7 of the RBCRs, alternative volatilization criteria approved by the commissioner pursuant to section 22a- 134tt-10(c)(4) of the RBCRs, or volatilization criteria approved by the commissioner pursuant to section 22a-134tt-10(i)(3) of the RBCRs;

(75) "Intermittent watercourse" means a type of watercourse, as the term is defined in section 22a-38 of the Connecticut General Statutes, delineated in accordance with section 22a-38 of the Connecticut General Statutes;

PROPOSED

(76) “Knowledge” means a person knows of a release because such person is aware of one or more of the types of information specified at section 22a-134tt-2(b) of the RBCRs;

(77) “Laboratory reporting limit” means the lowest concentration at which an analyte can be detected in a sample of environmental media by a laboratory certified by the Department of Public Health pursuant to section 19a-29a of the Connecticut General Statutes and which concentration can be reported with a reasonable degree of accuracy and precision pursuant to section 22a-134tt-1(e) of the RBCRs;

(78) “Land and waters of the state” has the same meaning as provided in section 22a-134pp(3) of the Connecticut General Statutes.

(79) “Licensed environmental professional” or “LEP” means an environmental professional who has a current valid license issued by the commissioner pursuant to section 22a-133v of the Connecticut General Statutes;

(80) “Managed multifamily residential activity" means activity at any parcel with four or more dwelling units, provided such dwelling units are managed by an association or a professional property management company;

(81) “Managed multifamily residential direct exposure criteria” means the criteria identified as managed multifamily residential direct exposure criteria in section 22a-134tt-App11 of the RBCRs or an alternative direct exposure criteria approved by the commissioner pursuant to section 22a-134tt-9(d) of the RBCRs;

(82) “Matrix interference” means either a positive or negative effect when measuring the concentration of a substance in a sample that creates erroneous results for an analyte;

(83) “Maximum extent practicable” means the greatest degree of remediation that can be achieved using sound engineering and hydrogeologic practices without taking cost into consideration;

(84) “Maximum extent prudent” means the greatest degree of remediation that can be achieved using sound engineering and hydrogeologic practices that the commissioner deems reasonable, taking into consideration cost in proportion to social and environmental benefits, provided that a mere showing of expense will not necessarily render an alternative unreasonable;

(85) “Monitored natural attenuation” means representative groundwater monitoring of the natural attenuation of each substance in a groundwater plume to a concentration equal to or less than groundwater criteria, provided such monitoring demonstrates that:

(A) Such attenuation is occurring, and will continue to occur, as evidenced by changes in chemical concentrations, alterations of chemical components, and hydrogeologic conditions within the aquifer after completing the remediation of a release area in a manner that will achieve compliance with the RBCRs; and

PROPOSED

(B) The only remaining groundwater plume from a release is a diminishing state groundwater plume;

(86) “Multiple lines of evidence” means two or more sets of observable facts which tend to demonstrate the truth of a matter asserted;

(87) “Municipality” has the same meaning as provided in section 22a-134pp(4) of the Connecticut General Statutes.

(88) “Natural attenuation” means a decrease in concentration of a substance in groundwater through operation of natural physical or chemical processes, including, but not limited to, adsorption, absorption, dilution, phase transfer, oxidation, organic complexation, biodegradation, dispersion, and diffusion;

(89) “Naturally occurring” means present in the environment in forms that have not been influenced by human activity;

(90) “Ninety-five (95) percent upper confidence level of the arithmetic mean” means a value that, when repeatedly calculated for randomly drawn subsets of size n from a population, equals or exceeds the population arithmetic mean ninety-five (95) percent of the time;

(91) “Non-aqueous phase liquid” or “NAPL” means a liquid that is not dissolved in water;

(92) “Notice of Activity and Use Limitation” or “NAUL” has the same meaning provided in section 22a-133q-1(14) of the Regulations of Connecticut State Agencies;

(93) “Numeric cleanup standards” means those cleanup standards identified in sections 22a-134tt-APP2 to 22a-134tt-APP12, inclusive, of the RBCRs;

(94) “Oil or petroleum” means oil or petroleum of any kind or in any form, including, but not limited to, crude oil or fractions thereof, refined petroleum or fractions thereof, biofuels, waste oils, mineral oils, dielectric fluids and distillation products such as heating oils, diesel fuels, fuel oil, kerosene, naphtha, gasoline, and lubricating and hydraulic oils;

(95) “Organoleptic” means the capability to produce a detectable sensory stimulus such as odor or taste;

(96) “Parcel” means a piece, tract, or lot of land, together with the buildings and other improvements situated thereon, a legal description of which piece, tract, or lot is contained in a deed or other instrument of conveyance;

(97) “Parcel-wide investigation” means an investigation of an entire parcel of land conducted pursuant to the site characterization guidance document published by the commissioner on the department’s internet website, or by another method consistent with prevailing standards and guidelines approved in writing by the commissioner;

(98) “Passive recreation activity ” means recreational activities that do not require development of prepared facilities like sports fields or courts or buildings, but does allow for the establishment of paved or unpaved walking trails;

PROPOSED

(99) "Passive recreation direct exposure criteria" means the criteria identified as passive recreation direct exposure criteria in section 22a-134tt-App12 of the RBCRs, or an alternative direct exposure criteria approved by the commissioner pursuant to section 22a-134tt-9(d) of the RBCRs;

(100) "PCBs" means polychlorinated biphenyls;

(101) "Permitted Environmental Professional" or "PEP" means a person authorized by a permit issued pursuant to section 22a-454 of the Connecticut General Statutes to certify release records.

(102) "Person" has the same meaning as meaning as provided in section 22a-134pp(5) of the Connecticut General Statutes;

(103) "Persistent impact to groundwater" means the presence of a release in groundwater after more than 24 hours;

(104) "Pesticide" has the same meaning as provided in section 22a-47(w) of the Connecticut General Statutes;

(105) "Per- and polyfluoroalkyl substances" or "PFAS" means man-made chemicals with at least one fully fluorinated carbon atom, including but not limited to perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS);

(106) "Pollutant mobility criteria" or "PMC" means the criteria identified in section 22a-134tt-App3 of the RBCRs, alternative pollutant mobility criteria calculated by an LEP or approved by the commissioner pursuant to section 22a-134tt-9(d) of the RBCRs, or pollutant mobility criteria approved by the commissioner pursuant to section 22a-134tt-9(c)(6) of the RBCRs;

(107) "Polluted fill" means soil which contained polluting substances at the time such soil was deposited as fill material;

(108) "Polluted material" means soil that has been historically intermixed with coal ash, wood ash, coal fragments, coal slag, coal clinkers, asphalt paving fragments, or any combination thereof;

(109) "Polluted soil" means soil affected by a release of a substance at a concentration above the laboratory reporting limit for such substance;

(110) "Pollution" has the same meaning as provided in section 22a-423 of the Connecticut General Statutes;

(111) "Potential public water supply resource" means any "potential well fields" as defined in section 22a-354a of the Connecticut General Statutes, or any area mapped by the commissioner pursuant to section 22a-354c(b) of the Connecticut General Statutes;

(112) "PPB" means parts per billion;

(113) "PPM" means parts per million;

PROPOSED

(114) "Practicable" means the greatest degree of remediation that can be achieved using sound engineering and hydrogeologic practices without taking cost into consideration;

(115) "Preferential pathway" means a high-permeability conduit that allows contamination to migrate through soils and groundwater at a faster rate than would be expected through naturally occurring undisturbed soils or unfractured bedrock such as a utility penetration; line; drain; building sump or drainage pit; elevator shaft; fractured bedrock; or gravel;

(116) "Private drinking water supply well" means a drinking water supply well that services a single dwelling unit;

(117) "Properly constructed and developed groundwater monitoring well" means a well that provides samples that are representative of groundwater in a release area that is installed in accordance with prevailing standards and guidelines;

(118) "Prudent" means reasonable, taking into consideration cost in proportion to social and environmental benefits;

(119) "Public roadway" means any portion of a federal, state, town, or other public highway, including, but not limited to, road, street, parkway, limited access highway, boulevard, or avenue paved with bituminous concrete or concrete, under the control of the federal government, the state or any political subdivision of the state, any quasi-governmental entity or municipal economic development agency or entity created or operating under the Connecticut General Statutes, that is dedicated, appropriated, or open to the movement of vehicles or pedestrians, including appurtenant sidewalks, medians, and shoulders, but excluding landscaped or grassy areas beyond the outer edge of the travel way;

(120) "Public water supply distribution system" means any combination of pipes, tanks, pumps, etc. which deliver water from the source or treatment facility to the consumer from any water company, as defined in section 25-32a of the Connecticut General Statutes, supplying water to two (2) or more consumers, or twenty-five (25) or more persons daily, at least sixty (60) days of the year;

(121) "Public drinking water supply well" means a drinking water supply well that services multiple dwelling units;

(122) "Q99" means the daily stream flow that is predicted to be equaled or exceeded on ninety-nine (99) percent of days in a year, and is calculated using methods developed by the U.S. Geological Survey (StreamStats);

(123) "Reasonable confidence protocols" or "RCPs" means any reasonable confidence protocols, quality assurance requirements, or quality control requirements, posted by the commissioner on the department's internet website, regarding the laboratory measurements of the concentration of a substance in a sample;

(124) "Release" has the same meaning as provided in section 22a-134pp(6) of the Connecticut General Statutes;

PROPOSED

(125) “Release-based cleanup regulations” or “RBCRs” means sections 22a-134tt-1 to 22a-134tt-APP12, inclusive, of the Regulations of Connecticut State Agencies;

(126) "Release area" means the land area at and beneath which polluted soil is located as a result of a release;

(127) “Release record” means a document certified by a PEP or verified by an LEP documenting compliance with a requirement or requirements of the RBCRs;

(128) “Remediation” has the same meaning as section 22a-134pp(7);

(129) “Report” means to notify the commissioner of a release in accordance with the RBCRs or the regulations adopted pursuant to section 22a-450 of the Connecticut General Statutes, and in the manner specified by the commissioner;

(130) “Residential activity” means any activity at:

(A) A place intended for people to live, including, but not limited to, a residence, dwelling, house, apartment, condominium, nursing home, or dormitory;

(B) A pre-school, primary school, secondary school, day care center, playground, or outdoor recreational area; or

(C) A hospital, solely for the purposes of compliance with volatilization criteria;

(131) “Residential direct exposure criteria” means the criteria identified as residential direct exposure criteria in 22a-134tt-App2 of the RBCRs, alternative direct exposure criteria approved by the commissioner pursuant to section 22a-134tt-9(d) of the RBCRs, or direct exposure criteria approved by the commissioner pursuant to section 22a-134tt-9(b)(7) of the RBCRs;

(132) “Residential volatilization criteria” means the criteria identified as residential volatilization criteria in sections 22a-134tt-App6 and 22a-134tt-App7 of the RBCRs, alternative volatilization criteria approved by the commissioner pursuant to section 22a-134tt-10(c)(4) of the RBCRs, or volatilization criteria approved by the commissioner pursuant to section 22a-134tt-10(i)(3) of the RBCRs;

(133) “Scoping level ecological risk assessment” means visual observation of potential pathways from a release to ecological receptors;

(134) “Screening level ecological risk assessment” means confirmed pathways from a release to ecological receptors through results of laboratory analysis of representative samples;

(135) “Seasonal high water table” means, on an annual basis, the highest plane in the ground at which all pore spaces are filled with water at atmospheric pressure;

(136) “Seasonal low water table” means, on an annual basis, the lowest plane in the ground at which all pore spaces are filled with water at atmospheric pressure;

PROPOSED

(137) “Secondary containment system” means a system serving one (1) or more primary storage containers or tanks that is designed, installed and operated to collect and contain a release of a reportable material in the event of loss of the integrity or failure of the primary containment;

(138) “Sediment” means unconsolidated material occurring in a watercourse, as that term is defined in section 22a-38 of the Connecticut General Statutes, and in estuarine water or marine water;

(139) “Semi-volatile organic substance” means an organic substance that has a higher molecular weight and higher boiling point than a volatile organic substance;

(140) “Significant existing release” means a release to the land and waters of the state discovered pursuant to section 22a-134tt-2 of the RBCRs that is present in the location identified by, or creating one or more of the impacts to human health or the environment identified in, section 22a-134tt-5(f) of the RBCRs;

(141) “Site-specific ecological risk analysis” means the full delineation and evaluation of pathways and impacts from a release to ecological receptors;

(142) “Soil” means unconsolidated geologic material overlying bedrock, including, but not limited to, sediment that has been removed from any surface water body and placed on dry land;

(143) “Soil water” means that portion of “waters” as defined in section 22a-423 of the Connecticut General Statutes, which is above the water table;

(144) “Soil vapor” means gaseous substances in the space between particles of soil;

(145) “Solid, liquid or gaseous products” has the same meaning as provided in section 22a-450-1(39) of the Regulations of Connecticut State Agencies;

(146) “SPLP” means Synthetic Precipitation Leaching Procedure EPA Method 1312 as set forth in “Test Methods for Evaluating Solid Waste: Physical/Chemical Methods”, SW-846, U.S. Environmental Protection Agency, Office of Solid Waste, Washington D.C. 20460;

(147) “Subject area” means an area where the RBCRs require an EUR to be placed and maintained as part of the selected remedial approach. “Subject area” includes the area subject to the restrictions and requirements of an EUR after such EUR has been recorded. There can be multiple subject areas on a parcel, or an entire parcel may comprise a single subject area;

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

(149) “Surface water" has the same meaning as provided in section 22a-426-1(60) of the Regulations of Connecticut State Agencies;

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(150) “Surface water protection criteria” or “SWPC” means the criteria identified in section 22a-134tt-App5 of the RBCRs, alternative surface water protection criteria calculated by an LEP or approved by the commissioner pursuant to section 22a-134tt-10(b) of the RBCRs, or surface water protection criteria approved by the commissioner pursuant to section 22a-134tt-10(i)(2) of the RBCRs;

(151) “Target indoor air concentrations” means risk-based indoor air concentrations developed in consultation with the Department of Public Health that are not expected to cause adverse health effects from chronic exposure;

(152) “TCLP” means Toxicity Characteristic Leaching Procedure EPA Method 1311 as set forth in “Test Methods for Evaluating Solid Waste: Physical/Chemical Methods”, SW-846, U.S. Environmental Protection Agency, Office of Solid Waste, Washington D.C. 20460;

(153) “Technically impracticable” means a determination by the commissioner that further reduction of the concentration of a substance in soil or groundwater cannot be achieved using sound engineering and hydrogeologic remediation practices;

(154) “TI Zone” means the areal extent of a substance that is technically impracticable to remediate to the applicable groundwater criteria;

(155) “Tier” means either:

(A) One of the categories established under 22a-134tt-6(b)(1) of the RBCRs; or

(B) The act of assigning a release to one of the categories identified in 22a-134tt-6(b)(1) of the RBCRs, pursuant to the process specified in 22a-134tt-6 of the RBCRs;

(156) “Tier Characterization” means the nature and extent of each substance present in the land and waters of the state at a concentration that exceeds fifty (50) percent of the applicable cleanup standard, or the applicable laboratory reporting limit, whichever is higher, has been delineated, or a demonstration that each substance is present in soil or groundwater at a level less than or equal to the background concentration has been made, using the standards identified in section 22a-134tt-4 of the RBCRs, except that:

(A) Pesticides shall be characterized to the extent needed to determine that pesticides discovered are present due to the application of pesticides. If such a determination is made, no further characterization of pesticides present due to the application of pesticides shall be required for tier characterization; and, pesticides present due to spraying, spreading, injecting, placing or other use of pesticides for the pesticide’s intended purpose and consistent with its labeling shall not require further characterization for the purposes of tier characterization; and

(B) A release of polluted material that is discovered on a parcel currently used only for industrial/commercial activity may be characterized only to the extent needed to determine that it is prudent to remediate the polluted material using the conditional exemption for historically impacted material, pursuant to section 22a-134tt-9(j) of the RBCRs;

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(157) "Underground storage tank system" or "UST system" means an underground storage tank and any associated ancillary equipment and containment system;

(158) "Underground storage tank system regulations" means regulations adopted pursuant to section 22a-449(d) of the Connecticut General Statutes;

(159) "Upgradient" means in the direction of maximum rate of increase of hydraulic head;

(160) "Upgradient area" with respect to a release area of a substance means the area bounded by:

(A) The width of the release area of such substance perpendicular to the direction of groundwater flow;

(B) Two side boundary lines parallel to the upgradient direction of groundwater flow extending from the two endpoints of said width to the upgradient parcel boundary; and

(C) The upgradient parcel boundary extending between the two side boundary lines, excluding any portion of such upgradient area that is affected by any other release of such substance, or beneath an existing permanent structure;

(161) "Vapor mitigation system" means technology employed to mitigate real or potential impacts from vapor intrusion;

(162) "Verification" has the same meaning as provided in section 22a-134pp(9) of the Connecticut General Statutes;

(163) "Volatilization criteria" means the criteria identified in sections 22a-134tt-App6 and 22a-134tt-App7 of the RBCRs, alternative volatilization criteria approved by the commissioner pursuant to section 22a-134tt-10(c)(4) of the RBCRs, or volatilization criteria approved by the commissioner pursuant to section 22a-134tt-10(i)(3) of the RBCRs;

(164) "Volatilization criteria for groundwater" means the criteria identified in section 22a-134tt-App6 of the RBCRs, alternative volatilization criteria approved by the commissioner pursuant to section 22a-134tt-10(c)(4) of the RBCRs, or volatilization criteria approved by the commissioner pursuant to section 22a-134tt-10(i)(3) of the RBCRs;

(165) "Volatilization criteria for soil vapor" means the criteria identified in section 22a-134tt-App7 of the RBCRs, alternative volatilization criteria approved by the commissioner pursuant to section 22a-134tt-10(c)(4) of the RBCRs, or volatilization criteria approved by the commissioner pursuant to section 22a-134tt-10(i)(3) of the RBCRs;

(166) "Volatile organic substance" means an organic substance that has a high vapor pressure and low boiling point at room temperature;

(167) "Volatile petroleum substance" means a volatile organic substance found in gasoline, diesel fuel, fuel oil, heating oil, kerosene, jet fuel, or similar fuels, along with volatile organic substances that may have been used as fuel additives;

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(168) “Water table” means the plane in the ground at which all pore spaces are filled with water at atmospheric pressure;

(169) “Water quality criteria” means the lower of the human health or aquatic life criteria contained in Table 3 of the Water Quality Standards;

(170) “Water quality standards” means the Connecticut Water Quality Standards in sections 22a-426-1 to 22a-426-9, inclusive, of the Regulations of Connecticut State Agencies and the Classification Maps adopted pursuant to section 22a-426 of the Connecticut General Statues;

(171) “Wetland” has the same meaning as “wetlands” as provided in section 22a-38(15) of the Connecticut General Statutes or “wetland” as provided in section 22a-29(2) of the Connecticut General Statutes.

(b) Construction of Regulations

In the construction of the RBCRs, terms or words in the singular may be construed and applied to more than one thing and terms or words in the plural may be construed and applied to the singular or just one thing.

(c) Use of Form Prescribed by the Commissioner

(1) Any submittal to the commissioner under the RBCRs, including, but not limited to, a request for a variance, approval, notice, financial assurance, or EUR shall be submitted in writing on a form prescribed by the commissioner. Such form may require the following information:

(A) A description of the subject release;

(B) A description of the distribution and concentration of substances in soil and groundwater resulting from the subject release;

(C) The general characteristics of soil in the vicinity of the subject release area;

(D) A map showing the extent of all release areas on a parcel and the subject release area, including all sample locations;

(E) A map showing the extent of the subject groundwater plume and the concentration of substances in such plume;

(F) The tabulated analytical results of all laboratory analyses of soil and groundwater at the subject release area;

(G) A detailed justification for any variance or approval requested;

(H) Any information specifically required by the RBCRs;

(I) A signed certification by the person submitting the form and, if provided on the form, certification by an LEP; and

(J) Any other information deemed necessary by the commissioner.

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(2) If an electronic system is available for any submission identified in subdivision (1) of this subsection, such submittal shall be made pursuant to the instructions prescribed by the commissioner for the use of such electronic system.

(d) **General Requirements for Analytical Data**

(1) Analytical Data Quality and Usability

(A) With respect to analytical data, the following shall apply:

(i) All analytical data used to comply with the RBCRs shall be scientifically valid and defensible, with a level of precision, accuracy, and sensitivity commensurate with its intended use. All analytical data submitted shall include an analytical data quality assessment and data usability evaluation prepared by individuals qualified to make such assessment or evaluation; and

(ii) If the commissioner determines that analytical data is not scientifically valid and defensible, or not of a sufficient level of precision, accuracy, and sensitivity to support the intended use of the data, the commissioner shall identify in writing the reasons for such conclusions and such data shall not be relied upon to demonstrate compliance with the RBCRs.

(B) The commissioner may specify, by posting on the department's internet website, methods or protocols to ensure that analytical data is of known and documented quality, including, but not limited to:

(i) RCPs for laboratory quality assurance and quality control measures or analytical methods for the evaluation of soil, sediment, groundwater, air, or soil vapor;

(ii) RCPs to be followed when establishing laboratory reporting limits; and

(iii) Methods and protocols for assessing data quality and evaluating data usability which can be used to determine whether data is scientifically valid and defensible, with a level of precision, accuracy, and sensitivity commensurate with its intended use.

(C) If an analytical data quality assessment or usability evaluation is conducted using a method or protocol other than the methods and protocols prescribed by the commissioner pursuant to this subdivision, such methods and protocols shall be documented and submitted for the commissioner's review and evaluation. If the commissioner determines that such method or protocol is not scientifically valid and defensible, or not of a sufficient level of precision, accuracy, and sensitivity to support the intended use of the data, the commissioner shall identify in writing the reasons for such conclusions and such data shall not be relied upon to demonstrate compliance with the RBCRs.

(2) Laboratory Reporting Limit Requirements

The laboratory reporting limit for the analysis of all samples used to comply with the RBCRs shall:

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(A) Be established at a concentration which is less than the applicable criteria, unless matrix interference or instrument limitations cannot be overcome by taking the additional actions listed in subdivisions (3) and (4) of this subsection;

(B) Not be artificially raised or lowered; and

(C) (i) Be equivalent to the concentration of the lowest standard used to calibrate the instrument actually analyzing a sample, provided such instrument has been calibrated in accordance with a method specified in an RCP or otherwise approved by the commissioner after consultation with the Commissioner of Public Health; or

(ii) Be equivalent to the concentration of a low-level reporting standard, as specified in an RCP or otherwise approved by the commissioner after consultation with the Commissioner of Public Health.

(3) Matrix Interference

(A) When analyzing a sample, if due to matrix interference the laboratory reporting limit for a substance is greater than the applicable RBCR criteria for such substance, additional procedures, including, but not limited to, sample preparation procedures or alternative analytical methods shall be evaluated to determine whether the use of such procedures or methods will enable a laboratory reporting limit equal to or less than the applicable RBCR criteria for such substance to be consistently and accurately achieved.

(B) In the circumstances described in subparagraph (A) of this subdivision, at a minimum, the following procedures or methods shall be evaluated in determining whether a laboratory reporting limit less than or equal to the applicable criteria can be achieved:

(i) "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods." SW-846, U.S. Environmental Protection Agency, Office of Solid Waste, Washington D.C. 20460; or

(ii) Other analytical methods or procedures either approved in writing by EPA or, after consultation with the Commissioner of Public Health, approved in writing by the commissioner.

(C) (i) If pursuant to subparagraph (B) of this subdivision, a procedure or method is identified that will consistently and accurately achieve a laboratory reporting limit equal to or less than the applicable criteria, the sample shall be re-analyzed for the subject substance using such procedure or method.

(ii) If after re-analysis the matrix interference is overcome and the lowest laboratory reporting limit for a substance that can be consistently and accurately achieved is now equal to or less than the applicable criteria, the analytical results from such re-analysis can be used for the purpose of determining compliance with the RBCRs.

(D) (i) If despite taking the actions to overcome matrix interference specified in subparagraphs (B) and (C) of this subdivision, a laboratory reporting limit less than or

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equal to the applicable criteria cannot be consistently and accurately achieved, a report detailing the measures taken to overcome such matrix interference shall be submitted in writing to the commissioner. This report shall include, at a minimum, a description of the measures taken under subparagraphs (B) and (C) of this subdivision as well as the lowest achievable laboratory reporting limit consistently and accurately achievable under subparagraph (C)(i) of this subdivision.

(ii) The commissioner shall use the report submitted pursuant to clause (i) of this subparagraph to determine the lowest laboratory reporting limit for such substance that can be consistently and accurately achieved. If the commissioner determines that such laboratory reporting limit is still greater than the applicable criteria, the commissioner may determine that compliance with the RBCRs will be achieved when such laboratory substance has been remediated to such reporting limit. Any such determination by the commissioner shall be in writing and shall include the reasons for such determination.

(4) Instrument Limitations

(A) When analyzing a sample, if due to instrument limitations the laboratory reporting limit for a substance is greater than the applicable RBCR criteria for such substance, alternative analytical methods or alternative instrumentation shall be evaluated to determine whether the use of such procedures or methods will enable a laboratory reporting limit equal to or less than the applicable criteria for such substance to be consistently and accurately achieved.

(B) In the circumstances described in subparagraph (A) of this subdivision, at a minimum, the following procedures or methods shall be evaluated in determining whether a laboratory reporting limit less than or equal to the applicable criteria can be achieved:

(i) "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods." SW-846, U.S. Environmental Protection Agency, Office of Solid Waste, Washington D.C. 20460; or

(ii) Other analytical methods or instruments either approved in writing by EPA or, after consultation with the Commissioner of Public Health, approved in writing by the commissioner.

(C) (i) If pursuant to subparagraph (B) of this subdivision, a method or instrument is identified that will consistently and accurately achieve a laboratory reporting limit equal to or less than the applicable criteria, the sample shall be re-analyzed for the subject substance using such method or instrument.

(ii) If after re-analysis the instrument limitation is overcome and the lowest laboratory reporting limit for a substance that can be consistently and accurately achieved is now equal to or less than the applicable criteria, the analytical results from such re-analysis can be used for the purpose of determining compliance with the RBCRs.

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(D) (i) If despite taking the actions to overcome instrument limitations specified in subparagraphs (B) and (C) of this subdivision, a laboratory reporting limit less than or equal to the applicable criteria cannot be consistently and accurately achieved, a report detailing the measures taken to overcome such instrument limitations shall be submitted in writing to the commissioner. This report shall include, at a minimum, a description of the measures taken under subparagraphs (B) and (C) of this subdivision as well as the lowest achievable laboratory reporting limit consistently and accurately achievable under subparagraph (C)(i) of this subdivision.

(ii) The commissioner shall use the report submitted pursuant to clause (i) of this subparagraph to determine the lowest laboratory reporting limit for such substance that can be consistently and accurately achieved. If the commissioner determines that such laboratory reporting limit is still greater than the applicable criteria, the commissioner may determine that compliance with the RBCRs will be achieved when such substance has been remediated to such laboratory reporting limit. Any such determination by the commissioner shall be in writing and shall include the reasons for such determination.

(e) Significant Existing Releases

For the purposes of the RBCRs, only the following existing releases are determined to be significant existing releases:

(1) a release that has caused or is causing contamination of a public or private drinking water well;

(2) a release of a substance for which a groundwater protection criteria has been specified that has caused or is causing contamination of groundwater within 500 feet of a private or public drinking water well at a concentration equal to or greater than the groundwater protection criteria;

(3) a release discovered in soil within two feet of the ground surface that contains a substance at concentrations greater than or equal to 15 times the applicable direct exposure criteria for such substance;

(4) a release of volatile organic substances or volatile petroleum substances to groundwater that has caused or is causing either:

(A) a groundwater plume within 30 feet of the ground surface and within 30 feet or less of the lowest portion of a building contaminated at concentrations greater than or equal to 10 times the applicable volatilization criteria for any volatile organic substance, except volatile petroleum substances;

(B) a groundwater plume within 10 feet of the ground surface and within 10 feet or less of the lowest portion of a building contaminated at concentrations greater than or equal to 10 times the applicable volatilization criteria for any volatile petroleum substances;

(C) soil vapor beneath a building to be contaminated at concentrations greater than or equal to the applicable volatilization criteria for such substance; or

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(D) the detection of toxic air contaminants in indoor air provided such toxic air contaminant is not present in indoor air solely as the result of a current process or use of materials; ;

(5) a release of a substance at a concentration of greater than or equal to 10 times the surface water protection criteria for such substance, or of a non-aqueous phase liquid, to groundwater within 500 feet of surface water;

(f) Criteria and Land Uses

(1) When determining the current use of land, all current uses on the parcel impacted by a release, including accessory uses, shall be considered. If any use of a parcel, or any portion of the parcel, is for residential activity, the current use of the parcel shall be residential.

(2) When determining the applicable criteria for soil remediation, residential criteria shall be considered applicable unless use of a parcel is restricted by an EUR or the parcel is subject to a permit by rule.

(g) Licensing of Permitted Environmental Professionals

(1) In determining whether the commissioner is satisfied that issuing a permit pursuant to section 22a-454 of the Connecticut General Statutes to a person to act as a permitted environmental professional will not result in pollution, contamination, emergency or the violation of the RBCRs or a violation of any regulation adopted under sections 22a-30, 22a-39, 22a-116, 22a-347, 22a-377, 22a-430, 22a-449, 22a-451 and 22a-462 of the Connecticut General Statutes, the commissioner shall consider:

(A) Such person's training and education;

(B) The duration and nature of such person's professional experience; and

(C) Any credentials or licenses held by such person.

(2) As part of an application submitted pursuant to section 22a-454 of the Connecticut General Statutes, the commissioner may request any information necessary to comply with the requirements of this subsection.

(3) No permit authorizing a person to act as a PEP shall be renewed if the commissioner determines that the activities of the permittee have resulted or will result in pollution, contamination, emergency, or a violation of the RBCRs. If the activities of a PEP result in pollution, contamination, emergency or a violation of the RBCRs, the commissioner may take any applicable enforcement action authorized by section 22a-134ss of the Connecticut General Statutes.

(h) Maintaining a Release

(1) For the purposes of the RBCRs, a person shall be maintaining a release when, regardless of fault for the creation of such release, such person:

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(A) Owns a parcel of land on or under which such release, or a portion of such release, is located; or

(B) Has the right to possess a parcel of land, or the portion of a parcel of land, where such release is located, provided that if any person with the right to possess a parcel or portion of a parcel obtains knowledge of a release on the parcel or portion of a parcel they possess such person shall not be determined to be maintaining such release if such person has notified the owner of the parcel of such release and such release has been reported to the Department if such release is required to be reported pursuant to section 22a-134tt-3 of the RBCRs.

(2) A release may be maintained by one or more persons. If more than one person is maintaining a release in violation of the provisions of chapter 445b of the Connecticut General Statutes or the RBCRs, each person shall be jointly and severally liable for compliance with the RBCRs, pursuant to section 22a-134ss(b) of the Connecticut General Statutes.

(3) Any person maintaining a release that has migrated on or under the parcel or portion of a parcel owned or possessed by such person from a source on a different parcel may satisfy the cleanup standards sections pursuant to section 22a-134tt-7(e) of the RBCRs.

(4) A person shall not be considered to be maintaining releases on a parcel after such person no longer owns or has the right to possess such parcel or a portion a portion of such parcel. If a person was maintaining a release in violation of the provisions of chapter 445b of the Connecticut General Statutes or the RBCRs, the commissioner may take enforcement action against such person, including those actions specified in section 22a-134ss, even if such person no longer owns or has the right to possess a parcel or portion of a parcel.

(i) PFAS and Road Salt

(1) Discovery in a public or private drinking water supply

(A) Notwithstanding the requirements of the RBCRs, if an existing release of PFAS or chloride-based, inorganic salt is discovered in a public or private drinking water supply, including but not limited to a public or private drinking water supply well, by the person who owns or operates such drinking water supply:

(i) such release shall not be a significant existing release, and immediate action shall not be required; and

(ii) provided such release is reported to the commissioner pursuant to the process specified in section 22a-134tt-3 of the RBCRs not more than 3 days following discovery of such release, the person who owns or operates such drinking water supply shall not be required to take any other action or pay any fee required by the RBCRs, except if the commissioner determines such person to have created or be maintaining a source of PFAS or salt pursuant to subparagraph (B) of this subdivision.

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(B) The commissioner may investigate any release reported pursuant to subparagraph (A) of this subdivision, and if the commissioner identifies the source of such releases and the creator or maintainer of such source, the commissioner shall notify such creator or maintainer in writing and such source shall be considered to be discovered for the purposes of section 22a-134tt-2 of the RBCRs, and subject to the requirements of the RBCRs.

(C) If the commissioner identifies the source of such release, the commissioner may issue an order to each person who created or is maintaining such source to remediate the source of such release and requiring that potable drinking water be provided to all persons affected by such release, including an order pursuant to sections 22a-134ss or 22a-471 of the Connecticut General Statutes.

(2) Discovery in the land and waters of the state

(A) Notwithstanding any other requirements of the RBCRs, an existing release of PFAS discovered in the land and waters of the state, except in a public or private drinking water supply, shall be subject to the requirements of the RBCRs only when:

(i) Such release is discovered at concentrations that indicate that PFAS is not present solely due to atmospheric deposition or the use of consumer products for their intended purpose; and

(ii) It can be reasonably expected that the source of such release is or was located on the parcel where such release is discovered or another parcel that is or was owned or operated by the creator of such release;

(B) Any person claiming an exemption from the requirements of the RBCRs pursuant to this subdivision for a release located on a parcel that is or has been used for an industrial/commercial activity shall report such release to the Commissioner not more than 365 days after it is discovered, pursuant to section 22a-134tt-3 of the RBCRs.

(C) For the purposes of subparagraph (A) of this paragraph, if PFAS is discovered on a parcel that is or has been used for industrial or commercial purposes known or suspected to use PFAS in its operations, there shall be a reasonable expectation that the source of such release is or was located on such parcel.

(NEW) **Sec. 22a-134tt-2. Discovery of Releases**

(a) Discovery of an Existing Release

(1) Except as provided in subsection (b) of this section, discovery of a release to the land and waters of the state occurs when a person who created or is maintaining an existing release has knowledge of such release, except that a release shall not be deemed discovered if the only evidence of such release is data available or generated before the date when regulations are first adopted pursuant to section 22a-134tt.

(2) A person who created or is maintaining a release has knowledge of a release if such person:

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(A) Becomes aware of the results of laboratory analysis of soil, groundwater, sediment, or soil vapor indicating concentrations of such substances above the laboratory reporting limit;

(B) Becomes aware of the observed presence of non-aqueous phase liquid; or

(C) When taking into account any specialized knowledge or training, becomes aware of multiple lines of evidence that would indicate to a reasonable person, with similar knowledge, experience or training, exercising a degree of care that a reasonable person would exercise in the same or similar circumstances, the presence of a release in or on the land and waters of the state. Such lines of evidence may include, but shall not be limited to:

(i) information about the use of a particular geographic area, including anecdotal reports of historical disposal or releases, aerial photographs, and maps;

(ii) the results of field screening indicating the presence of volatile organic compounds, petroleum hydrocarbons, or metals;

(iii) observed staining of soil, concrete floors, or pits;

(iv) organoleptic evidence, including odors;

(v) indoor air samples indicating the intrusion of soil vapors; or

(vi) the observed presence of asphalt, coal slag, solid waste, ash, or other non-native materials in or on the land and waters of the state;

provided such substance is not present because it has been authorized under Title 22a of the Connecticut General Statutes, is naturally occurring, or is a result of automotive exhaust or the application of fertilizer or pesticides consistent with their labeling.

(3) For the purposes of this subsection data available or generated before the date when regulations are first adopted pursuant to section 22a-134tt shall encompass environmental reports or investigations conducted prior to the date when regulations are first adopted pursuant to section 22a-134tt in their entirety, including but not limited to, laboratory analytical data and observations, photographs or research regarding the historical use of an area of land.

(b) Existing Releases Discovered by the Commissioner or Other Persons

If characterization of an existing release performed pursuant to the requirements of section 22a-134tt-4 of the RBCRs has identified the source of such release, and information regarding such characterization, including the results of laboratory analysis of soil, groundwater, sediment, or soil vapor, indicating concentrations of such substances above the laboratory reporting limit, is provided to any person who would be considered to have created or be maintaining a release by the person performing such characterization, the person who receives such notice shall be presumed to have created or be maintaining a release provided that such presumption may be

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rebutted through characterization of the area from which such release is believed to be emanating.

(c) Discovery of a Significant Existing Release

In addition to the provisions of subsection (a) of this section, a significant existing release is discovered when any person obtains knowledge of a significant existing release.

(d) Releases from Regulated Underground Storage Tank Systems

If the source of a release is or was an underground storage tank system regulated by the underground storage tank system regulations adopted pursuant to section 22a-449(d) of the Connecticut General Statutes, such release shall not be considered to have been discovered for the purposes of the RBCRs.

(e) Discovery of Emergent Reportable Releases

(1) Any release to the land and waters of the state required to be reported by regulations adopted pursuant to section 22a-450 of the Connecticut General Statutes shall be considered to be discovered and shall be subject to the requirements of the RBCRs, unless otherwise exempted from discovery by subsection (d) of this section.

(2) Releases required to be reported by regulations adopted pursuant to section 22a-450 of the Connecticut General Statutes shall be deemed not to be releases to the land and waters of the state, and shall not be subject to the requirements of the RBCRs, if:

(A) The release occurs to the air;

(B) The release occurs to a secondary containment system entirely within the interior of a structure or a secondary containment system outside the interior of a structure consisting of an above ground storage tank or which does not contact soil; or

(C) The release occurs to the interior of a structure and does not come into contact with soil; and substantially all of the material released is removed from any surface to which it was released not more than two hours after discovery.

(f) Naturally Occurring Metals at the Time of Discovery

(1) If the laboratory analytical results of soil samples identify the presence of one or more metals listed in the following table, each metal shall be considered naturally occurring if:

(A) the concentration of such metal in each sample analyzed is less than or equal to the low value listed in the following table that corresponds to such metal;

(B) Not less than 3 samples of soil have been analyzed and the concentration in any 1 or more samples analyzed is greater than the low value listed in the following table that

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corresponds to such metal but the concentration in each sample analyzed is less than or equal to the high value in the following table that corresponds to such metal;

(C) Not less than 5 samples of soil have been analyzed and the concentration in any 1 or more samples analyzed is greater than the high value listed in the following table that corresponds to such metal but the concentration in each sample analyzed is less than or equal to the residential direct exposure criteria for such metal, provided an outlier analysis has been performed and any sample determined to be an outlier is evaluated to determine whether such sample has resulted in the discovery of a release;

(D) Not less than 7 samples of soil have been analyzed and the concentration in any 1 or more samples analyzed is greater than the residential direct exposure criteria for such metal, provided an outlier analysis has been performed and the results of the laboratory analysis of all soil samples analyzed is provided to the commissioner, and the commissioner determines in writing that, in the commissioner's sole discretion, the identified metal is naturally occurring; or

(E) The identified metal is determined to be background using a method other than the methods specified in this subsection, provided such method is submitted to the commissioner in writing and the commissioner, in the commissioner's sole discretion, approves of the use of such method.

(2) Soil samples shall be collected and analyzed as follows:

(A) If 1 or more samples identify concentrations of metals greater than the low value listed in the following table , the minimum number of samples of soil specified by subparagraphs (B), (C), and (D) of this subsection shall be collected from another area reasonably believed not to be impacted by site activity, and shall be from the same geologic unit and of similar texture and composition;

(B) If one or more samples identifying concentrations of metals greater than the low value listed in the following table have been collected from a known or suspected release area, the minimum required number of samples of soil specified by subdivisions (B), (C), or (D) of subsection (f) of this section shall be collected from outside such known or suspected release area; and

(C) All analytical data shall comply with the requirements of section 22a-134tt-1(d) of the RBCRs. If an outlier analysis is required, such analysis shall be performed pursuant to any method specified by the commissioner pursuant to section 22a-134tt-1(d) of the RBCRs or another method approved by the commissioner pursuant to such section.

Naturally Occurring Background Metals Values for Connecticut

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Inorganic Substance	Low Value in mg/kg (ppm)	High Value in mg/kg (ppm)
Aluminum	58,800	85,040
Antimony	0.1	0.3
Arsenic	3	6
Barium	385	756
Beryllium	2	2
Bismuth	0.2	0.5
Cadmium	ND < 0.1	0.3
Calcium	5,610	20,870
Cerium	73	138
Cesium	ND < 5	8
Chromium	31	60
Cobalt	9	20
Copper	17	45
Gallium	15	24
Indium	0.05	0.1
Iron	26,080	51,940
Lanthanum	32	66
Lead	18	27
Lithium	20	60
Magnesium	5,840	15,320
Manganese	544	1,195
Mercury	0.03	0.1
Molybdenum	0.7	4
Nickel	13	36
Niobium	10	17
Phosphorus	339	817
Potassium	16,930	29,620

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Inorganic Substance	Low Value in mg/kg (ppm)	High Value in mg/kg (ppm)
Rubidium	80	117
Scandium	12	18
Selenium	ND < 0.2	0.8
Silver	ND < 1	ND < 1
Sodium	9,930	18,500
Strontium	125	283
Sulfur	ND < 100	304
Thallium	0.4	0.8
Thorium	11	15
Tin	2	3
Titanium	2,880	4,660
Tungsten	0.9	2
Uranium	3	7
Vanadium	69	102
Yttrium	19	31
Zinc	44	104

Notes:

ND = non-detect at the specified reporting limit

mg/kg = milligrams per kilogram

PROPOSED

(g) – Discovery of Incidental Releases

(1) Notwithstanding the requirements of the RBCRs, the presence of the following shall not be determined to be a release:

(A) Trihalomethanes in groundwater reasonably believed to be attributable to naturally-occurring ecological processes or leakage or discharges from a public water supply system; or

(B) The byproducts of the combustion of wood or charcoal reasonably believed to have been used for a residential or recreational purpose.

(2) If the laboratory analysis of a soil sample identifies the presence of semi-volatile organic substances at concentrations less than or equal to 50 percent of the residential criteria specified in sections 22a-134tt-app2 or 22a-134tt-app3 of the RBCRs or a calculated additional polluting substances criteria for such semi-volatile organic substance in soil, or petroleum hydrocarbons less than or equal to 25 percent of the residential criteria specified in sections 22a-134tt-app2 or 22a-134tt-3 of the RBCRs or a calculated additional polluting substances criteria for such substance in soil, the discovery of such release shall be considered incidental and not subject to any requirement of the RBCRs, provided that:

(A) The source of the release of semi-volatile organic substance or petroleum hydrocarbons is known, and:

(i) Additional soil samples are collected at the approximate location of the source of such release and at a reasonable distance further away from the source of such release and the laboratory analysis of such samples indicates that concentrations of such substances are decreasing away from the source; and

(ii) Multiple lines of evidence indicate that the semi-volatile organic substance or petroleum hydrocarbons identified are reasonably likely to be the highest concentrations of such substances present in soil as a result of such release; or

(B) The results of laboratory analysis of 3 additional soil samples, each collected at the same depth at a lateral distance of approximately five feet from the original sample location, 1 sample collected not more than five feet above the original sample location, and 1 sample collected at a depth of not more than five feet below the original sample location, identifies any semi-volatile organic substances or petroleum hydrocarbons present in such samples at concentrations less than or equal to those specified in subdivision (2) of this subsection.

(3) For the purposes of this subdivision (2) of this subsection,

(A) Semi-volatile organic compounds shall not include PCBs or any substance identified in appendix A of regulations adopted pursuant to section 22a-450 of the Connecticut General Statutes except for benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene; and

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(B) Petroleum hydrocarbons shall not include any volatile organic substance as defined at 22a-134tt-1(165).

(4) Notwithstanding section 22a-134tt-1(h) of the RBCRs, no person responsible for the maintenance of a public roadway shall be determined to be maintaining an incidental public roadway release on, under, or within any right of way that contains a public roadway for which such person is responsible provided that:

(A) any excavated soil impacted by an incidental public roadway release is:

(i) reused pursuant to section 22a-134tt-9(h) of the RBCRs;

(ii) or properly disposed; or

(iii) such soil is:

(I) reused in the same right of way from which it was excavated;

(II) reused in a location impacted by the same release, or an existing release of the same type of substances;

(III) and, if such soil contains VOCs at concentrations greater than the applicable direct exposure criteria, such soil is 30 feet or more in every direction from a building and is reused under concrete or bituminous concrete; and

(B) if such incidental public roadway release is a release of chloride-based, inorganic salt and such release has impacted a public or private drinking water supply, a safe drinking water supply is provided.

(NEW) **Sec. 22a-134tt-3. Reporting Newly Discovered Existing Releases**

(a) Report Required; Discovery By a Creator or Maintainer

Upon discovery of an existing release, a report of such release shall be provided to the commissioner by a person who created or is maintaining such release within the applicable time period specified in subdivision (1) or (2) of this subsection. Any report required by this subsection shall contain the information and be made in the manner specified by subsection (b) of this section. A person who discovers a significant existing release, but who did not create and is not maintaining such release, shall take the steps required by subsection (c) of this section to ensure that such release is reported as required.

(1) Significant Existing Releases

A significant existing release shall be reported not more than 72 hours after the discovery of such release, except that a significant existing release of NAPL or a substance for which a numeric groundwater protection criteria is specified in section 22a-134tt-App4 impacting a public or private drinking water supply well shall be reported not more than 24 hours after such impact is identified .

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(2) Other Reportable Existing Releases

(A) An existing release shall be reported, pursuant to the requirements of subsection (b) of this section, not more than 120 days after discovery if:

(i) there is one or more numeric cleanup criteria for each substance released in the cleanup standards sections, and the results of laboratory analysis indicate that a substance is present in soil or groundwater at a concentration greater than or equal to two times the applicable numeric cleanup standard; provided that, if oil or petroleum, or constituent components of oil or petroleum, are detected at concentrations that exceed the reportable concentrations in soil, such release shall only be reported if the contiguous volume of soil containing such release is characterized pursuant to 22a-134tt-4 and determined to be equal to or greater than 2 cubic yards;

(ii) such release is identified by the presence of subsurface NAPL in a groundwater monitoring well, excavation, or subsurface structure, and the measured thickness of such NAPL is equal to or greater than one-eight inch; or

(iii) the release is of a substance for which no numeric cleanup standard is specified, but the concentration is greater than two times an additional polluting substances criteria for such substance calculated pursuant to the cleanup standards sections, or no additional polluting substances criteria can be calculated.

(B) Notwithstanding the requirements of subparagraph (A) of this subdivision, a release shall not be reported if, not more than 120 days after discovery, it has been remediated to the standards in the cleanup standards sections and a release remediation closure report has been verified by an LEP pursuant to section 22a-134tt-12 of the RBCRs.

(C) An existing release shall be reported, pursuant to the requirements of subsection (b) of this section, not more than 365 days after discovery if there is one or more numeric cleanup standards, or an additional polluting substances criteria can be calculated, for each substance released and the results of laboratory analysis indicate that such substance is present in soil or groundwater at a concentration less than twice the applicable numeric cleanup standard or calculated additional polluting substances criteria, except that a release shall not be reported if, not more than 365 days after discovery, such release has been remediated to the standards in the cleanup standards sections and a release remediation closure report has been verified by an LEP pursuant to section 22a-134tt-12 of the RBCRs.

(D) Notwithstanding the requirements of subparagraph (A) of this subdivision, the following releases are exempt from the requirement to report:

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(i) Any release required to be reported by regulations adopted pursuant to section 22a-450 of the Connecticut General Statutes;

(ii) Releases resulting or emanating from a consolidated bituminous concrete surface provided such release is from an incidental source, as such term is used at section 22a-134tt-9(b)(5)(B);

(iii) Releases resulting or emanating from utility poles or landscaping timbers still serving their original intended use; and

(iv) Releases of trihalomethanes discovered in groundwater caused by naturally occurring geological process or discharges from a public water supply system;

(b) Report contents and process

(1) Contents of Report

(A) Any report required by this section shall contain the following information regarding a discovered release:

(i) The time and date that, pursuant to section 22a-134tt-2 of the Regulations of Connecticut State Agencies, the release was discovered;

(ii) The precise longitude and latitude, in degrees, minutes, and seconds, where the release is located such that it can be found using a global positioning system device;

(iii) The street address of the parcel on or under which the release is located, the town and zip code in which such parcel is located, the map, block and lot number of such parcel, if known, and any significant landmarks on such parcel to help more closely identify the precise location of the release. If the parcel on or under which the release is located does not have an address, or the address is unknown, the address of a nearby parcel may be provided along with sufficient directions or landmarks to locate the release;

(iv) The name, mailing address, telephone number, and electronic mail address of the person providing the report and the person who created or is maintaining the release at whose direction the report has been provided;

(v) A statement identifying whether the person providing the report is the creator or maintainer of the release or, if the person is not the creator or maintainer of the release, a description of such person's relationship to the creator or maintainer;

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(vi) The name, business address, telephone number, and electronic mail address of any LEP or PEP who has knowledge of the discovered release;

(vii) If the person providing the report is not the owner of the parcel on or under which the release is located, the name of the owner of the parcel on or under which the release is located, and the telephone number and mailing address for such owner, if such information is known;

(viii) A brief description of the current use of the parcel on which the release was discovered;

(ix) Known or suspected sensitive receptors within 500 feet of the release, including, but not limited to, residential drinking water wells, public water supply wells or reservoirs, surface water bodies, schools and day care centers;

(x) The substance or substances released, and if known, the quantity or concentration of such substances;

(xi) A description of the nature and extent of the release, to the extent known, including whether such release has impacted soils, groundwater or surface water; and

(xiii) The results of any laboratory analysis identifying each substance present at greater than applicable numeric cleanup standard or a cleanup standard calculated pursuant to section 22a-134tt-APP8 of the Regulations of Connecticut State Agencies at the time such report is submitted.

(B) If the release required to be reported is a significant existing release, and not all information required by subparagraph (A) of this subdivision is available at the time a report must be provided:

(i) any person required to report such a release shall report all known information about such release required to be reported by subdivision (1) of this subsection in the timeframe specified by subsection (a) of this section; and

(ii) Not later than 7 days after an incomplete report is provided pursuant to clause (i) of this subparagraph, a complete report, containing all the information specified in subparagraph (A) of this subdivision, shall be provided.

(C) Form and Process for Providing a Report

(i) The commissioner shall specify, by posting on the department's internet website, the form and process by which each type of report required by subparagraph (B) of subdivision (1) of this subsection and containing the information specified in such

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subparagraph, shall be provided. The form and process specified may include, but shall not be limited to, one or more of the following:

(I) a telephone call to the department's emergency dispatch center;

(II) a written report provided by mail;

(III) a written report provided by electronic mail to a designated electronic mail address; or

(IV) a written report provided using to a file transfer site or electronic filing system maintained by the department.

(ii) If the process for submitting a report specified by the commissioner pursuant to this subparagraph requires the report be provided in writing, such report shall be provided on a form prescribed by the commissioner.

(2) Reports submitted in error

If the person who submitted a report subsequently determines that such report was submitted in error, such person may request that the report be amended or retracted. Such request shall be made using a form prescribed by the commissioner, and shall include the date the report was submitted and a description of the error. The commissioner request, in writing, any additional information necessary to determine if the report was submitted in error. If the commissioner determines the report was made in error, the report shall be amended or retracted as requested.

(c) Reports of Significant Existing Releases When the Person Who Discovers Such Release Did Not Create And Is Not Maintaining The Release

(1) The timeframe for providing a report specified in subsection (a) of this section shall begin upon discovery of significant existing release by a person who did not create and is not maintaining such release, pursuant to section 22a-134tt-2(b) of the RBCRs.

(2) If:

(A) The significant existing release is not known to be impacting a public or private drinking water supply well and the person who discovers a significant existing release has access to the geographic area of the release because:

(i) such person is an employee, contractor, agent, representative, or otherwise has access to the geographic area of the release at the specific direction or with the direct consent of a person who created or is maintaining a release, the person who discovers such a release shall, not later than one business day after discovering the release, notify the person who created or is maintaining the release of its

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discovery and provide all available relevant information regarding the release to such person; or

(ii) such person is an employee, contractor, agent, representative or otherwise has access to the geographic area of the release at the direction of a person other than a person who created or is maintaining such a release, the person who discovered the release shall, not later than one business day after discovering the release, notify the person on whose behalf the geographic area of the release was accessed of the discovery and provide all available relevant information regarding the release to such person. Any person receiving such a notification shall contact a person who created or is maintaining the release and provide all available relevant information regarding the release to such person not later than one business day after receiving the notification.

(B) The significant existing release is known to be impacting a public or private drinking water supply well and the person who identifies such impact from the significant existing release has access to the geographic area of the release because:

(i) such person is an employee, contractor, agent, representative, or otherwise has access to the geographic area of the release at the specific direction or with the direct consent of a person who created or is maintaining a release, the person who discovers such a release shall, not later than 6 hours after discovering the release, notify the person who created or is maintaining the release of its discovery and provide all available relevant information regarding the release to such person; or

(ii) such person is hired, retained, designated or authorized, or otherwise has access to the geographic area of the release at the direction of a person other than a person who created or is maintaining such a release, the person who discovered the release shall, not later than one business day after discovering the release, notify the person on whose behalf the geographic area of the release was accessed of the discovery and provide all available relevant information regarding the release to such person. Any person receiving such a notification shall contact a person who created or is maintaining the release and provide all available relevant information regarding the release to such person not later than 6 hours after receiving the notification.

(3) A person who created or is maintaining a significant existing release, upon receipt of notification made pursuant to this subsection, shall report such release to the commissioner within the time specified by subsection (a)(1) of this section that contains the information required by, and is in the form and uses the process specified by, subsection (b) of this section. The person reporting such a release shall confirm to the person who notified them and the person who discovered such a release, that a timely report of the release has been provided to the commissioner.

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(4) If the person who discovered a significant existing release and the person who notified the person who created or is maintaining such a release have not received confirmation that such a timely report of such release has been provided to the commissioner pursuant to subparagraph (2)(B) of this subsection, and the time period for reporting such release has expired, such persons shall notify the commissioner that:

(A) a significant existing release was discovered;

(B) the time, date and location of discovery;

(C) the nature of the discovered release;

(D) that a person who created or is maintaining such a release was notified within the time specified by this subsection; and

(E) the name and contact information for such person.

The commissioner shall specify, by posting on the department's internet website, the form and process by which such notification shall be made, which shall include, but may not be limited to notification by telephone call to the department's emergency dispatch center.

(5) Persons Not Subject To Requirement To Notify

Notwithstanding the requirements of this subsection:

(A) If a significant existing release created or maintained by an attorney's client is discovered by such attorney, that attorney's only obligation shall be to inform the attorney's client of the obligation to report such release in a timely manner; and

(B) If a significant existing release is discovered by a person who has access to the geographic area of the release pursuant to section 22a-133dd of the General Statutes, such person shall not be required to take any action pursuant to this subsection.

(d) Reports of Existing Releases Discovered on Transfer Act Site

(1) If an existing release is discovered on any parcel required to be investigated and remediated pursuant to sections 22a-134 to 22a-134e, inclusive, and sections 22a-134h and 22a-134i of the Connecticut General Statutes and, pursuant to section 22a-134rr of the Connecticut General Statutes, such release is subject to the requirements of sections 22a-134qq to 22a-134xx, inclusive, of the Connecticut General Statutes, a report of such release shall be provided to the commissioner pursuant to the requirements of this section.

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(2) If remediation of the parcel pursuant to the requirements of sections 22a-134 to 22a-134e, inclusive, and sections 22a-134h and 22a-134i of the Connecticut General Statutes, is ongoing and a Form I, Form II, Form III verification or Form IV verification has not yet been submitted, and the discovered release is not a release requiring immediate action, in addition to complying with the requirements of subsection (b) of this section, any report filed pursuant to subdivision (1) of this subsection shall specify whether:

(A) the release will be remediated pursuant to the process and to the standards specified in the RBCRs; or

(B) the release will be remediated pursuant to the requirements of, and to the standards specified by sections 22a-134 to 22a-134e, inclusive, and sections 22a-134h and 22a-134i of the Connecticut General Statutes, and a Form III verification or From IV verification for the parcel which includes such release will be provided pursuant to the requirements of sections 22a-134 to 22a-134e, inclusive, and sections 22a-134h and 22a-134i of the Connecticut General Statutes not later than the deadline for verification of the parcel specified in section 22a-134a(g)(c) of the Connecticut General Statutes, without extension of such deadline.

(NEW) **Sec. 22a-134tt-4. Characterization of Discovered Releases**
(a) Requirement to Characterize Nature and Extent of a Release

(1) Upon discovery, the nature and extent of a release shall be determined, pursuant to the requirements of this section. This characterization is necessary prior to determining the appropriate remedial action for an existing release. Remediation of any release shall not be determined to have satisfied the requirements of the RBCRs unless and until the nature and extent of such release has been determined, as required herein.

(2) Required Information

(A) Characterization of a release shall require the development of a conceptual site model, which may include, but shall not be limited to, evaluation of:

(i) The physical setting of the release, such as topography, soil type, geology, and hydrogeology;

(ii) Chemical properties of each substance discovered;

(iii) The historical, current, and anticipated land uses of the release area and surrounding real property;

(iv) Receptor pathways and potential receptors, such as existing uses of groundwater and proximity to water supply wells, nearby occupied buildings and nearby surface water;

(v) Historical information and records;

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(vi) Observations of the release area and surrounding real property; and

(vii) The results of soil, groundwater, or other environmental media testing, including the results of any field screening and all laboratory analytical data concerning such release.

(B) (i) When specifying prevailing standards and guidelines pursuant to subsection (b) of this section, the commissioner shall identify the information necessary to develop a conceptual site model of a release and to complete closure characterization such release; and

(ii) Prevailing standards and guidelines specified by the commissioner shall indicate that a determination that the release remediation closure report for a release prepared pursuant to section 22a-134tt-8(a) of the RBCRs shall be considered closure characterization and shall satisfy the requirements of this section.

(C) Closure characterization of an existing release shall include the preparation of a conceptual site model narrative by an LEP in accordance with prevailing standards and guidelines.

(3) Tier characterization of a release shall be completed as soon as is prudent, but not later than 1 year after discovery of such release.

(4) No release remediation closure report shall be verified by an LEP or certified by a PEP until closure characterization of a release is complete.

(5) If an immediate action is required by section 22a-134tt-5 of the Regulations of Connecticut State Agencies, then any characterization necessary to perform such actions, or verify the effects of such actions, shall be completed as required by such section.

(b) Identification of Prevailing Standards and Guidelines

(1) The commissioner may specify, by posting on the department's internet website, methods or protocols for the characterization of a release through the development of a conceptual site model which shall include, but shall not be limited to, methods or protocols for identifying and evaluating the information specified by subsection (a)(2) of this section. Methods or protocols posted on the department's internet website pursuant to this subdivision shall be considered prevailing standards and guidelines.

(2) If characterization is conducted pursuant to the prevailing standards and guidelines specified by the commissioner pursuant to subdivision (1) of this subsection, such characterization shall be sufficient for all purposes required by the RBCRs.

(3) (A) If characterization is performed using standards and guidelines other than those prevailing standards and guidelines specified by the commissioner pursuant to subdivision (1) of this subsection, such standards and guidelines, and any methods or protocols used pursuant thereto, shall be documented and submitted for the commissioner's review;

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(B) The documentation required by subparagraph (A) of this subdivision shall be submitted to the commissioner one time, at the earliest of the following:

(i) upon completion of an immediate action completed pursuant to section 22a-134tt-5 of the Regulations of Connecticut State Agencies, if an immediate action is required for such release;

(ii) upon submission of a release remediation closure report, if remediation is completed not more than one year after discovery of such release; or

(iii) upon assignment of the release to a cleanup tier, if such release is required to be assigned to a cleanup tier.

(C) If the commissioner determines that such standard or guideline, or any method or protocol used pursuant thereto, is not scientifically valid and defensible, or not of a level of precision, accuracy, and sensitivity to sufficiently determine the nature and extent of a release, the commissioner shall identify in writing the reasons for such conclusions and such characterization shall not be relied upon to demonstrate compliance with the RBCRs. Along with such written statement, the commissioner shall specify a deadline for the completion of characterization pursuant to the requirements of this section.

(4) Notwithstanding the requirements of this section, a release remediation closure report prepared pursuant to section 22a-134tt-8 of the RBCRs shall be considered to complete closure characterization of a release provided it contains only such characterization necessary to demonstrate compliance with the applicable provisions of such section.

(NEW) **Sec. 22a-134tt-5. Immediate Actions**

(a) Immediate Action Required

(1) An immediate action, performed pursuant to the requirements of this section, shall be required upon discovery of a release to the land and waters of the state if such release is:

(A) An emergent reportable release; or

(B) A significant existing release.

(2) An immediate action shall continue until it has achieved either an immediate action transition-point identified in subsection (h) of this section or the standards identified in the cleanup standards sections.

(3) If an immediate action is required by this section but such action has not been undertaken or an immediate action has not been performed pursuant to the requirements of this section, including but not limited to, the failure to comply with a deadline specified herein, the failure to satisfy a cleanup standard or transition-point identified by subdivision (2) of this subsection, or the failure to submit an immediate action report identified in subsection (k) of this section, the commissioner may take any action authorized by section 22a-134rr or 22a-134ss of the Connecticut General Statutes, including issuing a cease and desist order pursuant to section 22a-

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134ss(g) of the Connecticut General Statutes. Nothing herein shall affect the commissioner's ability to take enforcement action under any other provision of statute or regulation.

(b) Emergencies and Exigent Conditions

(1) Upon receiving a report of an emergent reportable release or a significant existing release, the commissioner may, in the commissioner's sole discretion, determine such release to be an emergency or exigent condition and may direct the response to such release.

(2) If the commissioner responds to such an emergency or exigent condition, on-site or otherwise, the commissioner may direct any person who created or is maintaining such release to perform any action necessary to investigate, stabilize, contain, mitigate, remediate, remove, or monitor such release or to protect human health or the environment, which shall include, but not be limited to, any remediation or other action necessary to achieve an immediate action transition-point specified in subsection (h) of this section or a standard specified in the cleanup standards sections.

(3) If an action directed by the commissioner pursuant to this subsection is not performed as directed by the commissioner or is not able to be performed by the person who created or maintained the release in the timeframe necessary to protect human health or the environment, the commissioner may perform such action, or may retain an appropriately licensed contractor to perform such action, and may seek to recover eligible costs pursuant to section 22a-451 of the Connecticut General Statutes and may take any authorized enforcement action including, but not limited to, actions authorized by sections 22a-134rr to 22a-134ss, inclusive, of the Connecticut General Statutes including issuing a cease and desist order pursuant to section 22a-134ss(g) of the Connecticut General Statutes, or an administrative civil penalty pursuant to sections 22a-134ss(f) and 22a-6b of the Connecticut General Statutes, including a schedule of penalties adopted pursuant thereto.

(4) The commissioner shall determine, in the commissioner's sole discretion, when an emergency or exigent condition caused by a release has been abated. The commissioner may determine that an emergency or exigent condition has been abated without achieving either an immediate action transition-point specified by subsection (h) of this section or a standard specified in the cleanup standards sections. Upon determining that the emergency or exigent condition has been abated, the commissioner may end any response to such release. At the conclusion of any response directed by the commissioner, provided the response directed has not achieved an immediate action transition-point or a cleanup standard, each person who created or is maintaining such release shall continue the actions required to achieve an immediate action transition-point or a cleanup standard within the time specified by subsection (h) of this section.

(c) Time to Begin Required Immediate Actions

(1) The actions required by subsections (d) and (e) of this section shall begin immediately upon discovery of an emergent reportable release, if practicable, and under no circumstances later than 2 hours after discovery of such release. No time period or deadline specified by this section shall

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delay any action necessary to investigate, stabilize, contain, mitigate, remediate, remove, or monitor such release.

(2) The actions required by subsections (d) and (f) of this section shall begin immediately upon discovery of a significant existing release, if practicable, and under no circumstances later than any deadline for action specified in this section after such release is reported as required by section 22a-134tt-3 of the Regulations of Connecticut State Agencies. No time period or deadline specified by this section shall delay any action necessary to investigate, stabilize, contain, mitigate, remediate, remove, or monitor such release.

(3) If the immediate actions specified by subsection (d) of this section, and subsection (e) or (f), as applicable, are not underway and the time frame specified by this subsection has passed, the commissioner may perform such action, or may retain an appropriately licensed contractor to perform such action, and may seek to recover eligible costs pursuant to section 22a-451 of the Connecticut General Statutes and may take any authorized enforcement action including, but not limited to, actions authorized by sections 22a-134rr to 22a-134ss, inclusive, of the Connecticut General Statutes including issuing a cease and desist order pursuant to section 22a-134ss(g) of the Connecticut General Statutes, or an administrative civil penalty pursuant to section 22a-134ss(f) and section 22a-6b of the Connecticut General Statutes, including a schedule of penalties adopted pursuant thereto.

(d) Required Immediate Actions

(1) Upon discovery of an emergent reportable release or a significant existing release, each person who created or is maintaining such release shall take immediate action to investigate, stabilize, contain, mitigate, remediate, remove, or monitor such release, as required to meet an immediate action transition-point specified by subsection (h) of this section or a cleanup standard specified in the cleanup standards sections. Such actions shall include, but shall not be limited to:

> (A) Removing from the land and waters of the state, to the maximum extent practicable, an emergent reportable release, or, to the extent necessary to comply with this section, a significant existing release, using means appropriate for the specific substance released and the land and waters impacted by such release;
>
> (B) Implementing measures to prevent migration of a release, which may include, but shall not be limited to, active remediation techniques or the use of physical barriers or appropriate treatment systems; and
>
> (C) Identifying the source of a release and eliminating the source of an emergent reportable release or, if practicable in the time provided to complete immediate actions, eliminating the source of a significant existing release.

(2) Closure characterization of the nature and extent of a release shall not be required before commencing an immediate action. Characterization of the nature and extent of the release shall be performed at the same time as the required immediate actions to ensure that such required

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actions are sufficient and successful. At a minimum, characterization sufficient to demonstrate that an immediate action transition-point specified by subsection (h) of this section has been achieved shall be developed during the timeframe specified for achieving an immediate action transition-point, except that should the actions performed include remediation to a standard specified in the cleanup standards sections, closure characterization of such release pursuant to section 22a-134tt-4 of the RBCRs shall be required.

(e) Required Immediate Actions for an Emergent Reportable Release

(1) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that is present in a public or private drinking water well:

(A) Install, as soon as is practicable, physical barriers to prevent the further migration of such release, which may include, but shall not be limited to, interceptor trenches, sheet piles or slurry walls, and implement, as soon as is practicable, hydraulic control and recovery measures, which may include but shall not be limited to, recovery wells, absorbent socks, bailing, or vacuuming;

(B) Identify each public or private drinking water well located on each parcel adjacent to the parcel on which the impacted well is located, collect samples of water from such wells, and send for laboratory analysis as soon as is practicable but not more than 36 hours after discovery that a public or private drinking water well has been impacted by such release;

(C) Identify each public or private drinking water well located within 200 feet of an impacted well, or within 500 feet downgradient of an impacted well, collect samples of water from such wells, and send for laboratory analysis as soon as is practicable but not more than 36 hours after discovery that a public or private drinking water well has been impacted by such release;

(D) Ensure that an alternative source of potable water is provided to the users of each public or private drinking water well impacted by such release;

(E) Seven days after the collection of samples from a public or private drinking water well pursuant to subparagraph (B) and (C) of this subdivision, collect a second sample of water from each well tested and send for laboratory analysis;

(F) For each drinking water well impacted by the release of a substance at a concentration greater than the groundwater protection criterion, install an appropriate treatment system for such substance or connect to an unimpacted public drinking water supply system. Each treatment system shall be installed not more than 15 days following discovery that such well has been impacted by the release, unless such drinking water well will be replaced with a connection to an unimpacted public water supply system. Each connection to an unimpacted public drinking water supply system shall be made not more than 30 days following discovery of such impacted well; and

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(G) As soon as practicable, but not more than 45 days following discovery that such release has impacted a public or private drinking water well, prepare and submit to the commissioner an immediate action report, pursuant to subsection (k) of this section, that:

(i) Lists each drinking water well identified pursuant to subparagraph (B) and (C) of this subdivision, specifies whether each drinking water well has been impacted by such release, and includes the results of laboratory analysis of all samples collected from such wells;

(ii) Identifies each treatment system installed and each connection to an unimpacted public drinking water supply system made. For each treatment system installed, a schedule for the maintenance and monitoring of such system shall be specified;

(iii) For each drinking water well impacted by a substance at a concentration less than the groundwater protection criterion, and for each drinking water well within 200 feet of a drinking water well impacted by such release, provides a schedule for the quarterly monitoring of such well for substances associated with such release; and

(iv) Includes a description of those measures undertaken to prevent further migration of the release, pursuant to subparagraph (A) of this subdivision, and a schedule for the maintenance, and monitoring of such measures;

(H) The commissioner may request a follow up report be submitted pursuant to section 22a-450-4(b) of the Regulations of Connecticut State Agencies, and may specify a deadline for the submission of such a report;

(2) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that is impacting groundwater, and is present in a groundwater monitoring well within 500 feet in any direction of a public or private drinking water well:

(A) Install, as soon as is practicable, physical barriers to prevent the further migration of such release, which may include, but shall not be limited to, interceptor trenches, sheet piles or slurry walls, and implement, as soon as is practicable, hydraulic control and recovery measures, which may include but shall not be limited to, recovery wells, absorbent socks, bailing, or vacuuming;

(B) Identify each public or private drinking water well located on a parcel adjacent to the parcel on which the impacted monitoring well is located, collect samples of water from such wells, and send for laboratory analysis as soon as is practicable but not more than 36 hours after discovery of such release;

(C) Seven days after the collection of samples from a public or private drinking water well pursuant to subparagraph (B) of this subdivision, collect a second sample of water from each well tested and send for laboratory analysis;

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(D) Not more than 45 days after discovery of such release, prepare and submit to the commissioner an immediate action report, pursuant to subsection (k) of this section that:

(i) lists each drinking water well identified pursuant to subparagraph (B) of this subdivision, specifies whether each listed drinking water well has been impacted by such release, and includes the results of laboratory analysis of all samples collected from such wells;

(ii) provides a schedule for the quarterly monitoring of groundwater at monitoring wells determined to impacted by such release; and

(iii) includes a description of those measures undertaken to prevent further migration of such release pursuant to subparagraph (A) of this subdivision, including a schedule for the periodic testing of wells identified pursuant to subparagraphs (B) of this subdivision, and a schedule for the implementation, maintenance, and monitoring of any such measures; and

(E) Notwithstanding the requirements of this subdivision, any public or private drinking water well impacted by a release shall be subject to the requirements of subdivision (1) of this subsection.

(3) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that is discovered in soil:

(A) Not more than 2 hours after discovery of such release, initiate remediation of such impacted soil to the applicable direct exposure criteria or to the standards found in section 22a-134tt-8(a) of the RBCRs, and continue until compliance with such criteria or standards have been met; and

(B) Notwithstanding the requirements of subparagraph (A) of this subsection, if such release contains PCBs, remediate or dispose of such soil in the manner required by 40 CFR 761 or as directed by the commissioner, not more than 48 hours after discovery.

(4) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that is a release of volatile organic substances, except volatile petroleum substances, that is discovered in groundwater within 30 feet or less of the ground surface and within 30 feet or less of the lowest portion of a building under which groundwater is impacted, or that consists of volatile petroleum substances within 10 feet or less of the ground surface and within 10 feet or less of the lowest portion of a building under which groundwater is impacted with such substances:

(A) If the building is occupied or in use, immediately ventilate the building to the maximum extent practicable, which may include, but shall not be limited to, the opening of doors and windows, the use of fans, or the adjustment of the building's air handling turnover rate;

(B) All measures necessary to ensure that further migration of such release into indoor air is mitigated or prevented, which may include, but shall not be limited to:

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(i) installation of a soil vapor extraction system;

(ii) installation of a sub-slab depressurization system; or

(iii) the sealing of cracks in the buildings floor and foundation or other preferential pathways; and

(C) Not more than 7 days after discovery of the release, prepare and submit an immediate action plan, pursuant to subsection (j) of this section, that:

(i) Describes the nature and extent of the volatile organic substances from soil or groundwater in indoor air, and includes the results of laboratory analysis of soil, soil vapor, and groundwater samples collected;

(ii) Specifies a vapor mitigation system or approach to be used or installed, and a schedule for the installation of such system or approach;

(iii) Includes a schedule for the maintenance and monitoring of such system or approach; and

(iv) Includes a description of those measures already undertaken, or to be undertaken, to prevent further migration of such release, and a schedule for the implementation, maintenance, and monitoring of any such measures.

(5) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that is causing a visible impact to surface water:

(A) As soon as practicable, but not more than 2 hours after the discovery of such release, undertake all measures necessary to remove all impacts that are recoverable and ensure that further migration of such release is mitigated or prevented, which may include, but shall not be limited to, physical barriers such as booms, interceptor trenches, slurry walls, other physical barriers, or vacuum extraction;

(B) If the release occurred in or migrated to a surface water body, each substance released is soluble or has a specific gravity greater than or equal to 1, and such release has been present in surface water for a period-of-time such that accumulation or adsorption on sediments is possible, sample sediments to determine if such sediments were impacted by the release in a reasonable time, provided such sampling shall occur not more than 48 hours following discovery of the release;

(C) Not more than 45 days after discovery of such release, prepare and submit an immediate action report, pursuant to subsection (k) of this section, that includes:

(i) A description of measures installed to prevent migration of such release and any necessary maintenance or monitoring of such measures;

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(ii) The results of laboratory analysis of sediment samples if required to be collected pursuant to subparagraph (B) of this subdivision;

(iii) A schedule for any necessary additional mitigation, abatement, and monitoring of the impacted surface water body; and

(iv) A schedule for the quarterly monitoring of groundwater, if any groundwater is impacted by such release resulting in impacts to groundwater at a concentration greater than or equal to the surface water protection criteria or by a nonaqueous phase liquid.

(f) Required Immediate Actions for a Significant Existing Release

(1) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that has impacted or is impacting a public or private drinking water well:

(A) Install, as soon as is practicable, physical barriers to prevent the further migration of the release, which may include, but shall not be limited to, interceptor trenches, sheet piles or slurry walls, and implement, as soon as is practicable, hydraulic control and recovery measures, which may include but shall not be limited to, recovery wells, absorbent socks, bailing, or vacuuming;

(B) Identify each public and private drinking water well located on a parcel adjacent to the parcel on which the impacted well is located, provided that such well is within 500 feet of the impacted well, and collect samples of water from such wells not more than 2 days after discovery of such release;

(C) Ensure that an alternative source of potable water is provided to the users of each public or private drinking water well impacted by the release;

(D) Not more than 15 days after discovery that a public or private drinking water well has been impacted by such release, identify each public and private drinking water well located within 200 feet of an impacted well, or within 500 feet downgradient of an impacted well; and

(E) Not more than 15 days after discovery that a public or private drinking water well has been impacted by such release, prepare and submit an immediate action plan, pursuant to subsection (j) of this section, that:

(i) Lists each drinking water well identified pursuant to subparagraphs (B) and (D) of this subdivision, specifying whether each listed drinking water well has been impacted by such release and including the results of laboratory analysis of all samples collected pursuant to subparagraphs (B) and (D) of this subdivision;

(ii) Specifies a schedule for the sampling and analysis of drinking water wells on parcels adjacent to the parcel on which each impacted drinking water well is located, provided each impacted drinking water well shall be sampled not less than once per

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quarter, and a schedule for the continued identification and sampling of potentially impacted wells in an iterative manner until all drinking water wells impacted by the release have been identified and sampled;

(iii) For each drinking water well impacted by such release by a substance at a concentration greater than the groundwater protection criterion, either identifies and describes an appropriate treatment system for such substance or indicates that a connection to an unimpacted public drinking water supply system will be provided. For each treatment system identified, the plan shall specify a schedule for its installation, provided such system shall be installed not more than 15 days following discovery that such well has been impacted by such release, and any required maintenance and quarterly monitoring. For each identified connection to an unimpacted public drinking water supply system, the plan shall specify a schedule for the connection to such system, provided such connection shall be made not more than 30 days following discovery that such well has been impacted by the release;

(iv) For each drinking water well impacted by such release by a substance at concentrations less than or equal to the groundwater protection criteria, and for each drinking water well within 200 feet of a drinking water well impacted by such release, provides a schedule for quarterly monitoring of such drinking water well for the substances associated with such release; and

(v) Includes a description of those measures already undertaken, or to be undertaken, to prevent further migration of such release, pursuant to subparagraph (A) of this subdivision, and a schedule for the implementation, maintenance, and monitoring of any such measures.

(2) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that is of a substance for which a groundwater protection criterion has been adopted that has impacted or is impacting groundwater within 500 feet of a private or public drinking water well at a concentration equal to or greater than the groundwater protection criterion:

(A) Identify each drinking water well located on a parcel adjacent to the parcel on which the impacted monitoring well is located, provided that such drinking water well is within 500 feet of the impacted monitoring well, and collect samples of water from such wells not more than 2 days after the discovery of such release;

(B) Not more than 15 days after discovery of such release, identify each public and private drinking water well located within 200 feet of an impacted monitoring well, or within 500 feet downgradient of an impacted monitoring well;

(C) As soon as practicable, implement all measures necessary to ensure that further migration of such release is mitigated or prevented;

(D) Not more than 15 days after discovery of such release, prepare and submit an immediate action plan, pursuant to subsection (j) of this section, that:

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(i) Lists each drinking water well identified pursuant to subparagraphs (A) and (B) of this subsection

(ii) Specifies whether each identified well has been sampled, lists each drinking water well known to have been impacted by the release, and includes the results of laboratory analysis of all samples collected from such wells;

(iii) Lists each drinking water well within 200 feet of an impacted public or private drinking water well, or within 500 feet downgradient of a groundwater monitoring well and groundwater plume exceeding groundwater protection criteria for substances associated with the release, and specifies a schedule for the sampling of such wells;

(iv) Provides a schedule for the quarterly monitoring of groundwater determined to be impacted at a concentration greater than a groundwater protection criterion; and

(v) Includes a description of those measures already undertaken, or to be undertaken, to prevent further migration of the release, including a schedule for the periodic testing of wells identified pursuant to subparagraphs (A) and (B) of this subdivision, and a schedule for the implementation, maintenance, and monitoring of any such measures; and

(E) Notwithstanding the requirements of this subdivision, any public or private drinking water well impacted by the release shall be subject to the requirements of subdivision (1) of this subsection.

(3) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that is discovered in soil within 2 feet of the ground surface that contains a substance at concentrations greater than or equal to 15 times the applicable direct exposure criterion for such substance:

(A) Determine the location and extent of soil impacted by such release, not more than 45 days after discovery of such release;

(B) Not more than 90 days after discovery of such release:

(i) Remove or mitigate soil within 2 feet of the ground surface impacted at concentrations greater than 15 times the applicable direct exposure criteria by measures to prevent exposure to such soil, which may include, but shall not be limited to, installation of a fence, pavement, or other temporary physical barrier;

(ii) Render inaccessible, by satisfying all relevant provisions of the cleanup standards sections, all soil impacted by such release at concentrations greater than the applicable direct exposure criteria;

(iii) Remediate all soil impacted by such release to the applicable direct exposure criteria; or

(iv) If the soil is impacted by PCBs, remediate or dispose of such soil as required by 40 CFR 761 or in a manner authorized by the commissioner or the EPA;

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(C) Not more than 90 days after discovery of such release, if measures to prevent exposure to such soil have been implemented pursuant to subparagraph (B)(i) or (B)(ii) of this subdivision, prepare and submit an immediate action plan, pursuant to subsection (j) of this section that:

(i) Describes the location and extent of such release, including the results of the laboratory analysis of samples;

(ii) Includes a description and photographs of the installed measures; and

(iii) Provides a schedule for the monitoring and maintenance of such measures, at a minimum annually, and sufficient to ensure that such measures remain effective; and

(D) Notwithstanding the requirements of subsection (j) of this section, an immediate action plan shall not be required for a significant existing release subject to the requirements of this subdivision, if such release has been remediated to the applicable direct exposure criteria or if PCB containing soil has been remediated or disposed of in a manner authorized by the Commissioner or the EPA, pursuant to subparagraph (B)(iii) or (b)(iv) of this subdivision.

(4) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that is of volatile organic substances or volatile petroleum substances to groundwater that has caused or is causing a groundwater plume within 30 feet of the ground surface and within 30 feet or less of the lowest portion of a building impacted at concentrations greater than or equal to 10 times the applicable volatilization criteria for any volatile organic substance, except volatile petroleum substances; a groundwater plume within 10 feet of the ground surface and within 10 feet or less of the lowest portion of a building impacted at concentrations greater than or equal to 10 times the applicable volatilization criteria for any volatile petroleum substances; soil vapor beneath a building to be impacted at concentrations greater than or equal to the applicable volatilization criteria for such substance; or the detection of toxic air contaminants in indoor air provided such toxic air contaminant is not present in indoor air solely as the result of a current process or use of materials:

(A) Immediately ventilate the building to the maximum extent practicable if the building is occupied or in use; and

(B) Not more than 30 days after discovery of such release, prepare and submit an immediate action plan, pursuant to subsection (j) of this section, that:

(i) Describes the nature and extent of such release, and includes the results of laboratory analysis of samples collected;

(ii) Specifies a sufficiently protective vapor mitigation system or approach to be used or installed, which may include, but shall not be limited to, the sealing of cracks and other preferential pathways, a sub-slab depressurization system or soil vapor

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extraction system or an adjustment of air handling turnover rate, and a schedule for the use or installation of such system or approach;

(iii) Includes a schedule for the maintenance and monitoring of such system or approach to be used or installed; and

(iv) Includes a description of those measures already undertaken, or to be undertaken, to prevent further migration of such release, and a schedule for the implementation, maintenance, and monitoring of any such measures.

(5) In addition to the actions specified by subsection (d) of this section, the following actions shall be required if a release is an emergent reportable release that is a release of a substance at a concentration greater than or equal to 10 times the surface water protection criteria for such substance, or that is a non-aqueous phase liquid, that has impacted or is impacting groundwater within 500 feet of surface water:

(A) Not more than 30 days after discovery of such release, prepare and submit an immediate action report pursuant to subsection (k) of this section that:

(i) Describes the nature and extent of such release, and includes the results of laboratory analysis of samples collected;

(ii) Identifies each measure taken to prevent migration of such release; and

(iii) includes a schedule for completing tier characterization of such release.

(g) Certification by a PEP or Verification by an LEP

(1) Immediate action required by this section may be directed by the commissioner in the event such release is determined to be an emergency or exigent condition pursuant to subsection (b) of this section. If such release is not determined to be an emergency or exigent condition pursuant to subsection (b) of this section, immediate action may be certified as complete by a PEP or verified as complete by an LEP, except that an immediate action shall be required to be verified by an LEP if:

(A) Such release was discovered through laboratory analysis of samples of soil, sediment, groundwater, or indoor air;

(B) Such release is causing persistent groundwater impact; or

(C) The actions proposed will satisfy the standards specified in the cleanup standards sections, and such cleanup standards require LEP verification.

(2) The need for an LEP to verify that an immediate action is complete shall not be considered a requirement that an LEP supervise or otherwise be present at all times during an immediate action, and no time period specified in this section shall be stayed due to the presence or absence of an LEP.

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(3) Notwithstanding the requirements of this subsection, no person shall engage in the business of collecting, storing or treating waste oil or petroleum or chemical liquids or hazardous wastes, or of acting as a contractor to contain or remove or otherwise mitigate the effects of discharge, spillage, uncontrolled loss, seepage or filtration of such substance or material or waste, nor shall any person, municipality or regional authority dispose of waste oil or petroleum or chemical liquids or waste solid, liquid or gaseous products or hazardous wastes except in accordance with the requirements of a permit issued pursuant to section 22a-454 of the Connecticut General Statutes.

(h) Immediate Action Transition-Points

(1) Emergent Reportable Release Transition-Points

If the release for which immediate action was required is an emergent reportable release, such immediate action shall result in compliance with the standards specified at section 22a-134tt-8 of the RBCRs, the applicable numeric criteria in the cleanup standards sections, an applicable additional polluting substances criterion calculated pursuant to section 22a-134tt-App 8 of the RBCRs, or if such criteria cannot be met within 1 year of discovery, an applicable immediate action transition-point, specified below:

(A) For a release impacting a drinking water well, for which required actions are specified in subsection (e)(1) of this section, such transition-points shall be:

(i) without treatment, four quarters of water monitoring laboratory analytical results that demonstrate compliance with applicable standards for each substance detected in such well;

(ii) the installation of a suitable treatment system to each impacted drinking water well identified, provided that:

(I) four quarters of water monitoring laboratory analytical results demonstrate that the substances are not detected in effluent water from the treatment system on such well as submitted to the commissioner; and

(II) an immediate action report is submitted that includes all the information specified in subsection (k) of this section, a plan and schedule for the maintenance and monitoring of each treatment system installed, and the analytical results of such quarterly monitoring; or

(iii) the replacement of each impacted drinking water well identified with a connection to an unimpacted public water supply system, provided that an immediate action report is submitted that contains all the information specified in subsection (k) of this section.

(B) For a release impacting groundwater, for which required actions are specified in subsection (e)(2) of this section, such transition-points shall be when, 1 year following discovery of the release, such release is entered into a cleanup tier requiring DEEP

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oversight, and an immediate action report is submitted that contains all the information specified in subsection (k) of this section;

(C) For a release impacting soil for which required actions are specified in subsection (e)(3) of this section, such transition-point shall be the removal of the release from soil to the maximum extent practicable, and the mitigation of the risk of exposure to any remaining impacted soil, provided that an immediate action report is submitted that contains all the information specified in subsection (k) of this section; and

(D) For a release impacting groundwater of volatile organic substances or volatile petroleum substances for which required actions are specified in subsection (e)(4) of this section, such transition-point shall be when:

(i) mitigation measures identified in subsections (e)(4)(A) and (e)(4)(B) of this section have been installed or implemented and are operating but an environmental use restriction has not yet been recorded;

(ii) the analysis of 9 indoor air samples, taken in consecutive months, indicates concentrations of less than 10 times the applicable TAC; and

(iii) an immediate action report is submitted that contains all the information specified in subsection (k) of this section;

(E) For a release impacting surface water, for which required actions are specified in subsection (e)(5) of this section, such transition-point shall be when the release that is the source of the impact has been removed or mitigated to the maximum extent practicable and all visible sheen is collected or otherwise eliminated, provided an immediate action report is submitted that contains all the information specified in subsection (k) of this section.

(2) Significant Existing Release Transition-Points

If the release for which immediate action was required is a significant existing release, such immediate action must result in compliance with the standards specified in the cleanup standards sections, or an applicable immediate action transition-point, specified below:

(A) For a release impacting a drinking water well, for which required actions are specified in subsection (f)(1) of this section, such transition-point shall be:

(i) without treatment, four quarters of water monitoring laboratory analytical results that demonstrate compliance with applicable standards for each substance detected in such well;

(ii) the installation of a suitable treatment system to each impacted drinking water well identified, provided that:

(I) four quarters of water monitoring laboratory analytical results demonstrate that the substances are not detected in effluent water from the treatment system on such well as submitted to the commissioner; and

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(II) an immediate action report is submitted that includes all the information specified in subsection (k) of this section, a plan and schedule for the maintenance and monitoring of each treatment system installed, and the analytical results of such quarterly monitoring; or

(iii) the replacement of each impacted drinking water well identified with a connection to an unimpacted public water supply system, provided that an immediate action report is submitted that contains all the information specified in subsection (k) of this section.

(B) For a release impacting groundwater, for which required actions are specified in subsection (f)(2) of this section, such transition-point shall be when, 1 year following discovery of the release, such release is entered into a cleanup tier requiring DEEP oversight, and an immediate action report is submitted that contains all the information specified in subsection (k) of this section.

(C) For a release to soil, for which required actions are specified by subsection (f)(3) of this section, such transition-point shall be when direct exposure to such soil is mitigated, pursuant to subsection (f)(3)(B) of this section, provided an immediate action report is submitted that contains all the information specified in subsection (k) of this section;

(D) For a release to groundwater of volatile organic substances or volatile petroleum substances for which required actions are specified in subsection (f)(4) of this section, such transition-point shall be when:

(i) mitigation measures, identified in subsection (f)(4)(B) of this section, have been installed or implemented, and are operating but an environmental use restriction has not yet been recorded;

(ii) the analysis of 9 indoor air samples, taken in consecutive months, indicate concentrations of less than 10 times the applicable TAC; and

(iii) an immediate action report is submitted that contains all the information specified in subsection (k) of this section; and

(E) For a release to groundwater near surface water, for which required actions are specified in subsection (f)(5) of this section, tier characterization is complete and such release has been entered into a cleanup tier by filing a tier assignment and paying the required fee.

(i) Remediation of Remaining Substances Released

(1) To the extent that the completion of the required immediate action does not result in the achievement of the standards specified in the cleanup standards sections for each substance released to the land and waters of the state, a release shall remain subject to the requirement to remediate to such cleanup standards.

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(2) If a release remains present in the land and waters of the state following the completion of an immediate action, such release shall be:

(A) Tier characterized not later than 1 year after discovery, pursuant to section 22a-134tt-6 of the RBCRs.

(B) Assigned to a cleanup tier pursuant to the process specified in section 22a-134tt-6 of the RBCRs, except that if all substances remaining in the land and waters of the state are remediated to the standards specified in the cleanup standards sections, and a release remediation closure report has been prepared that satisfies the requirements of section 22a-134tt-13 of the RBCRs, then entry into a cleanup tier shall not be required.

(j) Immediate Action Plan

(1) The commissioner may require a person who created or is maintaining an emergent reportable release to submit an immediate action plan. The commissioner shall notify such person, verbally or in writing, that submission of an immediate action plan is required, and shall specify a deadline for the submission of such plan.

(2) A person who created or is maintaining a significant existing release, except a release to groundwater requiring immediate action pursuant to subsection (f)(5) of this section, shall submit an immediate action plan to the commissioner in the time specified by subsection (f) of this section, or, if a time period is not specified in such subsection, not more than 90 days after discovery of a significant existing release.

(3) An immediate action plan shall contain a description of the actions already underway and those proposed to achieve an immediate action transition-point specified by subsection (h) of this section or a standard specified in the cleanup standards sections, and shall:

(A) Be prepared using a form prescribed by the commissioner;

(B) Identify one or more persons who created or is maintaining the release;

(C) Identify the person who will certify or verify the completion of the immediate action;

(D) Reference the initial release report for such release, and update any information provided therein based on the most current available information regarding such release;

(E) Propose a schedule for achieving an immediate action transition-point specified in subsection (h) or a standard specified in the cleanup standards sections on or before 1 year following the discovery of a release;

(E) Provide any other information specified by subsection (d) of this section, and subsections (e) or (f), as applicable; and

(F) Provide any other information specified by the commissioner on such form.

(4) The commissioner may review the immediate action plan, and may approve or reject such plan, in writing. The commissioner's determination shall be provided to the person who

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submitted the immediate action plan and the person identified as certifying completion of the immediate action. If the commissioner determines that the proposed actions and schedule therein are not protective of human health or the environment, the commissioner shall reject the immediate action plan. If the commissioner rejects the plan, the commissioner shall state the reasons for rejection, which may include, but shall not be limited to:

(A) The actions proposed are incomplete or otherwise inappropriate;

(B) The schedule proposed does not address the release with sufficient urgency when considering any imminent threat to human health or the environment, even if the schedule proposed otherwise satisfies the deadlines specified in subsection (e) of this section, and subsection (f) or (g), as applicable; or

(C) The immediate action plan does not identify the PEP or LEP, if an LEP is required, who will certify the immediate action is complete.

(5) If the commissioner rejects the proposed actions and schedule, the actions and schedule shall be revised and resubmitted for the commissioner's review within 7 days. If the commissioner does not reject the immediate action plan within 21 days after receipt, the plan, including the proposed actions and schedule shall be automatically deemed approved.

(k) Immediate Action Report

(1) An immediate action report shall be submitted on the earlier of the following:

(A) For emergent reportable releases, on the earlier of the following:

(i) the assignment of such release to a tier; or

(ii) the submission of a release remediation closure report; and

(B) For a significant existing release, shall be submitted on the earlier of the following:

(i) A deadline specified by the commissioner in writing for the submission of such report;

(ii) Not more than 60 days after completion of the actions required to achieve an immediate action transition-point specified by subsection (h) of this section or a standard specified in the cleanup standards sections; or

(iii) Not more than 1 year following discovery of an emergent reportable release or a significant existing release.

(2) Such report shall:

(A) Be prepared using a form prescribed by the commissioner;

(B) Identify each known person who created or is maintaining the release;

(C) Identify the person who, pursuant to subsection (g) of this section, supervised the immediate action;

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(D) Identify the immediate action transition-point specified by subsection (h) of this section, or the standards specified in the cleanup standards sections that have been achieved;

(E) Provide information regarding the investigation and characterization of the release sufficient to demonstrate that the transition-point or cleanup standards identified have been achieved, including confirmatory sampling of soil or groundwater, if required;

(E) Identify any remaining characterization of the nature and extent of a release necessary to satisfy the requirements of section 22a-134tt-4 of the RBCRs;

(F) Identify any remaining remediation required to achieve the standards specified in the cleanup standards sections for any substances still present in the land and waters of the state; and

(G) Provide any other information specified by the commissioner on such form.

(3) If, at the time an immediate action report is submitted, the release has not been remediated to the standards specified in the cleanup standards sections, the immediate action report and a tiering assignment shall be simultaneously submitted to the commissioner.

(4) The commissioner may audit the immediate action report pursuant to subsection 22a-134tt-13 of the RBCRs and may approve or reject such report.

(A) If the commissioner rejects the immediate action report, the commissioner may require:

(i) The submission of a modified report containing additional information not later than a specified deadline;

(ii) The submission of a schedule for additional investigation and characterization of the release and an updated immediate action report not later than a specified deadline;

(iii) The performance of additional immediate actions not later than a deadline specified by the commissioner, the submission of a schedule for the performance of such additional immediate actions, and an updated immediate action report upon completion of such actions; and

(iv) the submission of a revised tiering determination.

(B) Notwithstanding the provisions of subparagraph (A) of this subdivision, if any deadline to complete immediate actions specified by this section has passed, and an immediate action report has not been submitted to the commissioner, or the immediate action report submitted has been rejected, nothing herein shall prevent the commissioner from taking any action authorized by section 22a-134ss of the Connecticut General Statutes.

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(l) Nothing contained in this section shall be construed to affect the authority of the Commissioner of Energy and Environmental Protection pursuant to any other statute or regulation.

(NEW) **Sec. 22a-134tt-6. Tiers**

(a) Requirement to Tier Releases

Not more than 1 year following discovery of a release, each release shall be assigned to a cleanup tier if such release remains present in the land and waters of the state and has not achieved compliance with the cleanup standards sections.

(b) Establishment of Cleanup Tiers

(1) There shall be established the following:

(A) tier 1A;

(B) tier 1B;

(C) tier 2; and

(D) tier 3.

(2) Releases shall be assigned to such tiers using the checklist specified in section 22a-134tt-App1 of the RBCRs.

(3) Releases presenting the highest risk to human health and the environment shall be assigned to tier 1A. Releases presenting less risk to the environment shall be assigned to tier 1B or tier 2, as specified. Releases that have reached groundwater and remain only as a diminishing state groundwater plume may be assigned to tier 3.

(c) Tier Assignment

(1) Not more than 1 year after discovery of a release, each release shall be assigned to a cleanup tier if a release remediation closure report has not been submitted for such release. To assign a release to a cleanup tier, a tier assignment form shall be submitted to the commissioner, which shall include:

(A) A complete tier checklist, including an LEP's verification;

(B) All characterization information necessary to complete the tier checklist, pursuant to section 22a-134tt-4 of the RBCRs;

(C) A copy of the immediate action plan and immediate action report, if immediate action was performed;

(D) The applicable fee specified by subsection (f) of this section; and

(E) Any other information specified by the commissioner on such form.

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(2) A release may be assigned to a different cleanup tier when a release has been partially remediated such that risk to human health or the environment has been reduced, or shall be assigned to a different cleanup tier not more than 30 days after additional information has identified previously unaccounted for risks to human health or the environment, in order for continued remediation to occur in a cleanup tier corresponding with the risk to human health and the environment presented by such release as specified by section 22a-134tt-App1 of the RBCRs. To change the tier assignment, a change in tier assignment form shall be submitted to the commissioner on a form prescribed by the commissioner, which shall include:

(A) A complete tier checklist, including an LEP's verification;

(B) All characterization information necessary to complete the tier checklist, pursuant to section 22a-134tt-4 of the RBCRs;

(C) Copies of each approval issued by the commissioner when a remedy requiring the approval of the commissioner has been implemented;

(D) A list of LEP-approved remedies that have been implemented, and all documentation necessary to demonstrate that such remedy has been properly selected and implemented;

(E) The fee specified by subsection (f) of this section, if applicable; and

(F) Any other information specified by the commissioner on such form.

(3) A release may be assigned to tier 3 provided that soil impacted by the release has been remediated to the standards identified by section 22a-134tt-9 of the RBCRs, and that the plume of groundwater created by such release is in a diminishing state without need for further active remediation and is being monitored for natural attenuation. In addition to the information specified in subdivision (2) of this subsection, a tier assignment form or change in tier assignment form submitted for the purpose of assigning a release to tier 3 shall include:

(A) Any document or information specified by sections 22a-134tt-9 and 22a-134tt-12 of the RBCRs to demonstrate that soil impacted by the release has been remediated to such cleanup standards;

(B) A conceptual site model, supported by sufficient characterization data, that demonstrates that the plume of groundwater created by such release is in a diminishing state and is naturally attenuating;

(C) A groundwater monitoring plan and schedule, including the name, business address, and contact information for the person who will be conducting such monitoring; and

(D) Any other information requested by the commissioner on such form.

(4) The commissioner may audit a tier assignment or change in tier assignment pursuant to section 22a-134tt-13 of the RBCRs. As a result of such audit, the commissioner may reject the tier assignment or change in tier assignment if all required information is not provided or a release is assigned to the incorrect tier. Upon rejection of a tier assignment or a change in tier assignment, the commissioner may:

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(A) require the submission of additional information;

(B) require additional investigation or characterization of a release; or

(C) assign the release to an appropriate tier, which shall include but shall not be limited to, tier 1A;

(5) For the purposes of calculation of time, the date of tier assignment for a release shall be the day a tier assignment is first submitted pursuant to this section.

(d) Cleanup Oversight

Remediation of releases shall be overseen as follows:

(1) Releases assigned to tier 1A shall be supervised by the commissioner who may direct certain tasks to be performed by an LEP or other qualified professional and may exercise all authority over an emergency or exigent circumstance provided by section 22a-134tt-5(b);

(2) Releases assigned to tier 1B shall be supervised by an LEP;

(3) Releases assigned to tier 2 shall be supervised by an LEP; and

(4) Releases assigned to tier 3 shall be supervised by a qualified professional, except that the performance of certain tasks including compliance monitoring, and the preparation of a verification shall require the supervision of an LEP.

(e) Deadlines for Remediation

(1) Not more than 1 year following the date of tier assignment, a release assigned to tier 1A shall be closed, or assigned to tier 1B, tier 2, or tier 3.

(2) Not more than 2 years following the date of tier assignment, a release assigned to tier 1B shall be closed, or assigned to tier 2 or tier 3.

(3) Not more than 4 years following the date of tier assignment, a release assigned to tier 2 shall be closed, or assigned to tier 3.

(4) Not more than 5 years following the date of tier assignment, a release assigned to tier 3 shall be closed.

(5) All timelines specified by this subsection shall run concurrently.

(6) Extensions of the deadlines specified in this subsection may be granted as follows:

(A) For releases assigned to tiers 1A, 1B, and 2, the commissioner may, in the commissioner's sole discretion, approve 1 year extensions of the deadlines specified by this subsection for good cause shown. A request for extension shall be made on a form prescribed by the commissioner, and shall include the fee calculated pursuant to subsection (f) of this section. The request for extension shall be made not less than thirty days prior to the expiration of the deadline on a form prescribed by the commissioner; and

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(B) An LEP may approve a single 1-year extension of the deadlines specified in this subsection for a release assigned to tier 1B or tier 2. Notice of such extension shall be made not less than 30 days before the expiration of such deadline on a form prescribed by the commissioner, and shall include the fee specified by subsection (f) of this section. Any additional extension of the deadline for the remediation of such release shall be approved by the commissioner.

(C) A request for an extension of time for a release assigned to tier 3 shall be submitted to the commissioner, on a form prescribed by the commissioner. Notwithstanding subparagraphs (A) and (B) of this subdivisions:

(i) The commissioner shall approve a 5-year extension of the deadline specified in this subsection for a release assigned to tier 3 provided that the laboratory analysis of groundwater samples demonstrates that the groundwater plume caused by such release remains in a diminishing state and is naturally attenuating at a rate consistent with the conceptual site model submitted pursuant to subsection (c)(3)(B) of this section;

(ii) The commissioner shall approve as many 5-year extensions as are necessary, provided the groundwater plume created by a release assigned to tier 3 remains in a diminishing state and is naturally attenuating at a rate consistent with the conceptual site model submitted pursuant to subsection (c)(3)(B) of this section; and

(iii) If the commissioner determines that the groundwater plume is not in a diminishing state or will not naturally attenuate at a rate consistent with the conceptual site model submitted pursuant to subsection (c)(3)(B) of this section, the commissioner may deny an extension of the deadline specified in this subsection for such release. If the commissioner denies an extension of the deadline, the commissioner shall, in the commissioner's sole discretion, assign the release to an appropriate cleanup tier, and specify a deadline for the remediation of such release.

(f) Fees

(1) Tier Assignment Fees

The following fees shall be paid at the time a tier assignment is submitted to the commissioner. If a tier assignment is rejected, and the release is subsequently assigned to a different tier, the difference between the fee paid and the fee due shall be paid not more than 30 days following the date of tier assignment.

(A) For a release assigned to tier 1A, 3,000 dollars;

(B) For a release assigned to tier 1B, 1,500 dollars;

(C) For a release assigned to tier 2, 1,000 dollars; and

(D) For a release assigned to tier 3, 500 dollars.

(2) Annual Fees

PROPOSED

(A) An annual fee shall be due one year following the date of tier assignment, and each year thereafter until a release is verified. The base annual fee shall be:

(i) For a release assigned to tier 1A, 3,000;

(ii) For a release assigned to tier 1B, 1,500;

(iii) For a release assigned to tier 2, 1,000; and

(iv) For a release assigned to tier 3, 500 dollars.

(B) The annual fee shall be calculated as follows:

[FEE] + (.1[FEE]x[number of years since tier assignment date]) = annual fee due

Where:

FEE is equal to the base annual fee for the tier to which the release is assigned on the date the annual fee is due.

(3) Fees for Extension of Time

(A) If a 1-year extension of time is approved by the commissioner or an LEP pursuant to subsection (e)(6) of this section, a fee equal to the annual fee calculated pursuant to subdivision (2)(B) of this subsection shall be paid to the commissioner.

(B) There shall be no fee for a 5-year extension of time approved pursuant to subsection (e)(6)(C) of this section.

(4) Single Deadline for Annual Fees

Notwithstanding the requirements of this subsection, the commissioner may authorize the payment of the annual fees for multiple releases for which the same creator or maintainer is responsible on a date specified by the commissioner. A request for a single deadline for annual fee payments shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs.

(5) One-Year Exemption for Compliance Monitoring

Notwithstanding the requirements of this subsection, there shall be no tier assignment fee for a release that has impacted groundwater, provided that at the time such release is first assigned to a tier:

(A) all soil impacted by the release has been remediated to the standards identified by the cleanup standards sections; and

(B) The only remaining remediation of groundwater required is compliance monitoring pursuant to subsection (h) of section 22a-134tt-10.

(NEW) **Sec. 22a-134tt-7. General Cleanup Standards Provisions**

(a) Time-frames for Issuance of Approvals by the Commissioner

PROPOSED

The commissioner shall make best efforts within available resources to process in a timely manner any variance or alternative criteria request pursuant to the cleanup standards sections. The commissioner shall, upon request, provide estimated time frames for any such review. In establishing estimated time frames pursuant to this subsection, the commissioner shall take into account available resources, the complexity of the request, and the environmental and economic significance of the remediation.

(b) Environmental Use Restrictions

(1) Whenever an EUR is required under the RBCRs:

(A) An ELUR may always be used; and

(B) A NAUL may only be used:

(i) Pursuant to section 22a-134tt-9(b)(2) of the RBCRs, provided the subject area is zoned for industrial/commercial use and no holder of an interest in such area, other than the owner of such area, has a right of residential activity or use;

(ii) Pursuant to section 22a-134tt-9(b)(3)(B) of the RBCRs, provided the concentrations of substances in such inaccessible soil do not exceed 10 times the applicable direct exposure criteria;

(iii) Pursuant to section 22a-134tt-9(b)(6) of the RBCRs;

(iv) Pursuant to section 22a-134tt-9(c)(5)(A) of the RBCRs, provided that:

(I) The concentrations of substances in such soil do not exceed 10 times the applicable direct exposure criteria and the applicable pollutant mobility criteria; or

(II) The total volume of soil that is environmentally isolated that exceeds 10 times the applicable direct exposure criteria and the applicable pollutant mobility criteria is equal to or less than 10 cubic yards;

(v) Pursuant to section 22a-134tt-9(d)(2)(A) of the RBCRs;

(vi) Pursuant to section 22a-134tt-9(f)(1) of the RBCRs;

(vii) Pursuant to section 22a-134tt-9(f)(2)(B) or section 22a-134tt-9(f)(2)(C) of the RBCRs, provided that the concentrations of the substances in polluted soil at the subject area are equal to or less than 10 times the applicable direct exposure criteria;

(viii) Pursuant to section 22a-134tt-10(c)(1) or section 22a-134tt-10(c)(2)(A) of the RBCRs, provided the subject area is zoned for industrial/commercial use and no holder of an interest in such area, other than the owner of such area, has a right of residential activity or use;

(ix) Pursuant to section 22a-134tt-10(c)(2)(B) of the RBCRs;

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(x) Pursuant to sections 22a-134tt-10(c)(3), 22a-134tt10(c)(4), and 22a-134tt-10(c)(5) of the RBCRs;

(xi) When an ELUR is required and the parcel on which it is to be recorded is owned by the state of Connecticut or the state of Connecticut purchases a property subject to an existing ELUR, the NAUL shall be approved by the commissioner;

(xii) Pursuant to section 22a-134tt-9(b)(2)(C)of the RBCRs; or

(xiv) Pursuant to section 22a-134tt-9(b)(2)(D) of the RBCRs.

(2) Each EUR under the RBCRs shall be subject to and comply with all applicable requirements in section 22a-133o of the Connecticut General Statutes, the EUR Regulations and the RBCRs.

(3) If the RBCRs require an EUR:

(A) Such EUR shall be in effect prior to:

(i) An LEP's verification, including an LEP's interim verification, or certification, as those terms are defined in sections 22a-134(19), 22a-134(28), and 22a-134pp(9) of the Connecticut General Statutes and sections 22a-134tt-1(16) and 22a-134tt-1 (158) of the RBCRs, including, but not limited to, a verification or certification pursuant to section 22a-134tt-10 of the RBCRs; or

(ii) When required by the commissioner, the review and approval of the remediation by the commissioner; or

(B) When voluntary remediation is conducted pursuant to section 22a-133y of the Connecticut General Statutes, the documents required to be prepared by sections 22a-133q-2(b) or 22a-133q-3(b) of the EUR Regulations, as applicable, shall be submitted as part of the final remedial action report at the time such report is submitted to the commissioner. Upon approval of such report by the commissioner, the EUR shall be executed within 36 days of such approval and be put into effect in accordance with the EUR Regulations.

(4) An EUR shall only be deemed to be in effect when such EUR is recorded on the land records in compliance with the EUR Regulations.

(5) When a remedy is selected under the cleanup standards sections for which an EUR is required to be in effect for different subject areas on a parcel, a request may be submitted to the commissioner to extend any deadline specified in the cleanup standards sections to prepare the materials required to obtain and request such EUR. The commissioner may approve or deny in writing such extension request. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that significant progress has been made to complete the remediation of the parcel and strict adherence to the stated deadline would create an extraordinary hardship.

(c) Financial Assurance

PROPOSED

(1) A financial assurance shall be required to support an engineered control variance or a technical impracticability variance. Such assurance shall be:

(A) Established and maintained for the duration of the period that the engineered control or technical impracticability variance will be used to achieve compliance with the RBCRs;

(B) Directly available to the commissioner to cover the costs of complying with the variance, including, but not limited to, operation, maintenance, inspection, monitoring, reporting, and other reasonably anticipated repairs and contingencies, in the event that the commissioner determines that such measures have not been performed as required by the RBCRs; and

(C) Established in an amount equal to the cost of 20 percent of 30 years of operation, maintenance, inspection, monitoring, reporting, and other reasonably anticipated repairs and contingencies, which amount shall be maintained in effect for as long as the variance is used to achieve compliance with the RBCRs, except this amount may be adjusted in accordance with subdivision (4) of this subsection.

(2) One or more of the following instruments, and no others, shall be used to satisfy the financial assurance requirements of this subsection:

(A) Trust agreement or trust fund;

(B) Irrevocable standby letter of credit;

(C) Payment of funds in cash as directed by the commissioner; or

(D) Certificate of insurance.

(3) The wording of any instrument used to satisfy the requirements of this subsection shall be identical to the language prescribed by the commissioner, which language shall be posted on the department's internet website. In addition, only an entity that satisfies the following requirements, as applicable, may issue an instrument used to satisfy the requirements of this subsection:

(A) Any trustee shall be an entity with authorization to act as a trustee and whose trust operations are regulated and examined by a federal or state agency;

(B) Any surety issuing a bond shall be among those listed as acceptable sureties on federal bonds in Circular 570 of the U.S. Department of Treasury;

(C) Any institution issuing a letter of credit shall be an entity that has the authority to issue letters of credit and whose letter of credit operations are regulated and examined by a federal or state agency; and

(D) Any insurer shall be licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more states.

(4) The amount of the financial assurance established pursuant to this subsection:

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(A) Shall be adjusted for inflation at each 5 year interval from the anniversary date of the establishment of the financial instrument. The adjustment shall be made by using an inflation factor derived from the most recent Implicit Price Deflator for Gross National Product published by the U.S. Department of Commerce in its "Survey of Current Business" and by multiplying the latest adjusted surety estimate for the site by that 5-year inflation factor; and

(B) May be adjusted, subject to the discretion and written approval of the commissioner, to reflect any recalculation of the costs of operation, maintenance, inspection, monitoring, reporting, and other reasonably anticipated repairs and contingencies, in current dollars. Any request for an adjustment pursuant to this subparagraph shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs.

(5) The requirements of this subsection shall not apply when:

(A) The entity responsible for remediation is a municipality, an agency or a political or administrative subdivision of the state or federal government; or

(B) The amount established under subdivision (1)(C) of this subsection is less than $10,000, unless the commissioner requires compliance with this subsection as a condition of approving the engineered control or technical impracticability variance.

(d) Public Participation

(1) Erection of a Sign

A sign not less than 6 feet by 4 feet that is clearly visible from the public roadway, and includes the words "ENVIRONMENTAL CLEAN UP IN PROGRESS. FOR FURTHER INFORMATION CONTACT:" and includes a telephone number and an electronic mail address from which any party may obtain additional information about the proposed remediation shall be erected and maintained whenever:

(A) Active remediation of an existing release, including but not limited to excavating, removing or stockpiling soil, is underway on a parcel; or

(B) The remediation of an emergent reportable release is underway, and the commissioner has directed in writing that a sign shall be erected and maintained.

(2) Public Notice

(A) Public notice of remediation shall be required for each release assigned to a tier, pursuant to section 22a-134tt-6 of the RBCRs. Such notice shall be provided before the date of tier assignment. Public notice shall be prepared using a form prescribed by the commissioner, and shall include:

(i) The address of the parcel on which remediation will be undertaken or, if no address is available, a description of the location of the parcel relative to the nearest intersection of named streets;

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(ii) A brief description of the nature of the release and the substances being remediated;

(iii) An electronic mail and postal mailing address, telephone number, and a point of contact to whom comments regarding the remediation can be submitted and from whom any interested person may obtain additional information about the proposed remediation;

(iv) A statement that public comments may be submitted, via electronic mail or in writing, for thirty (30) days after the date of publication of such notice; and

(iv) Any other information specified by the commissioner on such form.

(B) Public notice shall be provided by mailing or personally delivering the public notice form to the chief elected municipal official and to the Director of Health of the municipality in which remediation will occur and publishing the information specified on such form in a newspaper having general circulation in the municipality in which the release is located.

(C) There shall be a public comment period on the proposed remediation for thirty (30) days after publication of the newspaper notice required by subdivision (2)(B) of this subdivision. If comments on the proposed remediation are received during the public comment period, no later than thirty (30) days after close of the public comment period, the person responsible for remediation shall submit to the commissioner a written summary of all such comments and a proposed response to each such comment. Based on the summary of comments and proposed responses, the commissioner may:

(i) Direct the person responsible for remediation to send the written summary and response document to each person who submitted comments within thirty (30) days after the direction is given by the commissioner. If an electronic mail address is known, the summary and response document may be sent to a commenter using electronic mail;

(ii) Revise the written summary and response document and direct the person responsible for remediation to send the written summary and response document, as revised by the commissioner, to each person who submitted comments within thirty (30) days after the direction is given by the commissioner. If an electronic mail address is known, the summary and response document as revised by the commissioner may be sent to a commenter using electronic mail; or

(iii) Determine that there is substantial public interest in the proposed remediation and direct the person responsible for the remediation to hold a public meeting regarding the proposed remediation. Notice of any such meeting shall be published in a newspaper of substantial circulation in the area of the proposed remediation at least thirty (30) days prior to such meeting. At such meeting all

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interested persons shall have reasonable opportunity to submit data, views, or arguments orally or in writing. Any such meeting shall not be conducted as, nor be considered to be, a contested case as that term is defined in section 4-166 of the Connecticut General Statutes. After the public meeting, the person responsible for remediation shall comply with subparagraph (C) of this subdivision and, except for this clause, the commissioner may then take actions specified under this subparagraph. Within thirty (30) days after a public meeting held in accordance with subparagraph (C) of this subdivision, the person responsible for remediation shall provide to the commissioner a written summary of and response to any comments received during the public meeting and the commissioner may then take any of the actions in subclauses (i) or (ii) of this subparagraph.

(e) Conditional Exemption for Existing Releases That Have Migrated

(1) Whenever characterization conducted pursuant to 22a-134tt-5 of the RBCRs demonstrates that any person is maintaining a release in the land and waters of the state only because a portion of such release has migrated onto a parcel owned or in the possession of such person, such person may satisfy all obligations imposed by the RBCRs if such person:

(A) Demonstrates that:

(i) Such person neither created the release nor owns or is in possession of the parcel from which such release is or was migrating;

(ii) Such substances are not already present in the land and waters of the state at the release area owned or possessed by such person because of a release at such parcel; and

(iii) On the parcel owned or in possession of such person, all exposure pathways to drinking water supply wells, direct exposure to impacted soil, and from volatilization of impacted soil or groundwater into buildings have been broken or mitigated to the extent reasonably necessary to protect human health;

(B) Reports such release, if reporting is required pursuant to section 22a-134tt-3 of the RBCRs, in the time provided for the submission of such a report and takes any immediate action required by section 22a-134tt-5 of the RBCRs for the portion of the release on the parcel owned or the in the possession of such person;

(C) Prepares and submits a release remediation closure report pursuant to section 22a-134tt-12 of the RBCRs, including only characterization necessary to make the demonstrations required by subparagraph (A) of this subdivision has been completed for the portions of such release on the parcel owned or in the possession of such person pursuant to section 22a-134tt-5 and that substances in the area characterized are present as a result of a release on a parcel not owned or in the possession of such person; and

(D) Agrees to provide reasonable access to the creator of such release or the maintainer of the source of such release for the purpose of complying with the RBCRs.

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(E) For purposes of this subdivision, the direct exposure pathway to impacted soil shall be determined to be broken if the immediate action transition point specified at section 22a-134tt-5(h)(2)(C) has been achieved.

(2) Whenever characterization conducted pursuant to section 22a-134tt-5 of the RBCRs demonstrates that a person is maintaining a release to groundwater and that the substances present in such release have co-mingled with the same substances from a different release that has migrated from a parcel not owned or in the possession of such person, such person shall comply with the RBCRs, except that if such person did not create and is not maintaining the source of such release, such person may close such release if:

(A) On the parcel owned or in possession of such person, all exposure pathways to drinking water supply wells and from volatilization into buildings have been broken or mitigated to the extent reasonably necessary to protect human health;

(B) Such person prepares and submits a release-remediation closure report pursuant to section 22a-134tt-12 of the RBCRs demonstrating that compliance characterization has been completed for the release created or maintained by such person and the portion of the release that has migrated onto property owned or in the possession of such person pursuant to section 22a-134tt-5 of the RBCRS and that concentrations of such substances do not exceed the concentrations of such substance at the boundary of the parcel onto which a release has migrated; and

(B) Such person agrees to provide reasonable access to the creator of such release or the maintainer of the source of such release for the purpose of complying with the RBCRs.

(3) The provisions of this subsection do not apply to any substances other than those substances that have migrated or are migrating from one parcel and substances present as a result of natural degradation transformations of such substances.

(4) No provision of this subsection shall affect the ability of any person to seek recovery of costs incurred by such person pursuant to section 22a-452 of the Connecticut General Statutes or of the commissioner to recover costs incurred in accordance with section 22a-451 of the Connecticut General Statutes, provided such costs are eligible for recovery pursuant to such section.

(f) Other Requirements

All remediation undertaken to satisfy the RBCRs shall be conducted in accordance with all federal, state, and local requirements, including, but not limited to, 40 CFR 761, all permits, and other required authorizations. Nothing in this subsection shall be construed as requiring any further remediation of any release which has been remediated and which remediation has been approved in writing by the commissioner, unless the commissioner takes action to require such remediation pursuant to any section of Chapter 446k of the Connecticut General Statutes.

(NEW) **Sec. 22a-134tt-8. Releases Certified as Closed by a Permitted Environmental Professional**

PROPOSED

(a) Emergent Reportable Releases Certified as Closed by a Permitted Environmental Professional

(1) The remediation of a release shall be determined to have satisfied the requirements of the RBCRs if:

(A) The approximate location and volume of such release was known at the time remediation was commenced;

(B) The substance or substances released are known;

(C) The release:

(i) did not occur in or directly to a surface water body and has not migrated to any such surface water body; or

(ii) occurred in or migrated to a surface water body, and each substance released is soluble or has a specific gravity of less than 1;

(D) The release:

(i) consists of a substance or substances other than oil or petroleum and has not contacted groundwater; or

(ii) consists only of oil or petroleum, is not within 500 feet of a drinking water well, and has not caused a persistent impact to groundwater as determined by subsection (c) of this section;

(E) Remediation commences within the time specified by section 22a-134tt-5 of the Regulations of Connecticut State Agencies, and all immediate actions required by section 22a-134tt-5 of the Regulations of Connecticut State Agencies are completed in the time specified by that section;

(F) The release is to:

(i) Soil, and soil impacted by the release is removed and properly disposed; and

(ii) An improved surface, and such release is be removed to the extent necessary to prevent migration to soil or surface or groundwater, except that if the release is of a material of special concern identified in section 22a-450-6 of the Regulations of Connecticut State Agencies, such release shall be removed until such substance is not detected, which may require removal of the improved surface if such substance is detected in the improved surface; and (G) A PEP who responded to and directed the cleanup of such release certifies, pursuant to section 22a-134tt-11 of the Regulations of Connecticut State Agencies, that each of the requirements of this subsection has been satisfied.

(2) For the purposes of determining compliance with subsections (a)(1)(C) and (a)(1)(D) of this section, a release to a secondary containment system designed, installed and operated to collect

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and contain the release shall not be considered to have occurred in or directly impacted a surface water body or to have contacted or caused a persistent impact to groundwater, provided that:

(A) The volume of the release is less than the volume that the secondary containment system is designed, installed and operated to collect and contain, and the secondary containment system has contained such release;

(B) An assessment of the secondary containment system identifies no damage to such system. Such assessment shall include, but may not be limited to, a visual inspection of surfaces coated with epoxy or other coatings. The secondary containment system shall be determined to be damaged if cracks, voids, or gaps in the secondary containment system or in any epoxy or other coating are identified; and

(3) For the purposes of determining compliance with subsection (a)(1)(D)(i) of this section, a release shall be determined to have contacted groundwater if:

(A) Groundwater is encountered in the course of excavating or removing the volume of soil necessary to remove soil impacted by the release;

(B) One or more substances released is detected in a properly constructed and developed groundwater monitoring well located immediately downgradient from the approximate location of the release and not more than 5 feet from the edge of the area excavated for the purposes of remediation; or

(C) A substance or substances released is determined to be present in the groundwater using any other method or protocol specified by the commissioner by publishing such method or protocol on the department's internet website.

(4) For the purposes of determining compliance with subsection (a)(1)(D)(ii) of this section, a release of oil or petroleum shall be determined to have caused a persistent impact to groundwater if:

(A) A visible sheen remains on groundwater after not less than 3 attempts within 24 hours at removing the sheen by vacuum extraction of groundwater from an excavation or adjacent monitoring well;

(B) One or more of the substances released is detected in a properly constructed and developed groundwater monitoring well located immediately downgradient from the approximate location of the release and not more than 5 feet from the edge of the area excavated for purposes of remediation 24 or more hours after completion of the excavation of the soil impacted by the release; or

(C) A substance or substances released is determined to be present in the groundwater using any other method or protocol specified by the commissioner by publishing such method or protocol on the department's internet website.

(5) Notwithstanding section 22a-133v-6(e)(7) of the Regulations of Connecticut State Agencies, an LEP may verify that an emergent reportable release has satisfied the requirements of the

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RBCRs on behalf of his or her employer, provided such verification is consistent with all requirements of this subsection.

(b) Releases of Home Heating Fuel on Residential Properties

(1) Notwithstanding the requirements of section 22a-134tt-9 of the RBCRs, the remediation of a release of home heating fuel pursuant to the standards specified in this subsection shall be determined to have satisfied the requirements of the RBCRs provided:

(A) Applicability

(i) the release consists entirely of home heating fuel;

(ii) such heating fuel is being used, or stored for future use on the parcel at which it is being stored, on a parcel with not more than four dwelling units; and

(iii) such release was created by the owner of the parcel on which the home heating fuel is being used or stored for future use, or by the owner or occupant of a dwelling unit on such parcel. A release shall be determined to have been created by the owner of such a parcel or the owner or occupant of such a dwelling unit if the release would not have occurred but for the actions or inactions of such person or if such person owns, leases, or is otherwise in possession of the equipment that cause the release of home heating fuel;

(B) Cleanup Standard

An LEP verifies or a PEP certifies that:

(i) all soil impacted by the release has been removed, except that soil impacted by the release may remain if the excavation of such soil may undermine the structural integrity of the dwelling units;

(ii) soil impacted by the release that has not been removed is not impacting groundwater; and

(iii) soil impacted by the release that has not been removed is not impacting indoor air;

(C) Documentation

A release remediation closure report has been prepared pursuant to section 22a-134tt-12 of the Regulations of Connecticut State Agencies that:

(i) Identifies the nature and extent of soil impacted by the release that has not been removed;

(ii) Demonstrates that the remediation of the release of home heating fuel resulted in the removal of soil impacted by the release to the maximum extent prudent; and

(iii) Indicates groundwater:

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(I) was not impacted by the release of home heating fuel; or

(II) was impacted by the release of home heating fuel, and an LEP has verified that groundwater has been remediated pursuant to the requirements of section 22a-134tt-10 of the Regulations of Connecticut State Agencies.

(NEW) **Sec. 22a-134tt-9. Cleanup Standards for Soil**

(a) Soil Criteria

Unless otherwise specified in the RBCRs, polluted soil at a release area shall be remediated so that the concentration of a substance in such soil is equal to or less than:

(1) The direct exposure criteria and the pollutant mobility criteria; or

(2) The background concentration for soil.

(b) Direct Exposure Criteria

(1) Residential Direct Exposure Criteria

Except as otherwise specified in the RBCRs, polluted soil at a release area shall be remediated so that the concentrations of substances in such soil are equal to or less than the residential direct exposure criteria.

(2) Use of Industrial/Commercial Direct Exposure Criteria, Managed Multifamily Direct Exposure Criteria, and Passive Recreation Direct Exposure Criteria

(A) Except for soil polluted with PCBs, polluted soil at a release area may be remediated so that the concentrations of substances in such soil are equal to or less than the industrial/commercial direct exposure criteria provided that:
(i) The subject area is not currently used for any residential activity;
(ii) Access to the parcel containing such release area is limited to individuals working at or temporarily visiting the subject parcel for industrial/commercial activity or passive recreation pursuant to subparagraph (D) of this subdivision; and
(iii) An EUR is in effect for the subject area, which restriction shall:
(I) Prohibit residential activity; and
(II) Require compliance with clause (ii) of this subparagraph.

(B) Soil polluted with PCBs at a release area may be remediated so that the concentration of PCBs in such soil is equal to or less than the industrial/commercial direct exposure criteria for PCBs, provided that:
(i) The subject area is not currently used for any residential activity;

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(ii) The parcel on which PCBs are present is used in accordance with title 40 CFR Part 761, including, but not limited to, those provisions of 40 CFR Part 761 regarding the requirement for high-occupancy areas;

(iii) The parcel upon which such release area is located is an "outdoor electrical substation," as defined in 40 CFR 761.123, or an "other restricted access (nonsubstation) location", as defined in 40 CFR 761.123; and

(iv) An ELUR is in effect for the subject area, which restriction shall:

(I) Prohibit residential activity; and

(II) Require compliance with clauses (ii) and (iii) of this subparagraph.

(C) Except for soil polluted with PCBs, polluted soil at a release area may be remediated so that the concentrations of substances in such soil are equal to or less than the managed multifamily residential direct exposure criteria provided that:

(i) The only residential activity for which the subject area is used is managed multifamily residential activity;

(ii) The parcel on which the subject area is located is managed by an association or a professional property management company;

(iii) Lease agreements or common interest community declarations, bylaws, or other documents enforceable by the association or professional property management company:

(I) Prohibit residents from digging in soil, including, but not limited to, prohibiting gardening; and

(II) Allow for active recreation only on areas with impervious surface; and

(iv) An EUR is in effect, which restriction shall:

(I) Prohibit residential activity other than managed multifamily residential activity; and

(II) Require compliance with clause (ii) and (iii) of this subparagraph.

(D) Except for soil polluted with PCBs, polluted soil at a release area may be remediated so that the concentrations of substances in such soil are equal to or less than the passive recreation residential direct exposure criteria provided that:

(i) The only residential activity for which the subject area is used is passive recreation activity; and

(ii) Either:

(I) an EUR is in effect which restriction prohibits residential activity other than passive recreation; or

(II) a conservation easement granted to a municipality, the state of Connecticut, or the United States of America, or any political subdivision thereof, prohibits residential activity other than passive recreation activity.

(3) Conditional Exemptions for Inaccessible Soil

The provisions of this subdivision do not apply to soil polluted with PCBs.

(A) Soil at a release area that is fifteen feet or more below the ground surface is not

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required to be remediated to the direct exposure criteria.

(B) Inaccessible soil at a release area is not required to be remediated to the direct exposure criteria, provided that an EUR is in effect for the subject area, which restriction shall:

(i) Prohibit exposure to inaccessible soil, including, but not limited to, as a result of excavation, demolition, other intrusive activities, or natural occurrences;

(ii) Require that if soil is used to render polluted soil inaccessible, that such soil used to render polluted soil inaccessible is maintained and immediately replaced, as needed, to maintain the four (4) feet of soil cover and the elevation and topography of the ground surface; and

(iii) Require, as applicable, that:

(I) Bituminous or reinforced concrete that renders the soil inaccessible is maintained in good condition, free of gaps or cracks that could expose such soil;

(II) A building that is used to render soil inaccessible shall consist of a roof, exterior walls, and a concrete floor, maintained in good condition, free of gaps or cracks that could expose such soil and such building shall not be removed; or

(III) Provided that written notice is submitted to the commissioner, a permanent structure that renders the soil inaccessible, shall be maintained in good condition to the extent required to prevent exposure of such soil and shall not be removed.

(C) Inaccessible soil at a release area is not required to be remediated to the direct exposure criteria, provided that such soil:

(i) Is located beneath concrete or bituminous concrete used for parking or vehicle travel, or below a building foundation;

(ii) Is managed pursuant to the requirements of the permit by rule specified in subparagraph (D) of this subdivision;

(iii) Either:

(I) Does not contain VOCs at greater than the applicable direct exposure criteria; or

(II) Contains VOCs at greater than the applicable direct exposure criteria, but such soil is 30 feet or more in every direction from any building; and

(iv) Is impacted by pollutants at concentrations:

(I) Less than or equal to both the industrial direct exposure criteria and 15 times the applicable direct exposure criteria; or

(II) Greater than the industrial direct exposure criteria but less than or equal to fifteen times the applicable direct exposure criteria, provided soil with concentrations in excess of the industrial direct exposure criteria is not less than one foot below the bituminous or reinforced concrete.

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(D) Soil rendered inaccessible by concrete or bituminous concrete used for parking or vehicle travel, or below a building foundation pursuant to subparagraph (C) of this subdivision shall be subject to the following permit by rule requirements:

(i) The owner of the parcel on which such conditions exist shall:

(I) Ensure that such parking lot or vehicle travel-way is maintained in good condition, and free of gaps or cracks that could expose such soil or that such building foundation is maintained in such a manner as to not expose soil;

(III) Shall inspect such concrete or bituminous concrete used for parking or vehicle travel or such building foundation every five years to determine whether it remains in good condition;

(IV) Report to the commissioner on the condition of the concrete or bituminous concrete and maintenance taken to ensure such concrete or bituminous concrete is in good condition every five years, using a form prescribed by the commissioner; and

(V) Shall properly manage polluted soil exposed during temporary maintenance or replacement of the concrete or bituminous concrete or any infrastructure located thereunder.

(ii) Prior to any submission to the commissioner that verifies compliance with the provisions of the RBCRs, the owner of the parcel on which soil is rendered inaccessible pursuant to subparagraphs (C) and (D) of this subdivision shall record an affidavit of facts on the municipal land records in the town in which such release is located. Such affidavit shall include the following:

(I) A statement that polluted soil has been rendered inaccessible by concrete or bituminous concrete used for vehicle travel or a building foundation on the parcel;

(II) A description of the concrete or bituminous concrete used to render soil inaccessible, including its intended use or purpose, location and the materials used in its construction; and

(III) A statement that the owner will manage polluted soil pursuant to the provisions of this subparagraph, and subparagraph (C) of this subdivision.

(iii) Notwithstanding the requirements of this subparagraph, if the soil is rendered inaccessible by a concrete or bituminous concrete used as a public road:

(I) Any action or obligation assigned herein to the owner of the parcel on which such release is present shall be complied with by the person responsible for the maintenance of the public road which renders such release inaccessible; and

(II) The recording of an affidavit of facts shall not be required, provided a notice containing the information required by clause (ii) of this subparagraph is submitted to the commissioner, provided to the owner of any known underground utilities within the right of way of such public road, and a copy of such notice is maintained by the person responsible for the maintenance of the public road; and

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(iv) Removal of the concrete or bituminous concrete, other than temporary removal for maintenance or replacement of such concrete or bituminous concrete, or any infrastructure located thereunder, shall constitute non-compliance with the requirements of this subdivision and the discovery of a historical release subject to the requirements of chapter 445b of the Connecticut General Statutes. Reporting a release following the permanent removal of concrete or bituminous concrete shall not affect the authority of the commissioner under any other statute or regulation, including, but not limited to, the authority to seek civil or criminal penalties or issue any order to prevent or abate pollution.

(4) Conditional Exemption for Inaccessible Soil Polluted with PCBs

(A) Inaccessible soil polluted with PCBs may be remediated to the concentrations specified in subparagraph (B) of this subdivision, provided that an ELUR is in effect for the subject area, which restriction shall:

(i) Prohibit exposure to such inaccessible soil, including, but not limited to, as a result of excavation, demolition, other intrusive activities, or natural occurrences;

(ii) Prohibit residential activity;

(iii) Require that if soil is used to render polluted soil inaccessible, that such soil used to render polluted soil inaccessible is maintained and immediately replaced, as needed, to maintain the elevation and topography of the ground surface; and

(iv) Require, as applicable, that:

(I) Bituminous or reinforced concrete that renders the soil inaccessible is maintained in good condition, free of gaps or cracks that could expose such soil;

(II) A building that is used to render soil inaccessible shall consist of a roof, exterior walls, and a concrete floor, maintained in good condition, free of gaps or cracks that could expose such soil and such building shall not be removed; or

(III) Provided that written notice is submitted to the commissioner, a permanent structure that renders the soil inaccessible shall be maintained in good condition to the extent required to prevent exposure of such soil and shall not be removed.

(B) Provided the requirements of subparagraph (A) of this subdivision are met, inaccessible soil at a release area polluted with PCBs may be remediated so that the concentrations of PCBs in such soil are equal to or less than:

(i) Ten (10) ppm PCBs by dry weight; and

(ii) Twenty-five (25) ppm PCBs by dry weight if such inaccessible soil is located on an "other restricted access (nonsubstation) location" or an "outdoor electrical substation" as those terms are defined in 40 CFR 761.123, provided that PCBs may be remediated to fifty (50) ppm by dry weight at an outdoor electric substation if a label or notice is visibly placed

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in the area in accordance with 40 CFR 761.125(c)(2).

(5) Conditional Exemption for Incidental Sources

Soil at a release area polluted with metals, petroleum hydrocarbons, or semi-volatile organic substances is not required to be remediated to the direct exposure criteria for such substances, provided such pollution is the result of:

(A) An incidental release due to the normal operation of motor vehicles, not including refueling, repair or maintenance of a motor vehicle; or

(B) Normal paving and maintenance of a consolidated bituminous concrete surface, provided such bituminous concrete surface has been maintained for its intended purpose.

(6) Conditional Exemption for Soil Polluted with Pesticides

Soil polluted with pesticides at a release area as a result of the application of pesticides is not required to be remediated to the direct exposure criteria for such pesticides, provided that a determination has been made that such pesticides are present solely as a result of the application of pesticides and:

(A) If the release area is used for residential activity:
- (i) Protective measures are developed, implemented, and maintained to prevent human exposure to soil polluted with pesticides that exceeds residential direct exposure criteria. At a minimum, such measures shall consist of:
  - (I) Blending existing soil so that the concentration of substances for such pesticides in the top one (1) foot of soil are equal to or less than the direct exposure criteria, except for the area around existing mature trees;
  - (II) Covering soil with pavement, hardscape, buildings, or permanent structures; or
  - (III) Growing dense or vexatious vegetation on steep slopes to minimize the potential for direct exposure and erosion; and
- (ii) An EUR is in effect for the subject area, which restriction shall:
  - (I) Identify the nature and extent of soil polluted with pesticides above residential direct exposure criteria and serve as notice of such polluted soil; and
  - (II) Require compliance with clause (i) of this subparagraph.

(B) If the release area is used for industrial/commercial activity:
- (i) A soil management plan shall be developed, implemented, and maintained which plan shall include protective measures and ensure, at a minimum that any soil that exceeds the industrial/commercial direct exposure criteria is not exposed, including, but not limited to, as a result of excavation, demolition, or other activities and that any such soil is managed, restored,

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or disposed in a manner that is protective of human health and the environment and prevents human exposure to such soil, except that such soil management plan need not apply to any portion of a release area that is currently used for raising crops where pesticides are used; and

(ii) An EUR is in effect for the subject area, which restriction shall:

(I) Prohibit residential activity; and

(II) Require compliance with clause (i) of this subparagraph.

(7) Direct Exposure Criteria for Additional Polluting Substances

(A) Substances at a particular release area, for which direct exposure criteria are not specified in section 22a-134tt-App2 of the RBCRs shall be remediated to background concentration or to criteria obtained pursuant to this subdivision. A request under this subdivision shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include:

(i) A proposed risk-based direct exposure criterion calculated in accordance with section 22a-134tt-App8 of the RBCRs, for each substance in such request;

(ii) The laboratory reporting limit for each substance; and

(iii) Any information about the health effects each substance may cause due to exposure pathways not accounted for in the risk-based direct exposure criterion proposed under clause (i) of this subparagraph.

(B) The commissioner may approve or deny in writing a request made under subparagraph (A) of this subdivision. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that the requirements of this subdivision have been satisfied and that the proposed direct exposure criteria will be protective of human health and the environment.

(C) Unless prohibited in writing by the commissioner, criteria approved by the commissioner pursuant to subparagraph (A) of this subdivision, may be the subject of a request for alternative criteria under subsection (d)(2)(A) of this section.

(c) Pollutant Mobility Criteria

(1) Pollutant Mobility Criteria

(A) Except as otherwise specified in the RBCRs, polluted soil at a release area located in a GA area shall be remediated to the seasonal low water table; whereas polluted soil at a release area located in a GB area shall be remediated to the seasonal high water table. All such polluted soil shall be remediated so that the concentrations of substances in such soil are equal to or less than the applicable pollutant mobility criteria, as determined using:

(i) Mass analysis for such substances, other than inorganic substances and PCBs; and

(ii) TCLP or SPLP analysis expressed in mg/L, or mass analysis in mg/kg

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divided by twenty, for inorganic substances and PCBs.

(B) In GA area, if it is determined that remediation to the seasonal low water table is technically impracticable or would not result in the permanent elimination of a source of pollution, this subsection shall apply to polluted soil above the seasonal high water table.

(2) Optional Criteria for Polluted Soil in a GA Area

(A) Polluted Soil in any GA Area

Substances in polluted soil in a GA area may be remediated to a concentration equal to or less than the groundwater protection criteria for such substance based upon the analytical laboratory results of a TCLP or SPLP analysis.

(B) Polluted Soil, Except for PCBs or ETPH, in Certain GA Areas

(i) Substances, except for either PCBs or ETPH, in polluted soil in a GA area may be remediated to a concentration at which the analytical laboratory results of:

(I) TCLP or SPLP analysis for such substance in soil is equal to or less than ten (10) times the groundwater protection criteria;

(II) TCLP or SPLP analysis for such substance in soil is equal to or less than the groundwater protection criteria multiplied by an alternative dilution or dilution and attenuation factor, approved in writing by the commissioner in accordance with subsection (d)(3)(B) of this section;

(III) Mass analysis for such substance in soil is equal to or less than ten (10) times the applicable pollutant mobility criteria in section 22a-134tt-App3 to the RBCRs or approved in writing by the commissioner in accordance with subsection (c)(6) of this section; or

(IV) Mass analysis for such substance in soil is equal to or less than the applicable pollutant mobility criteria multiplied by an alternative dilution or dilution and attenuation factor approved in writing by the commissioner in accordance with subsection (d)(3)(B) of this section.

(ii) The remediation standards specified in clause (i) of this subparagraph may be used only if conditions at a release area satisfy the requirements of subparagraphs (C) and (D) of this subdivision and the notice requirements of subparagraph (E) of this subdivision are satisfied.

(C) Conditions at the release area shall comply with the following requirements:

(i) NAPL is not present as determined in accordance with subdivision (4) of this subsection;

(ii) The water table is at least fifteen (15) feet above the surface of the bedrock; and

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(iii) The downward vertical flow velocity of groundwater is equal to or less than the horizontal flow velocity.

(D) Conditions at the release area shall satisfy clause (i) or (ii) of this subparagraph:

(i) (I) A public water supply distribution system is available within two hundred (200) feet of the parcel on which the release area is located, within two hundred (200) feet of all adjacent parcels, and within two hundred (200) feet of any parcel within the areal extent of the groundwater plume from the subject release area;

(II) The groundwater within the areal extent of the groundwater plume from the subject release area is not used for drinking water;

(III) No public or private water supply wells exist within five hundred (500) feet of the subject release area; and

(IV) The groundwater affected by the subject release area is not a potential public water supply resource or in an aquifer protection area; or

(ii) The groundwater plume resulting from the subject release is a diminishing state groundwater plume and either:

(I) The concentration of any substance in the groundwater plume from the subject release area and within seventy-five (75) feet of the nearest downgradient parcel boundary is equal to or less than the groundwater protection criteria; or

(II) The concentration of any substance within the groundwater plume from the subject release area is equal to or less than the groundwater protection criteria for such substance at a location downgradient of the subject release area, on the subject parcel, and within twenty-five (25) feet of such release area.

(E) Written notice of the use of optional criteria calculated by an LEP under this subparagraph shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs.

(3) Optional Criteria for Polluted Soil in a GB Area

(A) Polluted Soil in a GB Area

Provided that NAPL is not present in the release area above the seasonal high water table, as determined in accordance with subdivision (4) of this subsection, substances in soil in a GB area may be remediated to a concentration at which the results of a TCLP or SPLP analysis of each substance is equal to or less than the groundwater protection criteria:

(i) Multiplied by ten (10);

(ii) Multiplied by the ratio of the summation of the downgradient area and

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upgradient area compared to the release area, provided that such ratio is equal to or less than five hundred (500); or

(iii) Multiplied by an alternative dilution or dilution and attenuation factor approved in writing by the commissioner in accordance with subsection (d)(3) of this section.

(B) Optional Criteria Based Upon Release-Specific Dilution in a GB Area

(i) The criteria in this clause may only be used if the requirements in clauses (ii) and (iii) of this subparagraph are satisfied. Except for soil polluted with PCBs, substances in soil in a GB area may be remediated to a concentration at which the results of either:

(I) Mass analysis for each substance is equal to or less than the pollutant mobility criteria applicable to such substance in a GA area multiplied by a release-specific dilution factor calculated in accordance with clause (iv) of this subparagraph; or

(II) TCLP or SPLP analysis for each substance is equal to or less than the groundwater protection criterion for such substance multiplied by a release-specific dilution factor calculated in accordance with clause (iv) of this subparagraph.

(ii) Conditions at the subject release area comply with the following requirements:

(I) NAPL is not present above the seasonal high water table as determined in accordance with subdivision (4) of this subsection;

(II) The water table is at least fifteen (15) feet above the surface of the bedrock;

(III) The downward vertical flow velocity of groundwater is equal to or less than the horizontal flow velocity; and

(IV) For each substance in groundwater, the background concentration is equal to or less than the groundwater protection criteria.

(iii) Written notice of the use of optional criteria calculated by an LEP under this subparagraph shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs and shall also include the calculation in clause (iv) of this subparagraph, value and basis of terms, and the infiltration rate and dilution factor from the following table, based on the geologic material and infiltration rate.

Geologic Material	Infiltration Rate (feet/year)
Stratified Drift	2.0
Till	0.5 - 1.0
Lacustrine Deposits	0.4

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(iv) The release-specific dilution factor referred to in clause (i) of this subparagraph, shall be calculated using the following formula, and the value of terms referred to in clause (i) of this subparagraph shall be calculated using the following formula:

$$DF = (1 + \left(\frac{Kid}{IL}\right))(1 - F_{adj})$$

Term	Description	Value	Units
DF	Release-specific dilution factor	substance-specific	unitless
K	Hydraulic conductivity of the unconsolidated aquifer underlying the release area	calculated	ft/year
i	Horizontal hydraulic gradient	calculated	ft/ft
d	Aquifer mixing zone default value of 3 feet or a release-specific value calculated using: $d = (0.0112L^2)^{0.5} + d_\alpha[1 - e^{\left(-\frac{LI}{Kid_\alpha}\right)}]$	3, or as otherwise calculated	ft
dα	Aquifer thickness	as determined from boring logs	ft
I	Infiltration rate, as identified in section 22a-134tt-9(c)(3)(B)(iii) of the RBCRs	calculated	ft/year
L	Length of the release area parallel to the direction of groundwater flow	as measured	ft
F_{adj}	Background concentration for groundwater divided by the groundwater protection criteria	calculated	ug/L

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Term	Description	Value	Units
	for the subject substance or, where the background concentration for groundwater cannot be quantified, one half the laboratory reporting limit for the subject substance divided by the groundwater protection criteria for the subject substance		

(4) Determining the Presence of NAPL in Soil

For the purpose of this subsection, the presence of NAPL in soil shall be determined using either:

(A) The following equation where the variables in the equation are assigned the values in the Table following the equation:

$$C_{NAP} = (S/2\rho_b)(K_d\rho_b + \theta_w + H'\theta_a)$$

Term	Description	Value	Units
C_{NAP}	Concentration of an organic substance at which or above which such substance may be present in a non-aqueous phase	calculated	mg/kg
S	Effective solubility	substance-specific	mg/L
ρ_b	Dry soil bulk density	1.5 or the lowest value measured at the subject release area	kg/L
K_d	Soil-water partition coefficient, which is calculated using $Kd = K_{OC}*f_{OC}$	calculated	L/kg
K_{OC}	Soil organic carbon-water partition coefficient	substance-specific	L/kg
f_{OC}	Fraction organic carbon of soil	0.006 or the lowest value measured at the subject release area	g/g
θ_w	Water-filled soil porosity L_{water}/L_{soil}	0.15 for unsaturated soil or 0.43 for saturated soil	L_{water}/L_{soil}
θ_a	Air-filled soil porosity L_{air}/L_{soil}	0.28 for unsaturated soil or 0.0 for saturated soil	L_{air}/ L_{soil}

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H’	Henry’s law constant (dimensionless)	H x 41 where 41 is a conversion factor	unitless
H	Henry’s law constant	substance-specific	atm-m^3/mol

(B) The commissioner may approve or deny in writing a request for an alternative to the equation in subparagraph (A) of this subdivision to determine the presence of NAPL in soil. Such proposed alternative methods may be based upon emerging technologies and approaches for which guidance, a standard, or an industrial code has been published by a regulatory agency, governmental advisory group, or other recognized professional organization. A request under this subdivision shall be submitted to the commissioner on a form prescribed by the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include any other information that the commissioner deems necessary to evaluate such request. Any approval by the commissioner may specify conditions necessary to protect human health and the environment.

(5) Conditional Exemptions to Pollutant Mobility Criteria

(A) Environmentally Isolated Soil

Polluted soil at a release area above the seasonal high water table is not required to be remediated to the pollutant mobility criteria, provided that:

(i) Such soil does not contain substances that are a continuing source of pollution;

(ii) Regardless of groundwater classification, if such soil contains volatile organic substances in excess of GA area pollutant mobility criteria, the concentrations of such substances have been reduced or immobilized to the maximum extent prudent;

(iii) An EUR is in effect for the subject area, which restriction shall:

(I) Prohibit infiltration of liquid into such soil;

(II) Require compliance with clause (i) and, if applicable, clause (ii) of this subparagraph; and

(iv) The EUR specified in clause (iii) of this subparagraph shall also;

(I) Require that any building that renders soil environmentally isolated consists of a roof and structural walls that prevent infiltration of liquid into the soil beneath the building footprint, and prohibit removal of such building; or:

(II) Require that the use of a permanent structure that renders soil environmentally isolated and prevents infiltration of liquid into the soil beneath the structure’s footprint has been approved in writing by the commissioner and prohibit the removal of such structure.

(B) Polluted Material

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(i) Polluted material at a release area is not required to be remediated to the pollutant mobility criteria, provided that:

(I) The pollutant mobility criteria in such polluted material is exceeded solely as a result of the presence of coal ash, wood ash, coal fragments, coal slag, coal clinkers, asphalt paving fragments, or any combination thereof;

(II) Such polluted material is not polluted with any volatile organic substances that exceed the applicable pollutant mobility criteria;

(III) Such polluted material does not exceed the applicable soil vapor volatilization criteria, or if it does, all such polluted material is under a building in accordance with section 22a-134tt-10(c)(3) of the RBCRs, a permanent structure approved in writing by the commissioner, or an engineered control in compliance with subsection (f)(2)(B) of this section;

(IV) Such polluted material has achieved compliance with the direct exposure criteria in section 22a-134tt-9(b) of the RBCRs;

(V) Such polluted material is not affecting and will not affect the quality of an existing use of groundwater, including, but not limited to, a potential public water supply resource or an aquifer protection area;

(VI) A public water supply distribution system is available within two hundred (200) feet of the parcel on which polluted material is located and within two hundred (200) feet of all parcels adjacent thereto; and

(VII) The placement of the polluted material used as fill was not prohibited by law at the time of placement.

(ii) This subparagraph shall apply only to polluted materials identified in clause (i) of this subparagraph and releases from such materials. It shall not apply to releases that are not from polluted materials, even if such releases are in the same location as the polluted materials identified in clause (i) of this subparagraph.

(C) Soil Subject to Infiltration

Polluted soil at a release area polluted with substances, other than volatile organic substances that exceed DEC or PMC, is not required to be remediated to the pollutant mobility criteria, provided that at such release area:

(i) Eighty (80) percent or more of the mass of the substances remaining at the release area has been subject to infiltration;

(ii) Infiltration was not obstructed by anthropogenic features, for at least five (5) years;

(iii) Groundwater monitoring complies with the requirements of section 22a-134tt-10(h)(1) of the RBCRs; and

(iv) The laboratory analytical results for all groundwater sample events collected as specified in section 22a-134tt-10(h)(3) of the RBCRs are equal to or less than the following:

(I) For a GA area, an aquifer protection area, or groundwater area used

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as a source for either a private or public drinking water supply located in a GB area, groundwater protection criteria and the surface-water protection criteria or, if applicable, the water quality criteria; or

(II) For a GB area, other than a GB area specified in subclause (I) of this clause, the surface-water protection criteria or, if applicable, the water quality criteria.

(D) Conditional Exemption for Incidental Sources

Soil at a release area polluted with metals, petroleum hydrocarbons, or semi-volatile organic substances is not required to be remediated to the pollutant mobility criteria for such substances, provided such pollution is the result of:

(i) An incidental release due to the normal operation of motor vehicles, not including refueling, repair or maintenance of a motor vehicle; or

(ii) Normal paving and maintenance of a consolidated bituminous concrete surface provided such bituminous concrete surface has been maintained for its intended purpose.

(E) Conditional Exemption for Soil Polluted with Pesticides

Soil polluted with pesticides at a release area as a result of the application of pesticides at such release area is not required to be remediated to the pollutant mobility criteria, provided that a determination has been made that such pesticides are present solely as a result of the application of pesticides and:

(i) Compliance with the direct exposure criteria or the requirements in subsection (b)(6) of this section has been achieved; and

(ii) Compliance with the groundwater standards specified in section 22a-134tt-10(a) of the RBCRs or the requirements of section 22a-134tt-10(g) of the RBCRs has been achieved.

(6) Pollutant Mobility Criteria for Additional Polluting Substances

(A) Substances at a particular release area for which pollutant mobility criteria are not specified in section 22a-134tt-App3 of the RBCRs shall be remediated to background concentration or to criteria obtained pursuant to this subdivision. A request under this subdivision shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include:

(i) A proposed risk-based pollutant mobility criteria for each substance calculated in accordance with section 22a-134tt-App8 of the RBCRs, as applicable to the groundwater classification of the release area;

(ii) A method for determining compliance with each criteria;

(iii) The laboratory reporting limit for each substance; and

(iv) Any information demonstrating whether a proposed criteria will ensure that soil water at such release area does not exceed:

(I) In a GA area, the groundwater protection criteria; or

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(II) In a GB area, the groundwater protection criteria multiplied by a dilution factor of ten (10).

(B) The commissioner may approve or deny in writing a request made under subparagraph (A) of this subdivision. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that the requirements of this subdivision have been satisfied and that the proposed pollutant mobility criteria will be protective of human health and the environment.

(C) Unless prohibited in writing by the commissioner, criteria approved by the commissioner pursuant to subparagraph (A) of this subdivision, may be the subject of a request for alternative criteria under subsection (d)(3)(A) of this subsection.

(d) Alternative Soil Criteria and Alternative Dilution or Dilution Attenuation Factor

(1) Information Required in a Request for Approval of Alternative Soil Criteria

A request for approval of the alternative direct exposure criteria or alternative pollutant mobility criteria at a particular release area may be submitted to the commissioner under this subsection. Any such request shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, including any additional information specified in subdivisions (2) or (3) of this subsection, as applicable, and shall also include:

(A) A detailed description of any other release area located on the same parcel as the subject release area and whether such other release area is affected or potentially affected by the subject release area, or is affecting or may potentially affect the subject release area; and

(B) When an EUR is required under this subsection, the acknowledgement and consent of the owner of the subject area to such alternative direct exposure criteria.

(2) Commissioner Approval of Alternative Release-Specific Direct Exposure Criteria

With respect to a substance, except PCBs, for which direct exposure criteria are specified in section 22a-134tt-App2 of the RBCRs or approved in writing by the commissioner pursuant to section 22a-134tt-9(b)(7) of the RBCRs, the commissioner may approve or deny in writing a request for an alternative release-specific direct exposure criteria or an alternative method for determining compliance with such criteria.

(A) For substances in soil at a release area, no request shall be approved unless it is demonstrated to the commissioner's satisfaction that:

(i) The application of such alternative direct exposure criteria or method of compliance will protect human health and the environment from the risks associated with direct exposure to polluted soil;

(ii) The concentration of each carcinogenic substance in such soil is equal to or less than a 1×10^{-6} excess lifetime cancer risk level and the concentration

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of each non-carcinogenic substance in such soil does not exceed a hazard index of 1;

(iii) For a release area polluted with ten (10) or more carcinogenic substances, the cumulative excess lifetime cancer risk for all carcinogenic substances in such soil with the same target organ is equal to or less than 1×10^{-5}; and

(iv) For a release area polluted with ten (10) or more non-carcinogenic substances, the cumulative hazard index is equal to or less than 1 for non-carcinogenic substances in such soil with the same target organ.

(B) A request for approval of direct exposure criteria or method of compliance shall include a risk assessment prepared in accordance with the most recent EPA Risk Assessment Guidance for Superfund, or other risk assessment method approved by the commissioner.

(C) Any approval of the commissioner under this subdivision may require that an EUR is or will be in effect for the subject area, which restriction shall require compliance with any conditions specified by the commissioner when issuing such approval.

(3) Commissioner Approval of Alternative Release-Specific Pollutant Mobility Criteria

(A) Alternative Release-Specific Pollutant Mobility Criteria

With respect to substances for which pollutant mobility criteria are specified in section 22a-134tt-App3 of the RBCRs or approved by the commissioner pursuant to subsection (c)(6) of this section, the commissioner may approve or deny in writing a request for an alternative release-specific pollutant mobility criteria or an alternative method for determining compliance with such criteria. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that application of such alternatives:

(i) For a substance in soil located in a GA area, will ensure that soil water at the release area is equal to or less than the groundwater protection criteria for such substance; or

(ii) For a substance in soil located in a GB area, will ensure that the groundwater plume, after dilution resulting from infiltration on the parcel, is equal to or less than the groundwater protection criteria for such substance.

(B) Alternative Release-Specific Dilution or Dilution Attenuation Factor

With respect to substances for which pollutant mobility criteria are specified in section 22a-134tt-App3 of the RBCRs or approved by the commissioner pursuant to subsection (c)(6) of this section, the commissioner may approve or deny in writing a request for an alternative release-specific dilution or dilution attenuation factor. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that application of such dilution attenuation factor:

(i) For a substance in soil located in a GA area, will ensure that the release area will not degrade groundwater quality and thereby prevent the achievement

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of the groundwater criteria or background concentration, in accordance with section 22a-134tt-10 of the RBCRs; or

(ii) For a substance in soil located in a GB area, will ensure that the soil water at the release area will not cause the groundwater at the nearest downgradient parcel boundary to exceed the groundwater protection criteria for each substance.

(C) Condition for Approval

For any request for approval of alternative pollutant mobility criteria or alternative dilution or dilution attenuation factor specified in this subdivision, alternative groundwater criteria shall not be used for the same substance for which alternative soil criteria is requested.

(4) LEP Calculation and Use of Alternative Release–Specific Pollutant Mobility Criteria

With respect to substances for which pollutant mobility criteria are specified in section 22a-134tt-App3 of the RBCRs, alternative release–specific pollutant mobility criteria for a release area may be calculated by an LEP in accordance with section 22a-134tt-App9 of the RBCRs, provided that:

(A) The calculated alternative pollutant mobility criteria shall not exceed one thousand (1,000) mg/kg in a GA area or ten thousand (10,000) mg/kg in a GB area;

(B) Collection of representative groundwater samples and the laboratory analytical results of such groundwater samples used to determine compliance with any such alternative criteria shall be conducted in accordance with section 22a-134tt-10(h) of the RBCRs. An alternative criteria under this subdivision shall not be used if any groundwater sample results are equal to or greater than:

(i) The groundwater protection criteria in section 22a-134tt-App4 of the RBCRs, if the subject release area is in a GA area, an aquifer protection area, or an area where groundwater is used as a source of either private or public drinking water supply;

(ii) Either the surface-water protection criteria in section 22a-134tt-App5 of the RBCRs or, if required under section 22a-134tt-10(a)(3) of the RBCRs, the water quality criteria; and

(iii) The volatilization criteria in section 22a-134tt-App6 of the RBCRs; and

(C) Notice of the use and derivation of the calculated criteria is submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs.

(5) LEP Calculated, Risk-Based Alternative Direct Exposure Criteria

Notwithstanding the requirements of this section, at any location at which there is polluted soil containing multiple polluting substances, an LEP may calculate and use risk-based alternative direct exposure criteria provided:

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(A) A parcel-wide investigation has been conducted and all discovered releases will be remediated pursuant to the cleanup standards sections;

(B) Remediation to such risk-based alternative direct exposure criteria ensures that the risk posed by such substances does not exceed:

(i) A cumulative excess lifetime cancer risk of 10^{-5} for 2 or more carcinogenic substances;

(ii) An excess lifetime cancer risk of 10^{-6} for each individual carcinogenic substance; and

(iii) A cumulative hazard index of 1 for non-carcinogenic substances with the same target organ;

(C) No risk-based alternative direct exposure criteria may be calculated for PCBs pursuant to this subdivision; and

(D) Such risk-based alternative direct exposure criteria shall be calculated using a form prescribed by the commissioner.

(e) Determining Compliance with the Soil Criteria

(1) Direct Exposure Criteria

Unless an alternative method for determining compliance with direct exposure criteria has been approved in writing by the commissioner pursuant to subsection (d)(2) of this section, compliance with direct exposure criteria for each substance is achieved when either:

(A) All laboratory analytical results of soil samples from a release area are equal to or less than the applicable direct exposure criteria; or

(B) Except for PCBs, the ninety-five (95) percent upper confidence level of the arithmetic mean of a statistically representative sampling data set of all laboratory analytical results for such substance from a release area, consisting of ten (10) or more soil samples, is equal to or less than the applicable direct exposure criteria.

(2) Pollutant Mobility Criteria

Unless an alternative method for determining compliance with pollutant mobility criteria has been approved in writing by the commissioner pursuant to subsection (d)(3) of this section, compliance with pollutant mobility criteria for each substance is achieved when either:

(A) All laboratory analytical results of soil samples from a release area are equal to or

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less than the applicable pollutant mobility criteria; or

(B) Except for PCBs, the ninety-five (95) percent upper confidence level of the arithmetic mean of a statistically representative sampling data set of all laboratory analytical results for such substance from a release area, consisting of ten (10) or more soil samples that are located above the water table, is equal to or less than the applicable pollutant mobility criteria.

(3) Background Concentration

Compliance when remediating to the background concentration for a given substance in soil is achieved when:

(A) A representative sampling program is used to characterize the background concentration for soil that is:
- (i) Of similar texture and composition;
- (ii) Collected from the nearest location practicable outside the subject release area, as demonstrated to the satisfaction of the commissioner; and
- (iii) Not affected by another discrete release of the same substance, or having an effect on the concentrations of the same substance for which a background concentration is determined; and either

(B) All laboratory analytical results of soil samples from the subject release area are equal to or less than the background concentration for soil, or

(C) A statistical comparison of the background concentrations in soil to the concentrations of substances in soil from the subject release area, results in a statistically significant similarity.

(f) Soil Criteria Variances

(1) Widespread Polluted Fill Variance

(A) Eligibility

Geographically-extensive polluted fill present at a parcel may be eligible for a variance from compliance with the pollutant mobility criteria in accordance with subparagraph (B) or (C) of this subdivision, provided that:
- (i) The fill for which a variance is sought does not contain volatile organic substances in excess of pollutant mobility criteria;
- (ii) Such fill 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;
- (iii) For each substance in such fill, compliance with the direct exposure criteria in subsection (b) of this section has been achieved;
- (iv) Any substances released into such fill subsequent to the placement of such

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fill that exceed the pollutant mobility criteria shall be remediated to concentrations equal to or less than the concentrations of those substances already within such fill;

(v) The placement of such fill was not prohibited by law at the time of placement;

(vi) Such fill shall remain on the parcel within the area for which such variance has been certified by an LEP in accordance with subparagraph (B) of this subdivision or approved in writing by the commissioner in accordance with subparagraph (C) of this subdivision; and

(vii) The owner of the parcel for which a variance is sought acknowledges and consents to such variance and the EUR required by subparagraph (D) of this subdivision.

(B) LEP Certification of a Widespread Polluted Fill Variance

A variance for widespread polluted fill in accordance with this subdivision may be certified in writing by an LEP, provided such LEP determines that a parcel complies with the eligibility requirements in subparagraph (A) of this subdivision and the LEP demonstrates that the following requirements have been satisfied:

(i) Such fill extends over an area larger than ten (10) acres;

(ii) Such fill is located within the coastal boundary as defined in section 22a-94(b) of the Connecticut General Statutes;

(iii) Such fill is located within a GB area;

(iv) Such fill is not located within the drainage basin of a Class A stream, as identified in the Water Quality Standards;

(v) Compliance with the groundwater standards in section 22a-134tt-10 of the RBCRs has been achieved for each substance in groundwater;

(vi) Such fill is not hazardous waste, as defined in section 22a-448 of the Connecticut General Statutes;

(vii) Except in the case of a municipality, state, or federal agency, the person requesting the variance or the owner of the parcel subject to the variance did not place the fill on the subject parcel and is not affiliated with any person responsible for such placement through any direct or indirect familial relationship or any contractual, corporate, or financial relationship other than that by which such person's or such owner's interest in such parcel was conveyed or financed; and

(viii) Notice of the use of such variance shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs.

(C) Commissioner Approval of a Widespread Polluted Fill Variance

The commissioner may approve or deny in writing a request for a variance under this subsection. No request shall be approved unless such request demonstrates to the commissioner's satisfaction the eligibility requirements in subparagraph (A) of this subdivision and the requirements of this subparagraph have been satisfied. A request for such variance shall be submitted to the commissioner in accordance with

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section 22a-134tt-1(c) of the RBCRs, and shall also include:

(i) Information demonstrating that a public water supply distribution system is available to all areas between the groundwater plume and the downgradient surface water discharge area;

(ii) The comparable cost of achieving compliance with pollutant mobility criteria without such variance;

(iii) The degree to which such fill exceeds pollutant mobility criteria;

(iv) The extent of such fill on the subject parcel that extends below the water table;

(v) The three-dimensional extent of such fill and the percentage of such fill occurring on the subject parcel; and

(vi) Information demonstrating that, except in the case of a municipality, state, or federal agency, the person requesting the variance or the owner of the parcel subject to the variance did not place such fill on the subject parcel or is not affiliated with any person responsible for the placement of such fill through any direct or indirect familial relationship or any contractual, corporate or financial relationship other than that by which such person's or such owner's interest in such parcel is to be conveyed or financed.

(D) Actions Required for Maintaining a Widespread Polluted Fill Variance

(i) No later than one hundred and eighty (180) days after an LEP certifies a widespread polluted fill variance under subdivision (1)(B) of this subsection, an EUR that complies with the requirements of this subsection and the EUR regulations shall be in effect for the subject area, which restriction shall prohibit any movement or reuse of such fill in a manner that does not comply with the RBCRs; or

(ii) No later than one hundred and eighty (180) days after a widespread polluted fill variance has been certified by an LEP or approved by the commissioner, a request for an ELUR or NAUL that complies with the requirements of this subsection and the EUR regulations shall be submitted to the commissioner. The EUR in effect for the subject area, shall:

(I) Prohibit any movement or reuse of such fill in a manner that does not comply with the RBCRs; and

(II) Require compliance with any condition imposed by the commissioner when approving a variance under this section.

(2) Engineered Control Variance

(A) Eligibility

A release area may be eligible for a variance from compliance with the direct exposure criteria, the pollutant mobility criteria, or both, under this subdivision through the use of an engineered control, provided that:

(i) The commissioner authorized the disposal of solid waste or polluted soil at the subject release area;

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(ii) The soil at such release area is polluted with a substance for which remediation is technically impracticable;

(iii) The commissioner has determined that the removal of such substance or substances from such release area would create an unacceptable risk to human health;

(iv) An LEP, pursuant to subparagraph (B) of this subsection, has determined that the cost of remediating the polluted soil at the subject release area is significantly greater than the cost of installing and maintaining an engineered control for such soil and conducting groundwater monitoring that complies with section 22a-134tt-10(h) of the RBCRs at the subject release area; or

(v) The commissioner, pursuant to subparagraph (C) of this subsection, has determined that the cost of remediating the polluted soil at the subject release area significantly outweighs the risk to the environment and human health if the engineered control fails, causing the mobilization of a substance in the soil or human exposure to such substance, and the cost of remediating the polluted soil at the subject release area is significantly greater than the cost of installing and maintaining an engineered control for such soil and conducting groundwater monitoring that complies with section 22a-134tt-10(h) of the RBCRs at the subject release area.

(B) LEP Certification of an Engineered Control Variance

A variance from compliance with the direct exposure criteria may be available when an engineered control is used at a release area, provided an LEP certifies to the commissioner, in accordance with section 22a-134tt-1(c) of the RBCRs, that the eligibility requirements of subparagraph (A) of this subdivision and the following requirements have been satisfied:

(i) The engineered control is designed and constructed and will be maintained to meet the following specifications, as applicable:

(I) For non-paved surfaces consisting of shallow-rooted vegetation, mulch, or gravel, there shall be a minimum of one (1) foot of material as measured from the ground surface, provided that the concentrations of any substances in such material are equal to or less than the applicable direct exposure criteria. Such material shall be underlain by a demarcation layer, unless there is a pre-existing mature lawn for a minimum of three (3) years.

(II) For non-paved surfaces consisting of shrubbery, such shrubbery shall be underlain by a minimum of eighteen (18) inches of material as measured from the ground surface, provided that the concentrations of any substances in such material are equal to or less than the applicable direct exposure criteria. Such material shall be underlain by a demarcation layer, unless there is pre-existing mature shrubbery.

(III) For non-paved surfaces consisting of trees, such trees shall be underlain by a minimum of eighteen (18) inches of material,

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provided that the concentrations of any substances in such material are equal to or less than the applicable direct exposure criteria, measured vertically from the ground surface and extending horizontally to a radius equivalent to the full extent of the tree crown when mature. Such material shall be underlain by a demarcation layer, unless there are pre-existing trees.

(IV) For non-paved surfaces consisting of hardscape, a professional engineer shall sign and seal a plan and specifications indicating that the hardscape is appropriately designed for its intended use, with minimal maintenance and repair for fifteen (15) years, and is or shall be constructed with a minimum of nine (9) inches of a combined thickness of hardscape and sub-base. Such material shall be underlain by a demarcation layer, unless such hardscape is pre-existing.

(V) For paved surfaces, a professional engineer shall sign and seal a plan and specifications indicating that the engineered control is appropriately designed to work for such paved surface's intended use, with minimal maintenance and repair for fifteen (15) years, and shall be constructed with a minimum of two and one-half (2.5) inches of bituminous concrete with a minimum of six (6) inches of sub-base or a minimum of four (4) inches of reinforced concrete

In addition any bituminous concrete or reinforced concrete less than five (5) feet wide or less than five hundred (500) square feet, the surface shall be underlain by a demarcation layer, unless such paved surface is pre-existing.

(VI) For a ground-mounted solar array anchored by a concrete ballast, the concrete ballast for the solar array shall be underlain with a minimum of one (1) foot of material and all remaining infrastructure associated with the solar array installation shall consist of a minimum of two (2) feet of material, provided that any substances in such are equal to or less than the applicable direct exposure criteria and all such material is underlain by a demarcation layer;

(ii) PCBs are not present in the soil in excess of the residential direct exposure criteria;

(iii) Consolidation of polluted soil under an engineered control is such that the soil does not exceed four (4) feet above the pre-consolidation elevation;

(iv) Measures are in place to ensure that the structural integrity, function, and effectiveness of the engineered control will be maintained. Such measures shall include, without limitation:

(I) Measures to prevent storm run-on or run-off from damaging the engineered control;

(II) Inspection conducted semi-annually. Such inspections may be done in conjunction with and satisfy the inspection requirements in the EUR Regulations; and

(III) Repairs to correct the effects of settling, subsidence, erosion, or other damaging events or conditions no later than sixty (60) days

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following identification of damage to the engineered control, provided if weather prevents repairs from being made within sixty (60) days of the identification of damage, as long as temporary repairs or measures have been taken, repairs can be made as soon as the weather permits;

(v) The owner of the subject area on which such engineered control will be placed acknowledges and consents to such engineered control;

(vi) An EUR is, or will be, in effect for the subject area, which restriction shall:

(I) Prohibit the disturbance of the engineered control and the polluted soil; and

(II) Require compliance with the requirements of this subparagraph, except for clauses (vii) and (viii);

(vii) A copy of the required public notice that was posted in accordance with section 22a-134tt-7(d) of the RBCRs; and

(viii) Calculation of the required financial assurance in accordance with section 22a-134tt-7(c) of the RBCRs.

(C) Commissioner Approval of an Engineered Control Variance

The commissioner may approve or deny in writing a request for a variance under this subsection. No request shall be approved unless such request demonstrates to the commissioner's satisfaction that the eligibility requirements in subparagraph (A) of this subdivision and the requirements of this subparagraph have been met. A request for the commissioner's approval of an engineered control variance shall be submitted in accordance with section 22a-134tt-1(c) of the RBCRs. Any such request shall include a demonstration of compliance with the eligibility requirements of subparagraph (A) of this subdivision and include a detailed written report and plan which demonstrate that:

(i) Such engineered control is supported by specifications that are signed and sealed by a professional engineer and indicate that such engineered control will function with minimum maintenance, will promote drainage and minimize erosion of or other damage to such control, and will accommodate settling and subsidence of the underlying soil so as to maintain the control's functional integrity;

(ii) Measures are in place to ensure that the structural integrity, function, and effectiveness of the engineered control will be maintained. Such measures shall include, without limitation:

(I) Measures that ensure the continued effectiveness of the engineered control;

(II) Measures to prevent storm run-on or run-off from damaging the engineered control;

(III) Inspections, on a schedule approved by the commissioner. Such inspections may be done in conjunction with and satisfy the inspection requirements in the EUR Regulations; and

(IV) Repairs to correct the effects of any settling, subsidence, erosion or other damaging events or conditions no later than sixty (60) days

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following identification of damage to the engineered control, provided if weather prevents repairs from being made within sixty (60) days of the identification of damage, as long as temporary repairs or measures have been taken, repairs can be made as soon as the weather permits;

(iii) An EUR is or will be in effect for the subject area, which restriction shall:

(I) Prohibit any activity that could disturb either the engineered control or the polluted soil; and

(II) Except for clauses (iv) and (v) of this subparagraph, require compliance with the requirements of this subparagraph and with all conditions imposed by the commissioner when approving such variance under this subdivision;

(iv) A copy of the required public notice that was posted in accordance with section 22a-134tt- 7(d) of the RBCRs;

(v) Calculation of the required financial assurance in accordance with section 22a-134tt-7(c) of the RBCRs;

(vi) The owner of the subject area on which such engineered control will be placed acknowledges and consents to such engineered control; and

(vii) In addition to clauses (i) to (vi), inclusive of this subparagraph:

(I) For a variance from direct exposure criteria, such engineered control shall be designed, constructed, and will be maintained, to physically isolate polluted soil from human contact with such soil;

(II) For a variance from pollutant mobility criteria, such engineered control shall be designed, constructed, and will be maintained, to minimize migration of liquids through polluted soil and reduce the permeability of such soil to a permeability of less than 10^{-6} cm/sec and groundwater monitoring at the release area shall be adequate to ensure that any substance migrating from the release area will be detected. In addition, if a variance under this subclause includes volatile organic substances, such engineered control shall be designed, constructed, and will be maintained, to ensure that any soil vapor migrating from the subject release area complies with all applicable volatilization criteria in accordance with section 22a-134tt-10(c)(3) of the RBCRs;

(III) For an engineered control that includes immobilization, including, but not limited to, the immobilization of NAPL, such engineered control shall be designed, constructed, and will be maintained, to reduce the migration of contaminants from the subject area, achieve compliance with groundwater criteria, and reduce the permeability of such soil to a permeability of less than 10^{-6} cm/sec or if permeability is reduced by immobilization that such permeability of impacted soil is approved in writing by the commissioner and at a minimum is adequate to immobilize contaminants in the soil to achieve compliance with applicable groundwater criteria; and

(IV) For an engineered control using paved surfaces or hardscape, the engineered control is based on specifications which demonstrate that

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the surface and sub-base materials are suitable for the intended use and are able to function with minimal maintenance and repair for fifteen (15) years and which specifications are signed and sealed by a professional engineer.

(D) Actions Required for Maintaining an Engineered Control Variance

After an engineered control has been certified by an LEP or approved by the commissioner pursuant to this subdivision, the following actions shall be taken within the timeframes prescribed:

(i) A Final Engineered Control Completion Statement shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, within one hundred and twenty (120) days from completion of construction of the engineered control. Such statement shall be accompanied by as-built drawings, signed and sealed by a professional engineer, and certified by an LEP to demonstrate that the engineered control complies with the requirements of this subdivision;

(ii) A financial assurance mechanism shall be established within one hundred and twenty (120) days of completion of construction of the engineered control. Such financial assurance shall comply with the requirements of section 22a-134tt-7(c) of the RBCRs; and

(iii) A request for an EUR that complies with the requirements of this subsection and the EUR regulations shall be certified by an LEP or submitted to the commissioner, as applicable within one hundred and eighty (180) days of completion of construction of the engineered control.

(E) If the commissioner approves a request for an engineered control variance, under this subdivision, any such approval may include any additional measures which the commissioner deems appropriate to protect human health and the environment. Nothing in this subdivision shall preclude the commissioner from taking any action the commissioner deems necessary to protect human health or the environment if an approved engineered control fails.

(3) Public Roadways Variance

(A) The commissioner may grant a variance from compliance with the direct exposure criteria, the pollutant mobility criteria, or both, for polluted soil at a release area beneath an existing public roadway. Such variance, if approved, shall apply only so long as such polluted soil is beneath the public roadway. A request for such a variance shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs. Any such request shall also include a statement, in writing, from the entity that owns the public roadway, in which such entity acknowledges:

(i) Such entity's understanding of and consent to the variance requested under this subdivision;

(ii) That the polluted soil under and within the public roadway remains subject

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to the RBCRs, including, but not limited to, any conditions imposed by the commissioner when approving a variance under this subdivision; and

(iii) That if, at some future time, such public roadway is proposed to be removed, at least ninety (90) days before such public roadway is removed, notice of such removal shall be provided to the commissioner along with a proposed plan for the commissioner's review and approval of the investigation and remediation of all polluted soil for which a variance was obtained under this subdivision.

(B) Polluted soil at a release area is not eligible for a variance under this subdivision unless such soil is beneath an existing roadway.

(C) The commissioner may approve or deny in writing a request for a variance under this subdivision. No request shall be approved unless such request demonstrates to the commissioner's satisfaction that:

(i) The requirements of subparagraph (A) of this subdivision have been satisfied;

(ii) Removal of the polluted soil is neither feasible nor prudent; and

(iii) The granting of the variance will not endanger public health or the environment.

(D) The approval or any variance by the commissioner under this subdivision may include any conditions that the commissioner deems necessary to protect human health and the environment.

(g) Non-aqueous Phase Liquids

(1) NAPL shall be removed to the maximum extent practicable.

(2) The commissioner may approve or deny in writing a request for a variance from the requirement to remove NAPL to the maximum extent practicable in accordance with this subsection. No request shall be approved unless such request demonstrates to the commissioner's satisfaction that the requirements of subdivision (3) of this subsection have been satisfied. A request for the approval under this subsection shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs and shall include the acknowledgement and consent of all owners of the release area containing NAPL.

(3) A release area containing NAPL is eligible for a variance under this subsection only if:

(A) All NAPL for which a variance is sought has been contained or removed to the maximum extent prudent such that:

(i) There is no migration of such NAPL;

(ii) In the circumstance where NAPL contains PCBs, such PCBs shall be remediated in compliance with 40 CFR Part 761;

(iii) Compliance with applicable groundwater criteria for groundwater impacted by such NAPL has been achieved;

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(iv) Where the NAPL contains volatile organic substances located at or above the seasonal low water table and is beneath a building without mitigation in accordance with section 22a-134tt-10(c)(3) of the RBCRs, compliance with volatilization criteria for soil vapor in accordance with section 22a-134tt-10(c)(2) of the RBCRs has been achieved; and

(B) An ELUR is or will be in effect for the subject area, which restriction shall:

(i) Except for ongoing remediation, prohibit the disturbance and exposure of NAPL;

(ii) Prohibit the construction of a building over such NAPL if there is NAPL containing volatile organic substances located at or above the seasonal low water table; and

(iii) Require compliance with subparagraph (A) of this subdivision.

(4) The requirements of this subsection shall not apply to NAPL subject to regulation under section 22a-449(d)-101 et seq. of the Regulations of Connecticut State Agencies. Any such NAPL shall remain subject to regulation under section 22a-449(d)-101 et seq. of the Regulations of Connecticut State Agencies.

(h) Use of Polluted Soil and Reuse of Treated Soil

Any soil excavated from or treated at a release area during remediation shall be managed as follows:

(1) Hazardous Waste

Treatment, storage, disposal and transportation of soil which is hazardous waste as defined pursuant to section 22a-448 of the Connecticut General Statutes shall be carried out in conformance with the provisions of section 22a-449(c)-101 to 119, inclusive, of the Regulations of Connecticut State Agencies, and any other applicable law;

(2) Special Waste

In accordance with section 22a-209-8 of the Regulations of Connecticut State Agencies, the commissioner may authorize polluted soil, which is not hazardous waste as defined pursuant to section 22a-448 of the Connecticut General Statutes, to be disposed of as special wastes as defined in section 22a-209-1 of the Regulations of Connecticut State Agencies.

(3) Polluted Soil

To be reused in any manner, polluted soil shall comply with all requirements of the RBCRs, shall not be placed below the water table, shall not be placed in an area subject to erosion, and shall comply with the requirements in subparagraph (A), (B) or (C) of this subdivision. Prior to the reuse of such soil, a notice or request for the reuse of such soil pursuant to subparagraph (A), (B) or (C) of this subdivision shall be submitted to the commissioner in

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accordance with section 22a-134tt-1(c) of the RBCRs. Any such notice or request shall also include a map showing the proposed location and depth of the placement of such soil, and shall also demonstrate compliance with subparagraph (A), (B), or (C) of this subdivision. The commissioner may approve or deny in writing any request submitted pursuant to subparagraph (B) or (C) of this subdivision. No request shall be approved unless such request demonstrates to the commissioner's satisfaction, compliance with the requirements of subparagraph (B) or (C) of this subdivision, as applicable, and that the proposed reuse of soil is protective of human health and the environment.

(A) Polluted soil from a release area may be reused on the same parcel from which it was excavated by providing notice to the commissioner only if the following requirements are met:

(i) (I) If the soil to be reused is polluted with substances at concentrations that are all equal to or less than the applicable direct exposure criteria in section 22a-134tt-App2 of the RBCRs or criteria otherwise approved by the commissioner pursuant to subsection (b)(7) of this section and the applicable pollutant mobility criteria in section 22a-134tt-App3 of the RBCRs or criteria otherwise approved by the commissioner pursuant to subsection (c)(6) of this section, such soil may be reused at any location on such parcel; or

(II) If the concentration of any substance in such soil exceeds the GA area pollutant mobility criteria in section 22a-134tt-App3 of the RBCRs or criteria otherwise approved by the commissioner pursuant to subsection (c)(6) of this section, such soil may be reused only in a GB area and placed over soil and groundwater that has already been affected by a release; and

(ii) Any soil to be reused is not placed under a building, if the polluted soil contains volatile organic substances, other than volatile petroleum substances; and

(iii) Any soil to be reused does not contain PCBs.

(B) Polluted soil from a release area may be reused on the same parcel from which it was excavated, on a different parcel affected by the same release, or on an abutting parcel affected by a release of similar substances, only in the following circumstances:

(i) (I) If the polluted soil exceeds the direct exposure criteria or the pollutant mobility criteria applicable to the location on the parcel where the polluted soil will be reused or relocated, such polluted soil shall be rendered inaccessible pursuant to subsection (b)(3) of this section, environmentally isolated pursuant to subsection (c)(5)(A) of this section, or is subject to an engineered control pursuant to subsection (f)(2) of this section;

(II) If the polluted soil contains volatile organic substances, other than volatile petroleum substances, that are greater than the GA area pollutant mobility criteria in section 22a-134tt-App3 of the RBCRs or criteria otherwise approved by the commissioner pursuant to

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subsection (c)(6) of this section, or if such polluted soil is placed under a building that overlies a release area that has already been affected by a release of volatile organic substances, the requirements of section 22a-134tt-10(c)(3) of the RBCRs shall apply; or

(III) If the polluted soil contains PCBs, the commissioner has issued a written approval in accordance with section 22a-467 of the Connecticut General Statutes and subsection (f)(2) of this section; and

(ii) Prior to any reuse on an abutting parcel affected by the same release, or on a different parcel affected by a release of similar substances, written approval from the commissioner is required.

(C) Polluted soil from a release area may be reused on a parcel other than the parcel for which the polluted soil was excavated, only if prior to any reuse, the commissioner approves such reuse in writing and such soil to be reused:

(i) Is polluted with substances at concentrations equal to or less than the applicable direct exposure criteria in section 22a-134tt-App2 of the RBCRs or criteria otherwise approved by the commissioner pursuant to subsection (b)(7) of this section and the applicable pollutant mobility criteria in section 22a-134tt-App3 of the RBCRs or criteria otherwise approved by the commissioner pursuant to subsection (c)(6) of this section for the location on the parcel where the polluted soil will be relocated;

(ii) Is placed over soil and groundwater which has already been affected by a release of similar substances; and

(iii) Either:

(I) The cumulative depth of all reused polluted soil from all other parcels does not exceed four (4) feet above the pre-remedial grade; or

(II) The cumulative depth of all reused polluted soil from all other parcels does not exceed ten (10) feet, provided that a demonstration has been made to the commissioner's satisfaction that the depth greater than four (4) feet is required for redevelopment purposes and all slopes are designed, created, and will be maintained to prevent erosion.

(4) Natural Soil

Polluted soil may be used at any parcel of land if:

(A) Any substance is present therein in concentrations not exceeding naturally-occurring conditions in soil at the release area from which such soil is removed; and

(B) No other substance is detectable in such soil at a concentration greater than its laboratory reporting limit.

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(5) Polluted Soil Containing Pesticides

Notwithstanding the provisions of subdivision (3) of this subsection, the commissioner may approve or deny in writing a request for agricultural reuse of soil containing pesticides excavated on one parcel for reuse on another parcel. Any request regarding the reuse of soil under this subdivision shall be made to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs and, if soil is being reused on a parcel different from the parcel from which it was excavated, shall include the acknowledgement and consent of the owner of the parcel receiving such soil. No reuse shall be approved under this subdivision unless the request for reuse demonstrates to the commissioner's satisfaction that:

(A) The concentration of substances in soil to be reused is equal to or less than the direct exposure criteria and the pollutant mobility criteria for all substances, other than pesticides;

(B) Such soil to be reused is excavated only from the soil horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral matter from which plants receive the most nutrients;

(C) Such soil is reused only at current agricultural properties;

(D) The pesticides in the soil to be reused are the result of the application of pesticides in accordance with accepted practices at the time of application; and

(E) Such reuse is protective of human health and the environment.

(i) Additional Remediation of Polluted Soil

Nothing in the RBCRs shall preclude the commissioner from taking any action necessary to prevent or abate pollution or to prevent or abate any threat to human health or the environment, including without limitation:

(1) Ecological Risk Assessment and Remediation

At any location at which, despite remediation in accordance with the RBCRs, the commissioner determines that there is a potential ecological risk, the commissioner may require that an ecological risk assessment be conducted and that additional remediation be conducted to mitigate any risks identified in such assessment;

(2) Aquatic Life Assessment and Remediation

At any location at which polluted soil has eroded into a surface water body, the commissioner may require that the effect of such polluted soil on aquatic life be assessed and that remediation to protect or restore aquatic life and surface water quality from the effects of such polluted soil be undertaken; or

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(3) Multiple Polluting Substances

At any location at which there is polluted soil containing multiple polluting substances, the commissioner may require additional remediation to ensure that the risk posed by such substances does not exceed:

(A) A cumulative excess lifetime cancer risk of 10^{-5} for ten (10) or more carcinogenic substances with the same target organ; and

(B) A cumulative hazard index of 1 for non-carcinogenic substances with the same target organ.

(j) Conditional Exemption for Historically Impacted Material

Notwithstanding any other requirement of this section, the purpose of this subsection is to allow for the on-site management of historically impacted material and to prohibit the relocation of such historically impacted material to a different parcel through a permit by rule.

(1) Applicability
An owner of a parcel may obtain a permit by rule to manage historically impacted material in place if:
(A) Only industrial/commercial activity takes place on the parcel;
(B) It has been determined, through tier characterization, that there is historically impacted material on the parcel and it is not prudent to remove such material;
(C) Not more than two years after discovery of a release consisting of historically impacted material, significant existing releases have been identified by representative sampling;
(D) Soil containing each identified significant existing release has been removed or rendered inaccessible in the time specified to complete an Immediate Action before submitting notification pursuant to subsection (e) of this section;
(E) If the fill contains PCBs, all conditions of state and federal law regarding such PCBs have been satisfied, including any additional characterization as may be necessary; and
(F) The owner complies with the provisions of this section.

(2) Requirements
(A) Owners shall:
(i) Ensure that historically impacted material on the parcel is not relocated to a different parcel.
(ii) Inspect the parcel every five years to determine whether the historically impacted material has been relocated and to identify each current use of the parcel.
(iii) If ownership of the parcel, or of a portion of the parcel, or an interest in the parcel that allows for the possession of such parcel or a part of such parcel is transferred, notify the transferee of the permit by rule. If ownership of the parcel, or of a

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portion of the parcel, has been transferred, the new owner shall be covered by the permit by rule and shall comply with the requirements of this section.

(iv) Maintain only industrial/commercial activity on the parcel.

(v) Record an affidavit of facts in accordance with subsection (f) of this section.

(B) Failure to comply with any of the requirements in subdivision (1) of this subsection shall result in the termination of the permit by rule. Upon the termination of the permit by rule, the owner shall remediate the parcel to the applicable cleanup standard in accordance with section 22a-134tt-9 of the Regulations of Connecticut State Agencies.

(3) Termination of permit by rule due to change in use

If the parcel changes from an industrial/commercial activity as required in subdivision (1)(A) of this subsection to a residential activity, prior to the change in use, the owner shall report the historical release and remediate the parcel to the residential cleanup standard in accordance with 22a-134tt-9 of the RBCRs. The owner shall notify the commissioner in writing as soon as practicable, but not later than 30 days after the change in activity. Such notification shall include a release closure report documenting that the parcel has been remediated to the residential cleanup standard.

(4) Notification

Notwithstanding the requirements of section 22a-134tt-6 of the Regulations of Connecticut State Agencies, not more than 1 year following discovery of a release or not more than 18 months after the effective date of the RBCRs, whichever is later, a notification that tier characterization has determined that the release is a release of historically impacted material and that such release will be managed pursuant to this provisions of this subsection shall be submitted on a form and in a manner prescribed by the commissioner. If such notification is submitted, submission of the tier checklist shall not be required, and such release shall be assigned to tier 2.

(5) Affidavit of facts

After making each determination as required by subdivision (2) of this subsection, the owner shall record an affidavit of facts on the municipal land records in the town in which such release is located. Such affidavit shall include the following:

(A) A statement that there is polluted material on the parcel; and

(B) A statement that the owner has registered for the permit that will manage the polluted material in place.

(6) Closure report

A release remediation closure report that relies on the permit by rule to demonstrate compliance with the RBCRs shall be prepared and submitted to the commissioner pursuant to section 22a-134tt-12 of the Regulations of Connecticut State Agencies and contain the following:

(A) Evidence that the affidavit of facts is recorded on the municipal land records;

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(B) Documentation of the limited characterization conducted to determine that the release is historically impacted material; and
(C) Documentation that no SERs are present in the historically impacted material subject to the permit by rule.

(7) Reporting
(A) Report to the commissioner on the status of the parcel every 5 years as required in subdivision (2)(A)(ii) of this subsection. The report shall be limited to the certification of current land use activity and that historically impacted material has not been relocated. Such report shall be maintained by the owner and made available for inspection upon request of the commissioner.
(B) The owner shall submit a notification to the commissioner within 15 days of any violation of a requirement in this section.

(8) Nothing in this section shall preclude the additional remediation of historically impacted material in accordance with the cleanup standards sections.

(9) If at any time the commissioner determines that work or activities conducted do not comply with the requirements of this subsection, including, but not limited to, the conduct of activities not authorized by this permit by rule, the commissioner shall consider any such work or activity unauthorized and may take any action authorized by section 22a-134ss of the Connecticut General Statutes, including action to require additional remediation of the historically impacted material.

(k) Conditional Exemption for Dredge Spoils

Notwithstanding the requirements of this section, the reuse of dredged materials shall not be subject to:

(1) The direct exposure criteria, provided:

(A) A permit authorizing the upland reuse of of dredged materials has been issued by the commissioner pursuant to sections 22a-361 or 22a-403 of the Connecticut General Statutes;

(B) Dredge materials are reused in compliance with all relevant permit terms and conditions; and

(C) Reused dredged materials are covered by one foot of crushed stone or another cover depth and material approved by the commissioner in a permit issued pursuant to sections 22a-361 or 22a-403 of the Connecticut General Statutes; and

(2) The pollutant mobility criteria, provided:

(A) The provisions of subdivision (1) of this subsection are complied with; and

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(B) Dredged materials are reused in a location upgradient of the water body from which such dredge spoils have been removed.

(NEW) **Sec. 22a-134tt-10. Cleanup Standards for Groundwater**

(a) Groundwater Criteria

Unless otherwise specified in the RBCRs, all substances in groundwater from a release shall be remediated to comply with the following, as applicable:

(1) Groundwater in a GA Area

Remediation of substances in groundwater in a GA area, including the portion of a groundwater plume migrating from a GB area into a GA area, shall result in the reduction of each substance to a concentration equal to or less than:

(A) The background concentration, except as provided in subsection (d) of this section, concerning groundwater protection criteria;

(B) Surface-water protection criteria or background concentration; and

(C) Volatilization criteria.

(2) Groundwater in a GB Area

Except for any portion of a groundwater plume migrating from a GB area into a GA area that is subject to the requirements of subdivision (1) of this subsection, remediation of substances in groundwater in a GB area shall result in the reduction of each substance to a concentration equal to or less than:

(A) (i) The surface-water protection criteria and volatilization criteria; or
(ii) The background concentration; and

(B) The groundwater protection criteria, where the existing use of groundwater is for drinking or other purposes, until the use of such groundwater for drinking or other purposes is permanently discontinued.

(3) Groundwater Plume Discharging to a Low-Dilution Surface Water Body

(A) Remediation of substances in groundwater shall result in the reduction of each substance to a concentration equal to or less than the criteria set forth in subparagraph (B) of this subdivision where such plume discharges to:
(i) A wetland;
(ii) A tidal flat;
(iii) An intermittent watercourse; or
(iv) A location where the areal extent of such groundwater plume occupies more than 0.5%, or other percentage approved in writing by the commissioner, of

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the upstream drainage basin of the surface water body to which such plume discharges. The percentage of the upstream drainage basin shall be measured from the intersection of the surface water body with such groundwater plume.

(B) Each substance in groundwater specified in subparagraph (A) of this subsection shall be remediated to a concentration that is either:

(i) Equal to or less than the applicable water quality criteria or, if there are no such criteria, to criteria approved by the commissioner in accordance with subsection (i)(2) of this section; or

(ii) Equal to or less than the alternative surface-water protection criteria calculated by an LEP in accordance with subsection (b)(2) of this section or approved by the commissioner in accordance with subsection (b)(3) of this section.

(b) Alternative Surface-Water Protection Criteria

With respect to substances in groundwater for which surface-water protection criteria are specified in section 22a-134tt-App5 of the RBCRs or approved by the commissioner pursuant to subsection (i)(2) of this section, alternative surface-water protection criteria may be calculated by an LEP or approved in writing by the commissioner, pursuant to this subsection. For each substance, only one subdivision of this subsection may be used to calculate or to request commissioner approval of alternative surface-water protection criteria. In addition, the commissioner may approve an alternative method of demonstrating compliance with surface-water protection criteria under this subsection.

(1) Groundwater Plume Discharge to a Watercourse

(A) For a substance in a groundwater plume that discharges to an inland surface watercourse classified as AA, A, or B in the Water Quality Standards, alternative surface-water protection criteria may be calculated. Any such calculation shall be performed by multiplying the applicable water quality criteria or, if there are no such water quality criteria, the criteria approved by the commissioner pursuant to subsection (i)(2) of this section, by a dilution factor derived from the following equation:

$$DF = (0.25 \times Q99)/Q_{plume}$$

Terms	Description	Value	Units
DF	Release-specific dilution factor	substance-specific	unitless
Q99	Daily stream flow equal to or exceeded on 99 percent of days in a year	waterbody specific	ft^3/sec

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Q_{plume}	Average daily discharge of the subject groundwater plume: $Q_{plume} = KiA$	calculated	ft^3/sec
K	Hydraulic conductivity	as measured	ft/sec
i	Hydraulic gradient	as measured	ft/ft
A	Area of discharge: A = h * w	as measured	ft^2
h	Thickness of groundwater plume at watercourse discharge area	as measured	ft
w	Width of groundwater plume at watercourse discharge area	as measured	ft

(B) For a substance in a groundwater plume that discharges to a coastal surface watercourse classified as SA or SB in the Water Quality Standards, alternative surface-water protection criteria may be calculated. Any such calculation shall be performed by multiplying the applicable water quality criteria, or if there are no such water quality criteria, the criteria approved by the commissioner pursuant to subsection (i)(2) of this section, by a dilution factor derived from the following equation:

$$DF = \left((W \times 0.25) \times L \times D\right) / \left(T \times Q_{plume}\right)$$

Terms	Description	Value	Units
D	Mean depth of the watercourse at mean low tide where the groundwater plume discharges	calculated	ft
DF	Release-specific dilution factor	substance-specific	unitless
L	Distance along which the groundwater plume intersects the watercourse discharge area	calculated	ft

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W	Cross-sectional distance from one shoreline to the other for the tidally influenced watercourse under low tide conditions: (0.25*watercourse width) where the maximum value for W is 100 feet	calculated	ft
T	Daily discharge duration	0.5	day
Q_{plume}	Average daily discharge of the subject groundwater plume: $Q_{plume} = KiA$	calculated	ft^3/sec *
K	Hydraulic conductivity	as measured	ft/day
i	Hydraulic gradient	as measured	ft/ft
A	Area of discharge: A = h * w	as measured	ft^2
h	Thickness of groundwater plume at watercourse discharge area	as measured	ft
w	Width of groundwater plume at watercourse discharge area	as measured	ft

* *The units for Q_{plume} should be "ft^3/day".*

(C) For purposes of this subdivision, no alternative surface-water protection criteria shall exceed the maximum allowable alternative surface-water protection criteria specified in the table below, which is the water quality criteria multiplied by a dilution factor calculated pursuant to subparagraph (A) or (B) of this subdivision.

Distance from compliance point to nearest downgradient surface water	Maximum Allowable Alternative SWPC

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Less than or equal to 100 feet	100 times WQC
Greater than 100 feet to 200 feet	200 times WQC
Greater than 200 feet to 300 feet	300 times WQC
Greater than 300 feet to 400 feet	400 times WQC
Greater than 400 feet to 500 feet	500 times WQC
Greater than 500 feet to 600 feet	600 times WQC
Greater than 600 feet to 700 feet	700 times WQC
Greater than 700 feet to 800 feet	800 times WQC
Greater than 800 feet to 900 feet	900 times WQC
Greater than 900 feet	1,000 times WQC

(D) Written notice of the use of alternative surface water protection calculated by an LEP under this subdivision shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs and shall also include the calculation, value and basis of terms, and dilution factor used.

(2) Aquifer Dilution

(A) Alternative surface-water protection criteria may be calculated in accordance with subparagraph (B) of this subdivision, provided that:

(i) The portion of the groundwater plume for which such alternative criteria are calculated is at least five hundred feet from the nearest downgradient surface water; and

(ii) A dilution ratio for such groundwater plume is calculated pursuant to the following equation, and such ratio is equal to or greater than five:

$$DR = RC/DC$$

Terms	Description	Value	units
DR	Release-specific dilution ratio	calculated	unitless
RC	Groundwater concentration of a substance within the release area	as measured	ug/L
DC	Groundwater concentration no more than fifty feet downgradient from the location where the RC was collected	as measured	ug/L

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(B) For substances in a groundwater plume that comply with subparagraph (A) of this subdivision, alternative surface water protection-criteria shall be calculated by multiplying the surface-water protection criteria, or if applicable the water quality criteria, by the dilution factor identified in the following table:

Distance to nearest downgradient surface water	Dilution factor
Greater than 500 feet to 600 feet	5
Greater than 600 feet to 700 feet	6
Greater than 700 feet to 800 feet	7
Greater than 800 feet to 900 feet	8
Greater than 900 feet to 1000 feet	9
Greater than 1,000 feet	10

(C) Written notice of the use of alternative surface-water protection criteria calculated by an LEP under this subparagraph shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs and shall also include the calculation, value and basis of terms, and dilution factor used.

(3) Commissioner Approval

The commissioner may approve or deny in writing a request for a release- specific alternative surface-water protection criteria or an alternative method of demonstrating compliance with surface-water protection criteria. No request under this subdivision shall be approved until it is demonstrated to the commissioner's satisfaction that such alternative criteria or alternative method for demonstrating compliance will protect all existing and proposed uses of surface water and is protective of human health and the environment. A request for such approval shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs. Upon receipt of such request the commissioner shall specify which of the following shall be provided to the commissioner:

(A) The Q99 stream flow rate of the surface water body into which the subject groundwater plume discharges;

(B) The identification of other surface water or groundwater discharges to the surface water body within one-half mile of the areal extent of the subject groundwater plume;

(C) A report on the instream water quality into which the subject groundwater plume discharges, including assessment and use attainment information in the most

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current integrated water quality report and any applicable total maximum daily loads; and

(D) The flow rate of the subject groundwater plume that discharges to the surface water body and the extent and degree of mixing of such discharge in such surface water.

(c) Volatilization Criteria

(1) Volatilization Criteria for Groundwater

(A) Residential Volatilization Criteria

Unless otherwise specified in this subsection, each volatile organic substance in groundwater shall be remediated to a concentration that is equal to or less than the residential volatilization criteria for groundwater.

(B) Industrial/Commercial Volatilization Criteria

Each volatile organic substance in groundwater may be remediated to a concentration that is equal to or less than the industrial/commercial volatilization criteria for groundwater, provided that the subject area above the groundwater polluted with volatile organic substances:

(i) Is not used for residential activity;
(ii) Has limited access only to those individuals working at or temporarily visiting for industrial/commercial activity; and
(iii) An EUR is in effect for the subject area or the entire parcel, which restriction shall:
(I) Prohibit residential activity;
(II) Require compliance with clause (ii) of this subparagraph.

(C) Applicability of Volatilization Criteria

Subdivision (1) of this subsection shall apply to:

(i) Volatile organic substances, other than volatile petroleum substances, within thirty (30) feet or less of the ground surface and within thirty (30) feet or less of the lowest portion of a building under which groundwater is polluted with such substances; and
(ii) Volatile petroleum substances, within ten (10) feet or less of the ground surface and within ten (10) feet or less of the lowest portion of a building under which groundwater is polluted with such substances.

(2) Alternative Demonstration of Compliance with Volatilization Criteria for Groundwater

(A) Soil Vapor Below a Building

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For volatile organic substances in groundwater, remediation to the volatilization criteria specified in subdivision (1) of this subsection may not be required if the concentration of such substances in soil vapors below a building is equal to or less than:

(i) The residential volatilization criteria for soil vapor; or

(ii) The industrial/commercial volatilization criteria for soil vapor, provided that to use such criteria, the requirements of subdivision (1)(B) of this subsection are satisfied.

(B) Concentrations at the Water Table

For volatile organic substances in groundwater, remediation to the volatilization criteria specified in subdivision (1) of this subsection may not be required if the substances in groundwater exceeding volatilization criteria are not at the water table and all of the laboratory analytical results from sampling the concentration of such substances at the water table, as seasonally demonstrated by groundwater monitoring representative of the uppermost portion of the water column are equal to or less than:

(i) The residential volatilization criteria for groundwater; or

(ii) The industrial/commercial volatilization criteria for groundwater, provided that to use such criteria, the requirements of subdivision (1)(B) of this subsection are satisfied.

(3) Exemption from Volatilization Criteria for Groundwater through Vapor Mitigation

For volatile organic substances in groundwater beneath an existing building, remediation to the volatilization criteria for groundwater specified in subdivision (1) of this subsection may not be required, provided that:

(A) Measures to prevent the migration of volatile organic substances into any overlying building have been implemented and submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs. The submittal shall also include:

(i) A brief description of the measures implemented to control the migration of such volatile organic substances into any overlying building;

(ii) A demonstration of the effectiveness of such control measures;

(iii) The plan for monitoring the effectiveness of such control measures over time and maintaining such control measures in good condition; and

(iv) A map showing all existing buildings, the areal extent of the groundwater plume, and the location of such control measures;

(B) The commissioner deems the measure proposed under subparagraph (A) of this subdivision acceptable and such measures have been and continue to be implemented and monitored; and

(C) An EUR, or other permanent control measures approved in writing by the commissioner, is or will be in effect for the subject area, which restriction or control measure shall:

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(i) Prohibit removal of any building above such volatile organic substances in groundwater; and

(ii) Require compliance with:

(I) Control measures deemed acceptable by the commissioner under subparagraphs (A) and (B) of this subdivision; and

(II) Any condition specified by the commissioner in the approval of such permanent control measures under this subparagraph.

(4) Alternative Release-Specific Volatilization Criteria and Alternative Method of Demonstrating Compliance with Volatilization Criteria

With respect to volatile organic substances in groundwater or soil vapor for which volatilization criteria are specified in sections 22a-134tt-App6 or 22a-134tt-App7 of the RBCRs or approved by the commissioner pursuant to subsection (i)(3) of this section, the commissioner may approve or deny in writing a request for a release-specific alternative volatilization criteria. In addition, the commissioner may approve or deny in writing an alternative method of determining compliance with such criteria.

(A) A request for approval of alternative volatilization criteria or for an alternative method of demonstrating compliance with volatilization criteria shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include:

(i) A description of the distribution and concentration of volatile organic substances in groundwater or soil vapor beneath any overlying building;

(ii) A description of any site-specific conditions, including, but not limited to, the value of all terms used and the source of any release-specific values.

(B) No request under subparagraph (A) of this subdivision shall be approved unless such request demonstrates to the commissioner's satisfaction that such criteria or alternative method of determining compliance is protective of human health and will ensure that volatile organic substances in groundwater or soil vapor do not accumulate in the air of any building at a concentration which:

(i) For any carcinogenic substance creates a risk to human health in excess of a 10^{-6} excess lifetime cancer risk level, and for any non-carcinogenic substance does not exceed a hazard index of one (1); and

(ii) For a groundwater plume or soil vapor polluted with ten (10) or more volatile organic substances, does not exceed a cumulative excess cancer risk level of 10^{-5} for carcinogenic substances, and for non-carcinogenic substances with the same target organ, the cumulative hazard index does not exceed one (1).

(C) Any approval of the commissioner under this subdivision, may require that an EUR is or will be in effect for the subject area, which restriction shall enumerate and require compliance with any conditions specified by the commissioner when issuing such approval.

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(5) Exemption from Volatilization Criteria for Groundwater Through a No Build Restriction

For volatile organic substances in groundwater, remediation to the applicable volatilization criteria specified in subdivision (1) of this subsection may not be required if the following conditions are satisfied:

(A) The water table is less than thirty (30) feet below the ground surface;

(B) No building exists over the groundwater polluted with such substances at a concentration above applicable volatilization criteria;

(C) One of the following has been satisfied:
- (i) An EUR is in effect for the subject area, which restriction shall;
  - (I) Prohibit construction of a building at the subject area; and
  - (II) Require compliance with subparagraph (B) of this subdivision;
- (ii) The commissioner has approved in writing a request demonstrating that no building can reasonably be expected to be constructed over the subject groundwater; or
- (iii) The commissioner has approved in writing a request demonstrating that natural attenuation or other methods of remediation will, within five (5) years, reduce the concentration of volatile organic substances in such groundwater to a concentration equal to or less than:
  - (I) Residential volatilization criteria; or
  - (II) The industrial/commercial volatilization criteria, in which case subdivision (1)(B) of this subsection shall apply; and

(D) For any volatile organic substances, other than volatile petroleum substances, that exceed the applicable volatilization criteria within thirty (30) feet of any part of a building, the potential for a vapor intrusion pathway into such building shall be thoroughly evaluated. If such evaluation identifies a vapor intrusion pathway into such building, compliance with subdivision (3) of this subsection shall be required.

(6) Exemption from Volatilization Criteria Through Indoor Air Monitoring

For volatile organic substances in groundwater, remediation to the applicable volatilization criteria specified in subdivision (1) of this subsection may not be required for groundwater underlying an existing building. No request under subparagraph (A) of this subdivision shall be approved unless such request demonstrates to the commissioner's satisfaction that the conditions in the building overlying volatile organic substances in groundwater are protective of human health and the environment.

(A) A request in accordance with this subdivision shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include:
- (i) The acknowledgement and consent of the owner of the building for which approval of the air monitoring program is sought; and

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(ii) An indoor air monitoring program and measures to control the level of any such volatile organic substances in the air of the subject building, including, but not limited to:

(I) A description of the distribution and concentration of volatile organic substances beneath the building;

(II) Any measures to be taken;

(III) The location of proposed monitoring points;

(IV) The proposed frequency of monitoring;

(V) The parameters to be monitored; and

(VI) The actions to be taken in the event such monitoring indicates that selected parameters are exceeded.

(B) The commissioner may approve or deny in writing a request submitted under this subdivision. Approval of any indoor air monitoring program pursuant to this subdivision shall require that an ELUR is or will be in effect for the subject area, which restriction shall require compliance with the indoor air monitoring program approved by the commissioner in writing, including any conditions imposed by the commissioner when approving such program.

(7) For the purpose of this subsection, "building" means any structure enclosed by a roof and walls that is capable of accumulating vapors from the subsurface.

(d) Groundwater Protection Criteria

(1) Exemption from Attaining Background Concentration in a GA Area

For substances in groundwater in a GA area, remediation to the background concentration may not be required if the concentration of each substance in a groundwater plume is equal to or less than the groundwater protection criteria and one of the following conditions exist:

(A) (i) A public water supply distribution system is available within two hundred (200) feet of the parcel on which the release area is located, within two hundred (200) feet of all adjacent parcels, and within two hundred (200) feet of any parcel within the areal extent of the groundwater plume;

(ii) Such groundwater plume is not located in an aquifer protection area; and

(iii) Such groundwater plume is not located within the area of influence of any public water supply well;

(B) Prior to any soil or groundwater remediation, the groundwater plume is a diminishing state groundwater plume; or

(C) Each substance in groundwater is remediated to a concentration equal to or less than the groundwater protection criteria, and further reduction of the concentrations of such substances to the background concentration cannot be achieved using sound engineering and hydrogeologic remediation practices.

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(2) Alternative Groundwater Protection Criteria

With respect to substances in groundwater for which groundwater water protection criteria are specified in section 22a-134tt-App4 of the RBCRs3, or approved by the commissioner pursuant to subsection (i)(1) of this section, alternative groundwater protection criteria may be calculated by an LEP pursuant to subdivision (3) of this subsection or approved in writing by the commissioner pursuant to subdivision (4) or (5) of this subsection.

(3) LEP Calculation of Alternative Groundwater Protection Criteria

(A) For a substance in groundwater located in an area designated on the department's "Potential Alternative Groundwater Protection Criteria Map" in section 22a-134tt-App-10 of the RBCRs, alternative groundwater protection criteria may be calculated by an LEP, in accordance with subparagraph (B) or (C) of this subdivision, as applicable, provided that:

(i) Written notice of the use of alternative groundwater protection criteria is submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and any such notice includes:

(I) The alternative groundwater protection criteria calculation in accordance with subparagraph (B) or (C) of this subdivision; and

(II) Documentation demonstrating compliance with the requirements of this subdivision, including, but not limited to, a water supply well receptor survey;

(ii) Any alternative groundwater protection criteria shall not exceed:

(I) One hundred (100) times the groundwater protection criteria specified in section 22a-134tt-App4 of the RBCRs or approved by the commissioner in accordance with subsection (i)(1) of this section; and

(II) The residential volatilization criteria for groundwater specified in section 22a-134tt-App6 of the RBCRs or approved by the commissioner in accordance with subsection (i)(3) of this section;

(iii) No public or private drinking water supply well is present on any subject parcel within or adjacent to the areal extent of the portion of the subject groundwater plume in which a substance exceeds the background concentration;

(iv) A public water supply distribution system is available within five hundred (500) feet downgradient and two hundred (200) feet in any direction of the subject groundwater plume;

(v) All releases to soil that constitute a source of pollution resulting in the subject groundwater plume have been remediated so there is no longer an on-going source in soil impacting groundwater;

(vi) No alternative pollutant mobility criteria is used for the same substance for which an alternative groundwater protection criteria is used;

(vii) The subject groundwater plume is a diminishing state groundwater plume; and

(viii) The alternative groundwater protection criteria being calculated is not used

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for any portion of the subject groundwater plume located in bedrock unless approved by the commissioner in accordance with subdivision (5) of this subsection.

(B) For volatile organic substances, the following equation shall be used to calculate alternative groundwater protection criteria in accordance with this subparagraph:

$$\text{Alternative GWPC} = \frac{\text{TAC} \times \text{HV} \times \text{ER} \times \text{MC}}{\text{f} \times \text{WFR}}$$

Terms	Description	Value	Units
Alternative GWPC	Criteria in groundwater as alternative to groundwater protection criteria	calculated	µg/L
TAC	Target Indoor Air Concentration as approved by the commissioner in accordance with section 22a-134tt-App8 of the RBCRs	substance-specific	$\mu g/m^3$
f	Fraction of substance concentration volatilized	0.5	unitless
HV	House Volume	1,000	m^3
ER	Air exchange rate per day, as a time weighted average	134	times per day
MC	Mixing coefficient	0.33	none
WFR	Water Flow Rate	3,183	L/day

(C) For semi-volatile organic substances, inorganic substances and pesticides, the following equation shall be used to calculate alternative groundwater protection criteria in accordance with this subparagraph:

$$\text{Alternative GWPC} = \text{WSF} \times \text{RSC} \times \text{DEC} \times \text{UCF}$$

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Terms	Description	Value	Units
Alternative GWPC	Criteria in groundwater as alternative to groundwater protection criteria	calculated	µg/L
WSF	Water to soil concentration factor, based upon accumulation of arsenic in soil	0.02	(mg/L)/ (mg/kg)
RSC	Relative source contribution to account for other background contributions t in soil	0.2	unitless
DEC	Residential direct exposure criteria in section 22a-134tt-App2 of the RBCRs or criteria approved by the commissioner pursuant to section 22a-134tt-9(b)(7) of the RBCRs	Substance Specific	mg/kg
UCF	Unit Conversion Factor	1,000	µg/mg

(4) Commissioner Approval of Alternative Groundwater Protection Criteria Not In Mapped Areas

For a substance in groundwater that is not located in an area designated on the department's "Potential Alternative Groundwater Protection Criteria Map" in section 22a-134tt-App10 of the RBCRs, the commissioner may approve or deny in writing a request for an alternative groundwater protection criteria pursuant to this subparagraph. A request for such alternative groundwater protection criteria shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs. No request shall be approved unless such request demonstrates to the commissioner's satisfaction:

(A) Compliance with the requirements of clauses (i) to (viii), inclusive, of subdivision (3)(A) of this subsection;

(B) Calculation of proposed alternative groundwater protection criteria in accordance with subparagraphs (B) and (C) of subdivision (3) of this subsection, as applicable; and

(C) Compliance with clause (i) or (ii) of this subparagraph:

(i) Documentation from a public or private water company subject to regulation by the Department of Public Health demonstrating that public drinking water is available in the area where the subject groundwater plume

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is located, including a public water service area map on file with the Department of Public Health indicating that public water is available. This clause can be used only if;

(I) A public water supply distribution system has become available to any parcel within or adjacent to the areal extent of the portion of the groundwater plume not previously included on the department's "Potential Alternative Groundwater Protection Criteria Map" in section 22a-134tt-App10 of the RBCRs; and

(II) The subject groundwater plume is not located in an aquifer protection area or in an aquifer suitable for development of a public water supply

(ii) As a result of stratified drift aquifer conditions where the subject groundwater plume is located:

(I) The aquifer is not suitable for development of a public water supply due to the hydrogeology, depth, saturated thickness of the surficial materials or other hydrogeologic factors

(II) There is less than twenty (20) feet of saturated sand or sand and gravel in such aquifer or pumping more than fifteen (15) gallons per minute from such aquifer is not sustainable for public water use; and

(III) A cross-sectional map is provided showing the nature and distribution of surficial materials in such aquifer.

(5) Commissioner Approval of Alternative Groundwater Protection Criteria Where Any Portion of a Plume Is In Bedrock

For a substance in groundwater that is located in an area designated on the department's "Potential Alternative Groundwater Protection Criteria Map" in section 22a-134tt-App10 of the RBCRs, and where the portion of the groundwater plume is located in bedrock. A request for such alternative groundwater protection criteria shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs. No request shall be approved unless such request includes a map showing the horizontal and vertical extent of the bedrock groundwater plume that exceeds or could be expected to exceed the groundwater protection criteria and demonstrates to the commissioner's satisfaction;

(A) Compliance with the requirements of clauses (i) to (vii), inclusive, of subdivision (3)(A) of this subsection; and

(B) That the groundwater plume that exceeds the groundwater protection criteria will not pose a risk to human health and the environment.

(e) Technical Impracticability Variance

Groundwater may be eligible for a variance from compliance with the surface-water protection criteria or the groundwater protection criteria if the commissioner determines that compliance with such criteria is technically impracticable. No request for a variance shall be approved unless such request demonstrates to the commissioner's satisfaction that the requirements of this subsection have been satisfied.

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(1) Request for Technical Impracticability Variance

(A) A request for a technical impracticability variance shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include:

(i) The substance and its concentration in the groundwater plume for which a variance is sought;

(ii) A map showing the horizontal and vertical extent of the groundwater plume that exceeds or could be expected to exceed surface-water protection criteria or groundwater protection criteria;

(iii) A demonstration of compliance with the soil standards in section 22a-134tt-9 of the RBCRs, and unless it is demonstrated that remediation of soil is technically impracticable, that polluted soil is not contributing to the groundwater plume;

(iv) Laboratory analytical results of all representative sampling before, during, and after the implementation of such actions and a description of all actions to remediate the groundwater plume;

(v) A feasibility study for achieving compliance with the criteria for which a variance is sought that evaluates remediation methods and demonstrates that achieving compliance with such criteria in a reasonable timeframe is technically impracticable;

(vi) A demonstration that the subject groundwater plume is in a steady-state or is a diminishing state groundwater plume, or that the subject groundwater plume is hydraulically controlled;

(vii) A map and description of the proposed TI zone, including the identification of existing groundwater withdrawals and potential for future withdrawal of groundwater on parcels within and adjacent to the proposed TI zone, and a demonstration that such withdrawals will not induce movement of the subject groundwater plume into uncontaminated areas or adversely affect the protectiveness of the proposed variance;

(viii) A study to determine the risks posed by the polluted groundwater that would remain if a variance was granted. If such study shows a risk or a potential risk to human health or the environment, a contingency plan to eliminate or minimize such risk shall be included;

(ix) Measures for long-term monitoring, operation, maintenance, and reporting, to ensure that the selected remedy remains effective in its protectiveness. Such measures shall:

(I) Demonstrate through groundwater monitoring that the groundwater plume is not increasing in size or concentration, or otherwise migrating in a manner that would alter the risk assumptions of clause (viii) of this subparagraph;

(II) Confirm that unacceptable risks to human health and the environment do not occur and if such risk do occur, contingency actions will be taken to abate such risks, including, but not limited to, changes in land use; and

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(III) Demonstrate through monitoring that any proposed operation and maintenance controls are working properly and remain effective; and

(x) The type and estimated amount of financial assurance to be posted in accordance with the requirements of section 22a-134tt-7(c) of the RBCRs.

(B) Based upon the information submitted in accordance with subparagraph (A) of this subdivision, the commissioner shall indicate, in writing, either that a groundwater plume does not qualify for a variance under this subsection, or alternatively, that the information specified in subdivision (2) of this subsection shall be submitted and may include conditions the commissioner deems appropriate to protect public health and the environment.

(2) Additional Information to be Submitted Upon Request

After submission of the information required in this subdivision, the commissioner may approve or deny in writing a request for a technical impracticability variance. Unless otherwise specified by the commissioner, the following information shall be submitted within one hundred and twenty (120) days of a request for such information by the commissioner. The information shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include:

(A) A demonstration that public notice has been provided in accordance with section 22a-134tt-7(d) of the RBCRs;

(B) A certification that written notice of the extent and degree of such pollution allowed to remain in place has been provided to each owner of record of each parcel within the TI zone, at the address for such owner on the last-completed grand list of the municipality where the parcel is located, and to the Director of Health of the municipality or municipalities in which the TI zone is located;

(C) If the commissioner has specified that an ELUR is required, the acknowledgement and consent from the owner of each parcel in the TI zone to such variance;

(D) A demonstration that financial assurance has been obtained in accordance with section 22a-134tt-7(c) of the RBCRs; and

(E) A demonstration, as specified by the commissioner in the written request for information under this subdivision, that either an ELUR is in effect on each parcel in the TI zone or other permanent control measure is in place. Any ELUR or other permanent control measure shall:

(i) Require compliance with the plan and measures specified in clauses (viii) and (ix) of subdivision (1)(A) of this subsection;

(ii) Include conditions the commissioner deems appropriate to protect public health and the environment;

(iii) In addition to any requirement in the EUR Regulations, require the

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preparation of a report every five (5) years, which reviews the implementation and effectiveness of the variance approved by the commissioner, including, but not limited to, the impact of the use of groundwater on parcels adjacent to the TI zone. Such reports shall be maintained by the parcel owner who is requesting such variance until the technical impracticability variance is no longer required under this subsection and shall be provided to the commissioner upon request; and

(iv) In addition, for a variance from compliance with the groundwater protection criteria:

(I) Prohibit the use of groundwater for drinking or other purposes; and

(II) Prohibit the withdrawal of groundwater, unless a withdrawal has been approved in writing by the commissioner.

(f) Conditional Exemption for Incidental Sources

Compliance with the groundwater criteria specified in subsection (a) of this section is not required for the following substances in groundwater under the circumstances described in this subsection:

(1) Trihalomethanes or any other substance within drinking water released from a public water supply distribution system; or

(2) Metals, petroleum hydrocarbons, or semi-volatile organic substances, provided such substances are the result of:

(A) An incidental release due to the normal operation of motor vehicles, not including refueling, repair or maintenance of a motor vehicle; or

(B) Normal paving and maintenance of a consolidated bituminous concrete surface provided such bituminous concrete surface has been maintained for its intended purpose.

(g) Conditional Exemption for Groundwater Polluted with Pesticides

Compliance with the groundwater criteria specified in subsection (a) of this section is not required for pesticides in groundwater resulting from the application of pesticides at the release area, provided that:

(1) A determination has been made that such pesticides are present solely as a result of the application of pesticides;

(2) Compliance with the soil standards in section 22a-134tt-9 of the RBCRs has been achieved for any release of pesticides;

(3) The nature and approximate extent of pesticides in the groundwater has been evaluated;

(4) Potable water supply wells on the parcel where pesticides are in groundwater have been

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sampled and any exposure pathway to drinking water in such wells is eliminated or mitigated to the extent necessary to protect human health;

(5) A potable water supply well receptor survey identifying surrounding drinking water uses has been conducted;

(6) With respect to the parcel for which a demonstration of compliance with the RBCRs is being made, if pesticides in the groundwater on such parcel exceed the groundwater criteria notice is recorded on the municipal land records identifying such exceedance;

(7) If pesticides applied at a parcel, for which a demonstration of compliance with the RBCRs is being made, are present in groundwater on other parcels at concentrations exceeding the groundwater criteria, best efforts have been made to ensure that an EUR has been placed providing notice that pesticides in groundwater on such affected parcels exceeds the groundwater criteria. A certification stating such best efforts have been made shall be submitted with the notice required under subdivision (8) of this section; and

(8) Notice of compliance with the requirements of this subsection, including all documents demonstrating such compliance, is submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and is also submitted to the Director of Health of the municipality in which such pesticides in groundwater are located.

(h) Applying the Groundwater Criteria

Compliance with the standards for groundwater in this section, or standards specified in section 22a-134tt-9 of the RBCRs that refer to or require groundwater monitoring, shall be based upon groundwater monitoring conducted in compliance with this subsection.

(1) Groundwater monitoring shall be capable of determining:

(A) The conceptual site model for the release is valid;

(B) The background concentration at the nearest location upgradient of and unaffected by the release;

(C) The effectiveness of any soil remediation to prevent the pollution of groundwater by substances from the release area;

(D) The effectiveness of any measures to render soil environmentally isolated;

(E) The effectiveness of any remediation to eliminate or minimize any risks to human health and the environment associated with each release being remediated, including, but not limited to, any risks identified during remediation or identified in any risk assessment conducted in accordance with subsection (e)(2) of this section;

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(F) Whether the concentration of a substance in groundwater is equal to or less than the applicable groundwater criteria for such substance;

(G) Whether a groundwater plume in a GB area interferes with any existing use of groundwater, including, but not limited to, a drinking water supply or an industrial, agricultural, or commercial use of groundwater; and

(H) The effectiveness of monitored natural attenuation to achieve compliance with groundwater criteria within a reasonable timeframe.

(2) Pre-requisites for Determining Compliance with Groundwater Criteria

The groundwater samples that will be used in determining compliance with an applicable criteria for a substance shall be collected after:

(A) All active remediation of soil and groundwater conducted to achieve compliance with pollutant mobility criteria and the applicable groundwater criteria for such substance have been concluded, other than natural attenuation of a groundwater plume or the recording of an EUR;

(B) The aquifer is no longer subject to the transient effects on hydraulic head attributable to withdrawal from or injection to groundwater for the purpose of remediation, or other effects due to site redevelopment or remediation;

(C) Any changes to the geochemistry induced by remedial actions or monitoring well construction methods that might influence the concentration of such substance have stabilized and equilibrium geochemical conditions are established; and

(D) The groundwater plume is a diminishing state groundwater plume.

(3) Determining Compliance with Groundwater Criteria

With the exception of monitoring conducted in accordance with subparagraph (B)(ii) or (C)(ii) of this subdivision, when determining compliance with applicable groundwater criteria for substances, a minimum of four (4) sampling events shall be performed which reflect seasonal variability on a quarterly basis, provided that all sampling events used to demonstrate compliance are performed within two (2) years prior to the most current sampling event used to determine compliance, and shall comply with this subdivision.

(A) Determining Compliance with Groundwater Protection Criteria or the Background Concentration

Compliance with the groundwater protection criteria or the background concentration for each substance in groundwater is achieved when sampling locations used for compliance are representative of the subject groundwater plume, and either:

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(i) All laboratory analytical results for such substance at all sampling locations are equal to or less than the groundwater protection criteria or the background concentration, whichever is applicable; or

(ii) The ninety-five percent upper confidence level of the arithmetic mean of a statistically representative sampling data set consisting of all laboratory analytical results for such substance for no less than twelve consecutive monthly samples, calculated individually for each sampling location, is equal to or less than the groundwater protection criteria or the background concentration, whichever is applicable.

(B) Determining Compliance with Surface-Water Protection Criteria or Water Quality Criteria

Compliance with the surface-water protection criteria for each substance groundwater is achieved when sampling locations are representative of the subject groundwater plume, and either:

(i) For sample locations in that portion of such groundwater plume which is upgradient of the area at which such groundwater discharges to the receiving surface water body:

(I) All laboratory analytical results for such substance are less than or equal to the surface-water protection criteria or, if applicable, the water quality criteria; or

(II) The ninety-five (95) percent upper confidence level of the arithmetic mean of a statistically representative sampling data set consisting of all laboratory analytical results for such substance for no less than twelve (12) consecutive monthly samples, calculated individually for each sampling location, is equal to or less than the surface-water protection criteria or, if applicable, the water quality criteria; or

(ii) The ninety-five (95) percent upper confidence level of the arithmetic mean of a statistically representative sampling data set consisting of all laboratory analytical results for such substance in the entire groundwater plume, collected to reflect seasonal variability on a quarterly basis, is equal to or less than the surface-water protection criteria or, if applicable, water quality criteria.

(C) Determining Compliance with Volatilization Criteria

(i) Compliance with volatilization criteria for each substance in groundwater is achieved when the sampling is representative of the subject groundwater plume and all laboratory analytical results for such substance are equal to or less than the applicable volatilization criteria for groundwater.

(ii) Compliance with volatilization criteria for each substance in soil vapor is achieved when the sampling is representative of the subject soil vapor, including during the heating and cooling seasons, and the results of all laboratory analytical results for such substance are equal to or less than the

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applicable volatilization criteria for soil vapor.

(D) Alternative Methods to Determine Compliance with the Groundwater Criteria

The commissioner may approve or deny in writing a request for an alternative to the methods prescribed in this subdivision to determine compliance with an applicable groundwater criteria. Such proposed alternative methods may be based upon emerging technologies and approaches for which guidance, a standard, or an industrial code has been published by a regulatory agency, governmental advisory group, or other recognized professional organization. A request under this subdivision shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include any other information that the commissioner deems necessary to evaluate such request. Any approval by the commissioner may specify conditions necessary to protect human health and the environment.

(i) Additional Polluting Substances

(1) Groundwater Protection Criteria for Additional Polluting Substances

(A) Any substance in groundwater for which a groundwater protection criterion is not specified in section 22a-134tt-App4 of the RBCRs, shall be remediated to the background concentration or to criteria obtained pursuant to this subdivision. A request under this subdivision shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include:

(i) A proposed risk-based groundwater protection criteria for each substance calculated in accordance with section 22a-134tt-App8 of the RBCRs;

(ii) The laboratory reporting limit for each substance;

(iii) A description of the organoleptic properties of each substance; and

(iv) Any information about the health effects such substance may cause due to exposure not accounted for in the proposed risk-based groundwater protection criteria.

(B) The commissioner may approve or deny in writing a request made under subparagraph (A) of this subdivision. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that the requirements of this subdivision have been satisfied and that the proposed groundwater protection criteria will be protective of human health and the environment.

(C) Unless prohibited in writing by the commissioner, criteria approved by the commissioner pursuant to subparagraph (B) of this subdivision, may be the subject of a request for alternative criteria under subsection (d)(2) of this section.

(2) Surface-Water Protection Criteria for Additional Polluting Substances

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(A) Any substance in groundwater for which a surface water protection criterion is not specified in section 22a-134tt-App5 of the RBCRs or for which there are no water quality criteria, shall be remediated to the background concentration or to criteria obtained pursuant to this subdivision. A request under this subdivision shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include:

(i) A proposed risk-based surface-water protection criteria for each substance calculated in accordance with section 22a-134tt-App8 of the RBCRs;

(ii) The laboratory reporting limit for each substance;

(iii) A description of the bioaccumulative properties of each substance; and

(iv) Any information about the ecological effects each substance may cause due to exposure not accounted for in the proposed risk-based surface-water protection criteria.

(B) The commissioner may approve or deny in writing a request made under subparagraph (A) of this subdivision. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that the requirements of this subdivision have been satisfied and that the proposed surface-water protection criteria will be protective of human health and the environment.

(C) Unless prohibited in writing by the commissioner, criteria approved by the commissioner pursuant to subparagraph (B) of this subdivision, may be the subject of a request for alternative criteria under section 22a-134tt-10(b) of the RBCRs.

(3) Volatilization Criteria for Additional Polluting Substances

(A) Any substance in groundwater for which a volatilization criterion are not specified in sections 22a-134tt-App6 or 22a-134tt-App 7 of the RBCRs, shall be remediated to the background concentration or to criteria obtained pursuant to this subdivision. Such request may include target indoor air concentrations and volatilization criteria to apply to such substances in groundwater or soil vapor. A request under this subdivision shall be submitted to the commissioner in accordance with section 22a-134tt-1(c) of the RBCRs, and shall also include:

(i) A risk-based target indoor air concentration or volatilization criteria for each substance calculated in accordance with section 22a-134tt-App8 of the RBCRs;

(ii) The laboratory reporting limit for each substance;

(iii) A description of the odor threshold of each substance; and

(iv) Any information about the health effects each substance may cause due to exposure not accounted for in the proposed risk-based volatilization criteria.

(B) Such volatilization criteria shall ensure that such target indoor air concentrations will not be exceeded above the polluted groundwater.

(C) The commissioner may approve or deny in writing a request made under subparagraph (A) of this subdivision. No request shall be approved unless it is

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demonstrated to the commissioner's satisfaction that the requirements of this subdivision have been satisfied and that the proposed volatilization criteria will be protective of human health and the environment.

(D) Unless prohibited in writing by the commissioner, criteria approved by the commissioner pursuant to subparagraph (C) of this subdivision, may be the subject of a request for alternative criteria under section 22a-134tt-10(c)(4) of the RBCRs.

(j) Additional Remediation of Groundwater

Nothing in the RBCRs shall preclude the commissioner from taking any action necessary to prevent or abate pollution, or to prevent or abate any threat to human health or the environment. If the presence of any substance impairs the aesthetic quality of any groundwater which is or can reasonably be expected to be a source of water for drinking or other uses, additional remediation shall be conducted in order to reduce the concentration of such substance to a concentration appropriate for such use.

(NEW) **Sec. 22a-134tt-11. Certification and Verification**

(a) Release records requiring certification or verification

(1) An LEP shall render a verification for each of the following release records:

(A) An immediate action report, provided such report is generated as the result of an immediate action required by section 22a-134tt-5 of the RBCRs to be verified by an LEP;

(B) A tier assignment, prepared pursuant to section 22a-134tt-6(c) of the RBCRs;

(C) A change in tier assignment, prepared pursuant to section 22a-134tt-6(c) of the RBCRs; and

(D) A release remediation closure report prepared pursuant to section 22a-134tt-12 of the RBCRs, except that a release closure report that relies only upon section 22a-134tt-8 of the RBCRs shall not require verification by an LEP.

(2) A PEP shall provide a certification or an LEP may render a verification for each of the following release records:

(A) An immediate action report, provided such report is generated as the result of an immediate action that may be certified as complete by a PEP pursuant to section 22a-134tt-5(g) of the RBCRs; and

(B) A release remediation closure report prepared pursuant to section 22a-134tt-12 of the RBCRs, provided that such release is remediated pursuant to section 22a-134tt-8 of the RBCRs.

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(b) Form of Certification or Verification

(1) An LEP shall verify a release record by:

(A) Signing or electronically signing the release record;

(B) Affixing the LEP's seal to the release record, either physically or electronically; and

(C) Providing any other information specified on the form prescribed by the commissioner for such release record which shall include, but may not be limited to, the LEP's name, business address, telephone number and electronic mail address.

(2) A PEP shall certify a release record by:

(A) Signing or electronically signing the release record;

(B) Providing the number and expiration date of the permit issued pursuant to section 22a-454 of the Connecticut General Statutes to the PEP or under which the named PEP is permitted; and

(C) Providing any other information specified on the form prescribed by the commissioner for such release record which shall include, but may not be limited to, the PEP's name, business address, telephone number and electronic mail address.

(c) Release Remediation Directed by the Commissioner

If the commissioner has directed the remediation of a release, the commissioner may, notwithstanding the requirements of the RBCRs sign any release record. The commissioners signature on any release record shall be considered equivalent to a verification rendered by an LEP or a certification provided by a PEP for all purposes.

(NEW) **Sec. 22a-134tt-12. Release Remediation Closure Report**

A release to the land and waters of the state shall be remediated to the applicable standards identified in the cleanup standards sections. Upon achieving such standard, a release remediation closure report that complies with the requirements of this section shall be prepared using a form prescribed by the commissioner, and shall be submitted to the commissioner if submission is required pursuant to subdivision (3) of this section. A release remediation closure report shall:

(1) Include the following information:

(A) The name, mailing address, electronic mail address, and telephone number of each creator or maintainer of the release;

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(B) The location of the release, including the property address and geographic information system coordinates;

(C) The date on which the release was discovered;

(D) The date on which the release was reported to the commissioner, if the reporting of such release was required by regulations adopted pursuant to section 22a-134tt or 22a-450 of the Connecticut General Statutes;

(E) The date on which the first tier assignment for such release was submitted to the commissioner, if such an assignment was required by section 22a-134tt-6 of the RBCRs; and

(F) Any other information specified by the form prescribed by the commissioner, including, but not limited to, any release records or supporting documentation required to be prepared by the RBCRs.

(2) Be verified by an LEP or, if authorized by sections 22a-134tt-7 and 22a-134tt-8(a)(2) of the RBCRs, certified by a PEP, pursuant to section 22a-134tt-8(b) of the RBCRs;

(3) Be submitted to the commissioner if:

(A) The release is an emergent reportable release; or

(B) The release was required to be reported to the commissioner pursuant to section 22a-134tt-3 of the RBCRs;

(4) Be retained by the person who created or maintained such release for not less than 10 years, and, if not submitted previously to the commissioner, be submitted to the commissioner not more than 30 days following a request in writing for submission; and

(5) Unless rejected by the department pursuant to section 22a-134tt-13 of the RBCRs, indicate that a release has been remediated to the standards specified by Chapter 445b of the Connecticut General Statutes and that, if the land and waters of the state impacted by such release remains in the condition and subject to the controls specified by the release remediation closure report, no further action regarding such release shall be required.

(6) Notwithstanding the requirements of this section, and section 22a-134tt-11 of the RBCRs, may in the commissioner's sole discretion, be issued by the commissioner if the commissioner determines that such release has achieved the standards specified in the cleanup standards sections. A release remediation closure report issued by the commissioner shall have the same force and effect as a release remediation closure report certified by a PEP or verified by an LEP.

(NEW) **Sec. 22a-134tt-13. Audits**

(a) Audit of Release Records

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(1) The commissioner may conduct an audit of any release record verified by an LEP or certified by a PEP to determine compliance with Chapter 445b of the Connecticut General Statutes and the RBCRs. Such audit may be a screening audit, a focused audit, or a full audit. If no audit is conducted, no notification shall be required.

(2) For the purposes of this section:

(A) a release record shall be in compliance if it satisfies each relevant requirement of Chapter 445b of the Connecticut General Statutes and RBCRs;

(B) "screening audit" means the administrative review of records by the commissioner in the manner specified by subsection (b) of this section;

(C) "focused audit" means the review of 1 release record by the commissioner, including requesting additional supporting information regarding the remediation of a release in the manner specified by subsection (c) of this section; and

(D) "full audit" means the thorough review of many or all release records associated with a release initiated after submission of a release remediation closure report, including requesting additional supporting information regarding the remediation of a release in the manner specified by subsection (d) of this section.

(b) Screening Audit

(1) The commissioner may conduct a screening audit of any release record verified by an LEP or certified by a PEP. Except as provided herein, a screening audit shall result in an outcome specified by subparagraph (B) of this subdivision not more than 180 days after submission. A screening audit:

(A) May be commenced and conducted without notice to person who verified or certified the release record or the person who created or maintained the release that is the subject of such release record, provided the commissioner may, in their sole discretion, notify any such person at any time;

(B) May review and assess a release record in its entirety, or any part thereof, to determine compliance. The commissioner's review may result in one of the following outcomes:

(i) Acceptance of the release record;

(ii) Rejection of the release record, if the commissioner determines the release record is not in compliance; or

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(iii) If additional information is necessary to determine whether the release record is in compliance, commencement of a focused audit or full audit, pursuant to subsections (c) and (d) of this subsection.

(2) If the commissioner determines a release record is not in compliance, the commissioner shall:

(A) Reject the release record, and shall Notify the person who verified or certified the release record and the person who created or maintained the release in writing;

(B) Retain any fee associated with the release record; and

(C) Require submission of a new release record that is in compliance, and may set a deadline for the submission of such record, provided that any deadline set pursuant to this subparagraph shall not extend the deadline for any fee associated with the release.

(3) If additional information is required to determine whether a release record is in compliance, the commissioner shall notify the person who verified or certified the release record and the person who created or maintained the release in writing and shall commence a focused audit or full audit. A notice of audit, sent pursuant to subsection (e)(2) of this section, shall satisfy the requirements of this subdivision.

(c) Focused Audit

(1) The commissioner may conduct a focused audit of any release record. Except as provided herein, a notice of audit commencing a focused audit shall be sent not more than 180 days after submission of a release record, and such focused audit shall result in an outcome specified by subparagraph (D) of this subdivision not more than 18 months after submission of such release record. A focused audit may be commenced without conducting a screening audit. A focused audit:

(A) Shall be commenced by providing a notice of audit to the person who verified or certified the release record and the person who created or maintained the release that is the subject of such record. Such notice shall:

(i) State the reason for such focused audit, which may include but shall not be limited to, an issue identified during a screening audit or the random selection of a release record; and

(ii) Specify additional information necessary for the commissioner to determine if the release record is in compliance, and the date by which such information shall be submitted;

(B) May evaluate a release record in its entirety, may be limited only to specific issues identified in a screening audit, or may be limited to specific issues selected by the Commissioner in their sole discretion for random audits;

PROPOSED

(C) If, at any time after commencing a focused audit, the commissioner determines additional information is necessary to complete the audit, which may include, but shall not be limited to, responses to technical questions on the approach used to remediate of the release, the commissioner shall request such information in writing, and specify a deadline for the submission of such information. If the requested information is not provided in the time required, the commissioner may determine the release record is not in compliance and reject the release record.

(D) Shall result in one of the following outcomes:

(i) Acceptance of the release record;

(ii) Rejection of the release record; or

(iii) Commencement of a full audit conducted pursuant to subsection (d) of this section, if a release remediation closure report has been submitted for such release.

(2) If the commissioner determines a release record is not in compliance, the commissioner:

(A) Shall reject the release record, and shall notify the person who verified or certified the release record and the person who created or maintained the release in writing of the reasons for such rejection;

(B) Shall retain any fee associated with the release record;

(C) Shall require submission of a new release record that is in compliance, and may set a deadline for the submission of such record, provided that any deadlier set pursuant to this subparagraph shall not extend the deadline for any fee associated with the release; and
(D) May, in addition to rejecting the release record pursuant to this subdivision, commence a full audit of each release record associated with the release by providing a notice of audit pursuant to subsection (d) of this section.

(d) Full Audit

(1) Not more than 180 days following the submission of a release remediation closure report, or, if a focused audit has been initiated pursuant to subsection (c)(1)(A) of this section, at any time before such focused audit reaches an outcome specified in subsection (c)(1)(D) of this section, the commissioner may a commence a full audit of the remediation of such release by providing a written notice of audit. A full audit shall result in an outcome specified by subparagraph (D) of this section not more than two years after submission of a release remediation closure report. A full audit may be commenced without conducting a screening audit or focused audit. A full audit:

PROPOSED

(A) Shall be commenced by providing a notice of audit to the person who verified or certified the release remediation closure report and the person who created or maintained the release that is the subject of such release remediation closure report. Such notice shall:

(i) State the reason for the full audit, which may include but shall not be limited to, an issue identified during a screening audit, focused audit, or the random selection of a release record; and

(ii) Specify additional information necessary to determine if each record associated with the release is in compliance and the date by which such information shall be submitted;

(B) May evaluate a release record in its entirety, may be limited only to specific issues identified in a screening audit, or may be limited to specific issues selected by the Commissioner in their sole discretion for random audits;

(C) If, at any time after commencing a full audit, the commissioner determines additional information is necessary to complete the audit, which may include, but shall not be limited to, responses to technical questions on the approach to remediation of the release, the commissioner shall request such information in writing, and specify a deadline for the submission of such information. If the requested information is not provided in the time required, the commissioner may determine that the remediation is not in compliance and reject one or more release records associated with such release.

(D) (i) Shall result in one of the following outcomes:

(I) Acceptance of the release remediation closure report; or

(II) Rejection of one or more release records associated with the release.

(ii) If the commissioner rejects one or more release records regarding the remediation of the release, the commissioner shall specify the reasons for such rejection in writing and shall retain any fee associated with such release record. Upon rejection of any release record associated with a release, a new release remediation closure report shall be required to be submitted, in addition to the submission of any other record rejected by the commissioner. The commissioner may specify a timeline for the submission of additional release records and supporting information, including a new release remediation closure report. All provisions of the RBCRs shall remain in full force and effect until such time as all required release records regarding the remediation of such release, including a new release remediation closure report, have been accepted by the commissioner.

(e) No Audit Letters

PROPOSED

(1) Any person who submits a release remediation closure report may request that the commissioner issue a letter indicating that such release remediation closure report will not be subject to a focused or full audit if the commissioner determines that no such audit is necessary.

(2) A request for a letter pursuant to subdivision (1) of this subsection shall be made in writing, on a form prescribed by the commissioner. Any such request shall be accompanied by a non-refundable fee of 500 dollars, payable in a manner prescribed by the commissioner.

(3) The commissioner may determine that a focused or full audit of a release remediation closure report will not be conducted after conducting a screening audit or without conducting a screening audit. If a no audit letter is issued pursuant to subdivision (1) of this subsection without conducting a screening audit, no screening audit may be conducted after such letter is issued.

(4) If a no audit letter is requested pursuant to this subsection, the commissioner shall have a goal of determining whether to conducted a focused or full audit of the subject release remediation closure report not more than 90 days after it is submitted. The commissioner shall report on the rate at which this goal is achieved in any report prepared pursuant to section 22a-134uu of the Connecticut General Statutes.

(f) Reopened Verifications and Certifications

(1) Notwithstanding any provision of this section, at any time following the submission of a release record verified by an LEP or certified by a PEP, the commissioner may commence a focused or full audit when:

> (A) the commissioner has reason to believe that a verification or certification was obtained through the submittal of materially inaccurate or erroneous information, or otherwise misleading information material to the verification, or that misrepresentations were made in connection with the submittal of the verification;
>
> (B) a verification is submitted pursuant to an order of the commissioner, in accordance with section 22a-134ss of the Connecticut General Statutes;
>
> (C) any post-verification monitoring, or operations and maintenance, is required as part of a verification and which has not been completed;
>
> (D) a verification relies upon an environmental land use restriction, and such environmental land use restriction was not recorded on the land records of the municipality in which such land is located, in accordance with section 22a-133o of the Connecticut General Statutes and applicable regulations;
>
> (E) the commissioner determines that there has been a violation of the provisions of sections 22a-134qq to 22a-134tt, inclusive, of the Connecticut General Statutes; or

PROPOSED

(F) the commissioner determines that information exists indicating that the remediation may have failed to prevent a substantial threat to public health or the environment.

(2) Such focused audit or full audit shall be commenced by providing the notice specified in subsections (c)(1) and (d)(1) of this section, which shall also include a statement of the reasons for reopening such verification. A focused or full audit conducted pursuant to this subsection shall follow the procedures set out in subsection (c) and (d) of this section, except that such audit shall not be required to reach an outcome in the time specified in subsections (c)(1)(D) and (d)(1)(D)(i) of this section.

(g) Verification Necessary After Rejection

If a release remediation closure report certified by a PEP is rejected, the commissioner may determine whether such release remains eligible for certification by a PEP.

(h) Frequency of Audits

(1) The commissioner shall have a goal of conducting an audit of:

(A) 10 percent of the releases assigned to tier 1A at the time that such release was initially assigned to a tier;

(B) 20 percent of the releases assigned to tier 1B at the time that such release was initially assigned to a tier;

(C) 10 percent of the releases assigned to tier 2 at the time that such release was initially assigned to a tier; and

(D) 5 percent of the releases assigned to tier 3 at the time that such release was initially assigned to a tier.

(2) For the purposes of subdivision (1) of this subsection, such audit:

(A) Shall be conducted using the procedures specified in this section;

(B) May be a full audit of all release records associated with such release or a screening or focused audit of one or more release records associated with such release; and

(C) May be conducted after the submission of a release remediation closure report, or may be conducted at any time following the submission of a certified or verified release record regarding such release.

PROPOSED

(NEW) **Sec. 22a-134tt-App1. Appendix 1**

Appendix 1 to the RBCRs

Tier Checklist

TIER CHECKLIST

Please fill out this form from the beginning each time tiering is conducted. If this is a re-tiering, please include a copy of the last submitted Tier Checklist. If the release complies with the cleanup standards, tiering may not be necessary, and closure documentation should be submitted. Refer to the Tiering Checklist Instructions for more information on how to fill out and submit this form properly. The address in the headers will automatically update upon printing or print-previewing.

DEEP Use Only	Date Received: Record #: Release ID #: Release ID #	

Part I: General Information

Parcel Name (current or former name)
Parcel Name

Parcel Street Address
Parcel Address

City/ Town: City/Town
State: **CT**
ZIP: 00000

This property is described in the land records of:

Tax Assessor Town
Tax Assessor Town

Lot/Parcel ID: Lot/Parcel
Block: Block
Map: Map

Licensed Environmental Professional (LEP)

Name
Name

Company
Company Name

Address
Address

City/Town: City/Town
State: State
Zip: 00000

Creator / Maintainer

Name of Signatory for Creator / Maintainer
Name

Creator / Maintainer
Creator/Maintainer

Address
Address

City/Town: City/Town
State: State
Zip: 00000

PROPOSED

Phone	Phone
Phone	Phone
E-mail	E-mail
E-mail	E-mail

Part II: Verification Information

This tier assignment verification pertains to the following release:

Release ID #	Date of Discovery	Release Area Designation
Release ID #	mm/dd/yyyy	Release Area Name

Tier Assignment ☐ **1A** ☐ **1B** ☐ **2** ☐ **3**

☐ This is an Initial Tier Assignment

☐ This is a Tier Reassignment

Previous Tier Assignment: ☐ 1A ☐ 1B ☐ 2

LEP Verification

"I verify in accordance with §22a-134tt-11(a)(1) and §22a-133v-1(z) of the Regulations of Connecticut State Agencies (RCSA), that this Tier Assignment has been prepared pursuant to 22a-134tt-6(c) of the RCSA."

Creator / Maintainer Signature

"In accordance with § 22a-134tt-6 of the Regulations of Connecticut State Agencies, I submit this Tier Checklist that has been verified and sealed by a licensed environmental professional (LEP), and the attached documentation, which has been approved in writing by an LEP."

LEP Signature	Creator / Maintainer Authorized Signature
LEP Printed/Typed Name Name	Creator / Maintainer Authorized Signatory Printed/Typed Name Name
Date of LEP Signature	Date of Creator / Maintainer Signature
LEP Seal	LEP License # Number

Part III: Tier Determination

Tier 1A

Answer the following questions. Any box checked in the Tier 1A Indicator column at right designates the release as Tier 1A.

		Tier 1A Indicator
1. Receptors are known and documented		
1a. A scoping level ecological risk assessment has been completed.	☐ Yes	☐ No
1b. A drinking water receptor survey has been completed.	☐ Yes	☐ No
1c. A vapor intrusion receptor survey has been completed.	☐ Yes	☐ No
2. Does/did the release require Immediate Action under RCSA § 22a-134tt-5?	☐ No *(Skip to line 3)* ☐ Yes *(Proceed to 2a)*	
2a. Immediate Action requirements have been met	☐ Yes	☐ No
3. Tier characterization is complete.	☐ Yes	☐ No

If any boxes in this column are checked, stop here. This release is Tier 1A. Otherwise proceed to Tier 1B determination.

DRAFT

Tier 1B

If any of the Tier 1A indicators above are checked, do not proceed with Tier 1B determination.

Answer the following questions. Any box checked in the Tier 1B Indicator column at right designates the release as Tier 1B.

		Tier 1B Indicator
1. Groundwater has been impacted by the release.	☐ No *(Skip to line 2)* ☐ Yes *(Proceed to 1a)*	
1a. Groundwater plume migrates off the source parcel.	☐ No *(skip to line 2)* ☐ Yes *(proceed to 1b)*	
1b. Off-site groundwater plume exceeds applicable groundwater criteria.	☐ No	☐ Yes
2. The scoping level ecological risk assessment identified potential exposure pathways.	☐ No *(skip to line 3)* ☐ Yes *(proceed to 2a)*	
2a. A screening level ecological risk assessment has been completed.	☐ Yes	☐ No
3. For releases that include volatile organic substances, a vapor intrusion pathway is present.	☐ No *(skip to line 4)* ☐ Yes *(Proceed to 3a)*	
3a. Groundwater complies with volatilization criteria provisions in RCSA § 22a-134tt-10(c) .	☐ Yes	☐ No
4. A drinking water receptor pathway is present.	☐ No *(skip to line 5)* ☐ Yes *(Proceed to 4a)*	
4a. Groundwater complies with GWPC provisions RCSA § 22a-134tt-10(d).	☐ Yes	☐ No
5. A Remedial Action Plan has been prepared.	☐ Yes	☐ No

PROPOSED

Tier 1B
If any of the Tier 1A indicators above are checked, do not proceed with Tier 1B determination.

If any boxes in this column are checked, stop here. This release is Tier 1B. Otherwise proceed to Tier 2 determination.

Tier 2
If any of the Tier 1A or 1B indicators above are checked, do not proceed with Tier 2 determination.

Answer the following questions. Any box checked in the Tier 2 Indicator column at right designates the release as Tier 2.

		Tier 2 Indicator
1. All potential receptor pathways have been eliminated or investigations demonstrated that there are no receptor pathways (note: if vapor intrusion or drinking water pathways have not been eliminated, the release must be Tier 1B per question 3 under Tier 1B).	☐ Yes	☐ No
2. A scoping or screening level ecological risk assessment identified the need for a site-specific ecological risk assessment	☐ No *(Skip to line 3)* ☐ Yes *(Proceed to 2a)*	
2a. A site-specific ecological risk assessment has been completed and ecological risk has been addressed.	☐ Yes	☐ No
3. Soil remediation is/was required.	☐ No *(Skip to line 4)* ☐ Yes *(Proceed to 3a)*	
3a. Soil impacted by the release complies with the soil standards (including recording necessary EURs).	☐ Yes	☐ No

Tier 2

If any of the Tier 1A or 1B indicators above are checked, do not proceed with Tier 2 determination.

4. Groundwater complies with the groundwater standards (including completion of any applicable groundwater compliance monitoring).	☐ Yes * ☐ No *(Proceed to 4a)*	
4a. The only groundwater remediation remaining is MNA. Information required by RCSA § 22a-134tt-6(c)(3) has been submitted.	☐ Yes	☐ No

If any boxes in this column are checked, stop here. This release is Tier 2. Otherwise proceed to Tier 3 determination.

*If the release complies with the cleanup standards, tiering may not be necessary.

Tier 3

If any of the Tier 1A, 1B, or 2 indicators above are checked, do not proceed with Tier 3 determination.

Answer the following questions. Any box checked in the Tier 3 Indicator column at right designates the release as Tier 3.

		Tier 3 Indicator
MNA is being conducted in accordance with RCSA § 22a-134tt-10(h)	☐ No *	☐ Yes

If any boxes in this column are checked, this release is Tier 3.

*If the release complies with the cleanup standards, tiering may not be necessary.

Part IV: Attachments

Check all that apply and attach appropriate documentation to this form:

☐ Attachment A – Previous Tier Checklist (if this is a re-tiering)

☐ Attachment B – Supporting Documentation (see RCSA § 22a-134tt-6(c)

(NEW) **Sec. 22a-134tt-App-2. Appendix 2**

Appendix 2 to the RBCRs

Direct Exposure Criteria for Soil

Substance	**Residential DEC in mg/kg (ppm)**	**Industrial/ Commercial DEC in mg/kg (ppm)**
Volatile Organic Substances		
Acetone	500	1,000
Acrylonitrile	1.1	11
Benzene	21	200
Bromoform	78	720
2-Butanone(MEK)	500	1,000
Carbon tetrachloride	4.7	44
Chlorobenzene	500	1,000
Chloroform	100	940
Dibromochloromethane	7.3	68
1,2-Dichlorobenzene	500	1,000
1,3-Dichlorobenzene	500	1,000
1,4-Dichlorobenzene	26	240
1,1-Dichloroethane	500	1,000
1,2-Dichloroethane	6.7	63
1,1-Dichloroethylene	1	9.5
cis-1,2-Dichloroethylene	500	1,000
trans-1,2-Dichloroethylene	500	1,000
1,2-Dichloropropane	9	84
1,3-Dichloropropene	3.4	32
Ethylbenzene	500	1,000

PROPOSED

Substance	Residential DEC in mg/kg (ppm)	Industrial/ Commercial DEC in mg/kg (ppm)
Volatile Organic Substances		
Ethylene dibromide (EDB)	0.007	0.067
Methyl-tert-butyl-ether	500	1,000
Methyl isobutyl ketone	500	1,000
Methylene chloride	82	760
Styrene	500	1,000
1,1,1,2-Tetrachloroethane	24	220
1,1,2,2-Tetrachloroethane	3.1	29
Tetrachloroethylene	12	110
Toluene	500	1,000
1,1,1-Trichloroethane	500	1,000
1,1,2-Trichloroethane	11	100
Trichloroethylene	56	520
Vinyl chloride	0.32	3
Xylenes	500	1,000

PROPOSED

Substance	Residential DEC in mg/kg (ppm)	Industrial/ Commercial DEC in mg/kg (ppm)
Semi-volatile Organic Substances		
Acenaphthylene	1,000	2,500
Anthracene	1,000	2,500
Benzo(a)anthracene	1	7.8
Benzo(b)fluoranthene	1	7.8
Benzo(k)fluoranthene	8.4	78
Benzo(a)pyrene	1	1
Bis(2-chloroethyl)ether	1	5.2
Bis(2-chloroisopropyl)ether	8.8	82
Bis(2-ethyl hexyl)phthalate	44	410
Butyl benzyl phthalate	1,000	2,500
2-chlorophenol	340	2,500
Di-n-butyl phthalate	1,000	2,500
Di-n-octyl phthalate	1,000	2,500
2,4-Dichlorophenol	200	2,500
Fluoranthene	1,000	2,500
Fluorene	1,000	2,500
Hexachloroethane	44	410
Hexachlorobenzene	1	3.6
Naphthalene	1,000	2,500
Pentachlorophenol	5.1	48
Phenanthrene	1,000	2,500
Phenol	1,000	2,500

PROPOSED

Pyrene	1,000	2,500

Substance	Residential DEC in mg/kg (ppm)	Industrial/ Commercial DEC in mg/kg (ppm)
Inorganic Substances		
Antimony	27	8,200
Arsenic	10	10
Barium	4,700	140,000
Beryllium	2	2
Cadmium	34	1,000
Chromium, trivalent	3,900	51,000
Chromium, hexavalent	100	100
Copper	2,500	76,000
Cyanide	1,400	41,000
Lead	400	1,000
Mercury	20	610
Nickel	1,400	7,500
Selenium	340	10,000
Silver	340	10,000
Thallium	5.4	160
Vanadium	470	14,000
Zinc	20,000	610,000

PROPOSED

Substance	Residential DEC in mg/kg (ppm)	Industrial/ Commercial DEC in mg/kg (ppm)
Pesticides, PCBs and Extractable Total Petroleum Hydrocarbons		
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	20,000
Heptachlor epoxide	0.067	0.63
Heptachlor	0.14	1.3
Lindane	20	610
Methoxychlor	340	10,000
Toxaphene	0.56	5.2
PCBs (The use of the Industrial/Commercial DEC requires the parcel to be used pursuant to section 22a-134tt-9(b)(4), and in accordance with title 40 CFR Part 761)	1	10
TPH- Total Petroleum Hydrocarbons by EPA Method 418.1 (This method shall not be used for the analysis of samples collected after June 30, 2009)	500	2,500
Extractable Total Petroleum Hydrocarbons by CT ETPH Analysis (This method may be used for the	500	2,500

PROPOSED

analysis of samples collected on or after June 22, 1999)		

(NEW) **Sec. 22a-134tt-App3. Appendix 3**

Appendix 3 to the RBCRs

Pollutant Mobility Criteria for Soil

Substance	**GA Area PMC in mg/kg (ppm)**	**GB Area PMC in mg/kg (ppm)**
Volatile Organic Substances		
Acetone	14	140
Acrylonitrile	0.01	0.1
Benzene	0.02	0.2
Bromoform	0.08	0.8
2-Butanone(MEK)	8	80
Carbon tetrachloride	0.1	1
Chlorobenzene	2	20
Chloroform	0.12	1.2
Dibromochloromethane	0.01	0.1
1,2-Dichlorobenzene	3.1	3.1
1,3-Dichlorobenzene	12	120
1,4-Dichlorobenzene	1.5	15
1,1-Dichloroethane	1.4	14
1,2-Dichloroethane	0.02	0.2
1,1-Dichloroethylene	0.14	1.4
cis-1,2-Dichloroethylene	1.4	14
trans-1,2-Dichloroethylene	2	20
1,2-Dichloropropane	0.1	1.0

PROPOSED

Substance	GA Area PMC in mg/kg (ppm)	GB Area PMC in mg/kg (ppm)
Volatile Organic Substances		
1,3-Dichloropropene	0.01	0.1
Ethyl benzene	10.1	10.1
Ethylene dibromide (EDB)	0.01	0.1

Substance	GA Area PMC in mg/kg (ppm)	GB Area PMC in mg/kg (ppm)
Volatile Organic Substances		
Methyl-tert-butyl-ether	2	20
Methyl isobutyl ketone	7	14
Methylene chloride	0.1	1.0
Styrene	2	20
1,1,1,2-Tetrachloroethane	0.02	0.2
1,1,2,2-Tetrachloroethane	0.01	0.1
Tetrachloroethylene	0.1	1
Toluene	20	67
1,1,1-Trichloroethane	4	40
1,1,2-Trichloroethane	0.1	1
Trichloroethylene	0.1	1.0
Vinyl chloride	0.04	0.40
Xylenes	19.5	19.5

PROPOSED

Substance	GA Area PMC in mg/kg (ppm)	GB Area PMC in mg/kg (ppm)
Semi-volatile Organic Substances		
Acenaphthylene	8.4	84
Anthracene	40	400
Benzo(a)anthracene	1	1
Benzo(b)fluoranthene	1	1
Benzo(k)fluoranthene	1	1
Benzo(a)pyrene	1	1
Bis(2-chloroethyl)ether	1	2.4
Bis(2-chloroisopropyl)ether	1	2.4
Bis(2-ethyl hexyl)phthalate	1	11
Butyl benzyl phthalate	20	200
2-chlorophenol	1	7.2
Di-n-butyl phthalate	14	140
Di-n-octyl phthalate	2	20
2,4-Dichlorophenol	1	4
Fluoranthene	5.6	56
Fluorene	5.6	56
Hexachloroethane	1	1
Hexachlorobenzene	1	1
Naphthalene	5.6	56
Pentachlorophenol	1	1
Phenanthrene	4	40
Phenol	80	800

PROPOSED

Pyrene	4	40

Substance	GA Area PMC in mg/kg (ppm)	GB Area PMC in mg/kg (ppm)
Pesticides and Extractable Total Petroleum Hydrocarbons		
Alachlor	0.230	0.4
Aldicarb	1	1
Atrazine	0.2	0.2
Chlordane	0.066	0.066
Dieldrin	0.007	0.007
2-4 D	1.4	14
Heptachlor epoxide	0.02	0.02
Heptachlor	0.013	0.013
Lindane	0.02	0.04
Methoxychlor	0.8	8
Simazine	0.8	8
Toxaphene	0.33	0.6
Total Petroleum Hydrocarbon by EPA Method 418.1 (This method shall not be used for the analysis of samples collected after June 30, 2009)	500	2,500
Extractable Total Petroleum Hydrocarbons by CT ETPH Analysis (This method may be used for the analysis of samples collected on or after June 22, 1999)	500	2,500

PROPOSED

Substances	GA Area PMC by TCLP or by SPLP in mg/L (ppm)	GB Area PMC by TCLP or by SPLP in mg/L (ppm)
Inorganic Substances and PCBs		
Antimony	0.006	0.06
Arsenic	0.05	0.5
Barium	1	10.0
Beryllium	0.004	0.04
Cadmium	0.005	0.05
Chromium, total	0.05	0.5
Copper	1.3	13
Cyanide (by SPLP only)	0.2	2
Lead	0.015	0.15
Mercury	0.002	0.02
Nickel	0.1	1.0
Selenium	0.05	0.5
Silver	0.036	0.36
Thallium	0.005	0.05
Vanadium	0.05	0.50
Zinc	5	50
PCBs	0.0005	0.005

PROPOSED

(NEW) **Sec. 22a-134tt-App4. Appendix 4**

Appendix 4 to the RBCRs

Groundwater Protection Criteria

Substance	**GWPC in µg/L (ppb)**
Volatile Organic Substances	
Acetone	700
Acrylonitrile	0.5
Benzene	1
Bromoform	4
2-Butanone (MEK)	400
Carbon tetrachloride	5
Chlorobenzene	100
Chloroform	6
Dibromochloromethane	0.5
1,2-Dichlorobenzene	600
1,3-Dichlorobenzene	600
1,4-Dichlorobenzene	75
1,1-Dichloroethane	70
1,2-Dichloroethane	1
1,1-Dichloroethylene	7
cis-1,2-Dichloroethylene	70
trans-1,2-Dichloroethylene	100
1,2-Dichloropropane	5
1,3-Dichloropropene	0.5
Ethyl benzene	700
Ethylene dibromide (EDB)	0.05
Methyl-tert-butyl-ether	100

PROPOSED

Substance	GWPC in µg/L (ppb)
Volatile Organic Substances	
Methyl isobutyl ketone	350
Methylene chloride	5
Styrene	100
1,1,1,2-Tetrachloroethane	1
1,1,2,2-Tetrachloroethane	0.5
Tetrachloroethylene	5
Toluene	1,000
1,1,1-Trichloroethane	200
1,1,2-Trichloroethane	5
Trichloroethylene	5
Vinyl chloride	2
Xylenes	530

PROPOSED

Substance	GWPC in µg/L (ppb)
Semi-volatile Organic Substances	
Acenaphthylene	420
Anthracene	2,000
Benzo(a)anthracene	0.06
Benzo(b)fluoranthene	0.08
Benzo(k)fluoranthene	0.5
Benzo(a)pyrene	0.2
Bis(2-chloroethyl)ether	12
Bis(2-chloroisopropyl)ether	12
Bis(2-ethyl hexyl)phthalate	2
Butyl benzyl phthalate	1,000
2-chlorophenol	36
Di-n-butyl phthalate	700
Di-n-octyl phthalate	100
2,4-Dichlorophenol	20
Fluoranthene	280
Fluorene	280
Hexachloroethane	3
Hexachlorobenzene	1
Naphthalene	280
Pentachlorophenol	1
Phenanthrene	200
Phenol	4,000
Pyrene	200

PROPOSED

Substance	GWPC in µg/L (ppb)
Inorganic Substances	
Antimony	6
Arsenic	50
Asbestos (in mfl)	7
Barium	1,000
Beryllium	4
Cadmium	5
Chromium (total)	50
Copper	1,300
Cyanide	200
Lead	15
Mercury	2
Nickel	100
Selenium	50
Silver	36
Thallium	5
Vanadium	50
Zinc	5,000

PROPOSED

Substance	GWPC in µg/L (ppb)
Pesticides, PCBs and Extractable Total Petroleum Hydrocarbons	
Alachlor	2
Aldicarb	3
Atrazine	3
Chlordane	0.3
Dieldrin	0.002
2-4 D	70
Heptachlor epoxide	0.2
Heptachlor	0.4
Lindane	0.2
Methoxychlor	40
Simazine	4
Toxaphene	3
[PCB's]PCBs	0.5
Total Petroleum Hydrocarbon by EPA Method 418.1 (This method shall not be used for the analysis of samples collected after June 30, 2009)	500
Extractable Total Petroleum Hydrocarbons by CT ETPH Analysis (This method may be used for the analysis of samples collected on or after June 22, 1999)	250

PROPOSED

(NEW) **Sec. 22a-134tt-App5. Appendix 5**

Appendix 5 to the RBCRs

Surface Water Protection Criteriafor Substances in Groundwater

Substance	**SWPC in µg/L (ppb)**
Volatile Organic Substances	
Acrylonitrile	20
Benzene	710
Bromoform	10,800
Carbon tetrachloride	132
Chlorobenzene	420,000
Chloroform	14,100
Dibromochloromethane	1,020
1,2-Dichlorobenzene	170,000
1,3-Dichlorobenzene	26,000
1,4-Dichlorobenzene	26,000
1,2-Dichloroethane	2,970
1,1-Dichloroethylene	96
1,3-Dichloropropene	34,000
Ethylbenzene	580,000
Methylene chloride	48,000
1,1,2,2-Tetrachloroethane	110
Tetrachloroethylene	88
Toluene	4,000,000
1,1,1-Trichloroethane	62,000
1,1,2-Trichloroethane	1,260
Trichloroethylene	2,340
Vinyl chloride	15,750

PROPOSED

Substance	SWPC in µg/L (ppb)
Semi-volatile Organic Substances	
Acenaphthylene	0.3
Anthracene	1,100,000
Benzo(a)anthracene	0.3
Benzo(b)fluoranthene	0.3
Benzo(k)fluoranthene	0.3
Benzo(a)pyrene	0.3
Bis(2-chloroethyl)ether	42
Bis(2-chloroisopropyl)ether	3,400,000
Bis(2-ethyl hexyl)phthalate	59
Di-n-butyl phthalate	120,000
2,4-Dichlorophenol	15,800
Fluoranthene	3,700
Fluorene	140,000
Hexachloroethane	89
Hexachlorobenzene	0.077
Phenanthrene	14
Phenol	92,000,000
Pyrene	110,000

PROPOSED

Substance	SWPC in µg/L (ppb)
Inorganic Substances	
Antimony	86,000
Arsenic	4
Asbestos (in mfl)	7
Beryllium	4
Cadmium	6
Chromium, trivalent	1,200
Chromium, hexavalent	110
Copper	48
Cyanide	52
Lead	13
Mercury	0.4
Nickel	880
Selenium	50
Silver	12
Thallium	63
Zinc	123

PROPOSED

Substance	SWPC in µg/L (ppb)
Pesticides and PCBs	
Chlordane	0.3
Dieldrin	0.1
Endrin	0.1
Heptachlor epoxide	0.05
Heptachlor	0.05
Toxaphene	1
PCBs	0.5

PROPOSED

(NEW) **Sec. 22a-134tt-App6. Appendix 6**

Appendix 6 to the RBCRs

Volatilization Criteria for Groundwater

Volatile Substance	**Residential Volatilization Criteria for Groundwater in µg/L (ppb)**	**Industrial/Commercial Volatilization Criteria for Groundwater in µg/L (ppb)**
Acetone	50,000	50000
Benzene	215	530
Bromoform	75	2,300
2-Butanone (MEK)	50,000	50,000
Carbon Tetrachloride	5.3	14
Chlorobenzene	1,800	23,000
Chloroform	26	62
1,2-Dichlorobenzene	5,100	50,000
1,3-Dichlorobenzene	4,300	50,000
1,4-Dichlorobenzene	1,400	3,400
1,1-Dichloroethane	3,000	41,000
1,2-Dichloroethane	6.5	68
1,1-Dichloroethylene	190	920
1,2-Dichloropropane	7.4	58
1,3-Dichloropropene	11	360
Ethyl benzene	50,000	50,000
Ethylene dibromide (EDB)	0.30	11
Methyl-tert-butyl-ether	50,000	50,000
Methyl isobutyl ketone	13,000	50,000
Methylene chloride	160	2,200
Styrene	3,100	42,000

PROPOSED

Volatile Substance	Residential Volatilization Criteria for Groundwater in µg/L (ppb)	Industrial/Commercial Volatilization Criteria for Groundwater in µg/L (ppb)
1,1,1,2-Tetrachloroethane	2	64
1,1,2,2-Tetrachloroethane	1.8	54
Tetrachloroethylene	340	810
Toluene	23,500	50,000
1,1,1-Trichloroethane	6,500	16,000
1,1,2-Trichloroethane	220	2,900
Trichloroethylene	27	67
Vinyl chloride	1.6	52
Xylenes	21,300	50,000

PROPOSED

(NEW) **Sec. 22a-134tt-App7. Appendix 7**

Appendix 7 to the RBCRs

Volatilization Criteria for Soil Vapor

Volatile Substance	**Residential Volatilization Criteria for Soil Vapor in parts per million by volume (ppmv)**	**Residential Volatilization Criteria for Soil Vapor in milligrams per cubic meter (mg/m^3)**	**Industrial/ Commercial Volatilization Criteria for Soil Vapor in parts per million by volume (ppmv)**	**Industrial/ Commercial Volatilization Criteria for Soil Vapor in milligrams per cubic meter (mg/m^3)**
Acetone	57	140	290	690
Benzene	0.78	2.5	1.4	4.6
Bromoform	0.04	0.42	0.98	10
2-Butanone (MEK)	130	376	230	690
Carbon Tetrachloride	0.06	0.38	0.12	0.75
Chlorobenzene	6.1	28	60	280
Chloroform	0.078	0.38	0.14	0.69
1,2-Dichlorobenzene	9.2	55	95	570
1,3-Dichlorobenzene	9.2	55	95	570
1,4-Dichlorobenzene	3	18	5.5	33
1,1-Dichloroethane	14	58	150	600
1,2-Dichloroethane	0.013	0.053	0.11	0.43
1,1-Dichloroethylene	1.9	7.6	7	28
1,2-Dichloropropane	0.021	0.098	0.13	0.58
1,3-Dichloropropene	0.035	0.16	0.89	4.0
Ethyl benzene	9.3	40	93	400
Ethylene dibromide (EDB)	0.0005	0.0056	0.007	0.053

PROPOSED

Volatile Substance	Residential Volatilization Criteria for Soil Vapor in parts per million by volume (ppmv)	Residential Volatilization Criteria for Soil Vapor in milligrams per cubic meter (mg/m^3)	Industrial/ Commercial Volatilization Criteria for Soil Vapor in parts per million by volume (ppmv)	Industrial/ Commercial Volatilization Criteria for Soil Vapor in milligrams per cubic meter (mg/m^3)
Methyl-tert-butyl-ether	34	120	73	260
Methyl isobutyl ketone	6.8	28	68	280
Methylene chloride	0.65	2.3	6.8	24
Styrene	9.3	39	95	400
1,1,1,2-Tetrachloroethane	0.009	0.062	0.22	1.5
1,1,2,2- Tetrachloroethane	0.0012	0.0083	0.028	0.19
Tetrachloroethylene	0.56	3.8	1	6.9
Toluene	42	160	180	690
1,1,1-Trichloroethane	70	380	130	690
1,1,2-Trichloroethane	0.31	1.7	3.1	17
Trichloroethylene	0.14	0.76	0.26	1.4
Vinyl chloride	0.041	0.11	1	2.6
Xylenes	38	170	160	690

PROPOSED

(NEW) **Sec. 22a-134tt-App8. Appendix 8**

Appendix 8 to the RBCRs

Equations, Terms, and Values for Calculating Release-Specific Direct Exposure Criteria, Pollutant Mobility Criteria, Groundwater Protection Criteria, Surface Water Protection Criteria, and Volatilization Criteria, for Additional Polluting Substances and Alternative Volatilization Criteria.

(1) Direct Exposure Criteria

(A) Residential Direct Exposure Criteria shall be calculated using the following equations:

(i) For carcinogenic substances:

$$\mathrm{RDEC_{RB}} = \left(\frac{\mathrm{RL}}{\mathrm{CSF}}\right) \div \left[\!\left[\left(\frac{\mathrm{IR_{child}} \times \mathrm{ED_{child}} \times \mathrm{EF} \times \mathrm{CF}}{\mathrm{BW_{child}} \times \mathrm{AT_c}}\right) + \left(\frac{\mathrm{IR_{adult}} \times \mathrm{ED_{adult}} \times \mathrm{EF} \times \mathrm{CF}}{\mathrm{BW_{adult}} \times \mathrm{AT_c}}\right)\right]\!\right]$$

(ii) For non-carcinogenic substances:

$$\mathrm{RDEC_{RB}} = (\mathrm{RfD} \times \mathrm{HI}) \div \left[\!\left[\left(\frac{\mathrm{IR_{child}} \times \mathrm{ED_{child}} \times \mathrm{EF} \times \mathrm{CF}}{\mathrm{BW_{child}} \times \mathrm{AT_{child}}}\right) + \left(\frac{\mathrm{IR_{adult}} \times \mathrm{ED_{adult}} \times \mathrm{EF} \times \mathrm{CF}}{\mathrm{BW_{adult}} \times \mathrm{AT_{adult}}}\right)\right]\!\right]$$

(iii) The abbreviations in clauses (i) and (ii) of this subparagraph shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
AT_c	Averaging Time – carcinogens	25,550	days
AT_{adult}	Averaging Time – adult non-carcinogen	8,760	days
AT_{child}	Averaging Time – child non-carcinogen	2,190	days
BW_{adult}	Body Weight – adult	70	kg
BW_{child}	Body Weight – child	15	kg
CF	Conversion Factor	0.000001	kg/mg

PROPOSED

Terms	Description	Value	Units
CSF	Cancer Slope Factor	Substance-specific	$(mg/kg\text{-}day)^{-1}$
$RDEC_{RB}$	Residential Risk-based Direct Exposure Criterion	calculated	mg/kg
ED_{adult}	Exposure Duration – adult non-carcinogen	24	years
ED_{child}	Exposure Duration – child non-carcinogen	6	years
EF	Exposure Frequency	365	days/year
HI	Hazard Index	1.0	unitless
IR_{adult}	Ingestion Rate – adult	100	mg/day
IR_{child}	Ingestion Rate – child	200	mg/day
RfD	Reference Dose	Substance-specific	mg/kg-day
RL	Target Cancer Risk Level	1.0E-06	unitless

(iv) If the residential Direct Exposure Criteria calculated pursuant to this subparagraph exceeds the following ceiling values, the ceiling value shall be used in lieu of the calculated value:

Volatile Organic Substances	Semi-volatile Substances	Pesticides, PCBs and ETPH	Inorganic Substances	Units
500	1,000	500	50,000	mg/kg

(v) The residential direct exposure criteria may be adjusted up to the laboratory reporting limit if the commissioner determines that the calculated residential risk-based direct exposure criteria is less than the laboratory reporting limit for such substance.

(B) Industrial/commercial Direct Exposure Criteria shall be calculated using the following equations:

(i) For carcinogenic substances:

$$\text{I/C DEC}_{\text{RB}} = \left(\frac{\text{RL}}{\text{CSF}}\right) \times \left(\frac{\text{BW} \times \text{AT}_{\text{c}}}{\text{IR} \times \text{ED} \times \text{EF} \times \text{CF}}\right)$$

(ii) For non-carcinogenic substances:

PROPOSED

$$\text{I/C DEC}_{\text{RB}} = \left(\frac{\text{RfD} \times \text{HI} \times \text{ BW} \times \text{AT}}{\text{IR} \times \text{ED} \times \text{EF} \times \text{CF}}\right)$$

(iii) The abbreviations in clauses (i) and (ii) of this subparagraph shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
AT_c	Averaging Time – carcinogens	25,550	days
AT	Averaging Time – non-carcinogen	9,125	days
BW	Body Weight – adult	70	kg
CF	Conversion Factor	0.000001	kg/mg
CSF	Cancer Slope Factor	substance-specific	$(\text{mg/kg-day})^{-1}$
$\text{I/CDEC}_{\text{RB}}$	Industrial/Commercial Risk-based Direct Exposure Criterion	calculated	mg/kg
ED	Exposure Duration	25	years
EF	Exposure Frequency	250	days/year
HI	Hazard Index	1.0	unitless
IR	Ingestion Rate	50	mg/day
RfD	Reference Dose	substance-specific	mg/kg-day
RL	Target Cancer Risk Level	1.0E-06	unitless

(iv) If the industrial/commercial direct exposure criteria calculated pursuant to this subparagraph exceeds the following ceiling values, the ceiling value shall be used in lieu of the calculated value:

Volatile Substances	Semi-volatile Substances	Pesticides, PCBs and ETPH	Inorganic Substances	Units
1,000	2,500	1,000	50,000	mg/kg

PROPOSED

(v) The industrial/commercial direct exposure criteria may be adjusted up to the laboratory reporting limit if the commissioner determines that the calculated industrial/commercial risk-based direct exposure criteria is less than the laboratory reporting limit for such substance.

(C) Managed Multifamily Residential Direct Exposure Criteria shall be calculated using the following equations:

(i) For non-carcinogenic substances:

$DEC_{C_MF_NC}$ (mg/kg) = (RfD x HI x $BW_{(0-6)}$ x AT_{c_res}) / ($SIR_{(0-6)_mf}$ x EF_{res} x $ED_{(0-6)}$ x CF_{soil})

(ii) For substances (excluding Trichloroethylene) that are carcinogenic, but not mutagenic:

DEC_{MFres_Cnm} (mg/kg) = (RL x AT)/(CSF x CF_{soil} x TSD_{mf})

Where:

TSD_{mf} (mg/kg) = SD_{0-6mf} + SD_{amf}

SD_{0-6mf} (mg/kg) = ($SIR_{(0-6)mf}$ x $ED_{(0-6)}$ x EF_{res}) / $BW_{(0-6)}$

SD_{amf} (mg/kg) = (SIR_{amf} x ED_a x EF_{res}) / BW_a

(iii) For substances (excluding Trichloroethylene) that are carcinogenic and mutagenic:

DEC_{MFres_Cm} = (RL x AT) / (CSF x CF_{soil} x $TSDM_{mf}$)

Where:

$TSDM_{mf}$ (mg/kg) = SD_{0-2mf} + SD_{2-6mf} + SD_{6-16mf} + $SD_{16-30mf}$

SD_{0-2mf} (mg/kg) = ($SIR_{(0-2)_mf}$ x $ADAF_{(0-2)}$ x $ED_{(0-2)}$ x EF_{res}) / $BW_{(0-2)}$

SD_{2-6mf} (mg/kg) = ($SIR_{(2-6)}$ x $ADAF_{(2-6)}$ x $ED_{(2-6)}$ x EF_{res}) / $BW_{(2-6)}$

SD_{6-16mf} (mg/kg) = ($IR_{(6-16)}$ x $ADAF_{(6-16)}$ x $ED_{(6-16)}$ x EF_{res}) / $BW_{(6-16)}$

$SD_{16-30mf}$ (mg/kg) = ($IR_{(16-30)}$ x $ADAF_{(16-30)}$ x $ED_{(16-30)}$ x EF_{res}) / $BW_{(16-30)}$

(iv) For Trichloroethylene:

DEC_{mf-TCE} = (RL x AT) / ((CSF_{TCE-M} x CF_{soil} x $TSDM_{mf}$) + (CSF_{TCE-C} x CF_{soil} x TSD_{mf}))

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Where:

$TSDM_{mf}$ (mg/kg) = $SD_{0\text{-}2mf} + SD_{2\text{-}6mf} + SD_{6\text{-}16mf} + SD_{16\text{-}30mf}$

$SD_{0\text{-}2mf}$ (mg/kg) = $(SIR_{(0\text{-}2)_mf} \times ADAF_{(0\text{-}2)} \times ED_{(0\text{-}2)} \times EF_{res}) / BW_{(0\text{-}2)}$

$SD_{2\text{-}6mf}$ (mg/kg) = $(SIR_{(2\text{-}6)} \times ADAF_{(2\text{-}6)} \times ED_{(2\text{-}6)} \times EF_{res}) / BW_{(2\text{-}6)}$

$SD_{6\text{-}16mf}$ (mg/kg) = $(IR_{(6\text{-}16)} \times ADAF_{(6\text{-}16)} \times ED_{(6\text{-}16)} \times EF_{res}) / BW_{(6\text{-}16)}$

$SD_{16\text{-}30mf}$ (mg/kg) = $(IR_{(16\text{-}30)} \times ADAF_{(16\text{-}30)} \times ED_{(16\text{-}30)} \times EF_{res}) / BW_{(16\text{-}30)}$

TSD_{mf} (mg/kg) = $SD_{0\text{-}6mf} + SD_{amf}$

$SD_{0\text{-}6mf}$ (mg/kg) = $(SIR_{(0\text{-}6)_mf} \times ED_{(0\text{-}6)} \times EF_{res}) / BW_{(0\text{-}6)}$

SD_{amf} (mg/kg) = $(SIR_a \times ED_a \times EF_{res}) / BW_a$

(v) The abbreviations in clauses (i) to (iv), inclusive, of this subparagraph shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Exposure Values for Soil Exposures - Managed Multifamily Residential			
Terms	Description	Value	Units
Criteria Types			
$DEC_{C_MF_NC}$	Direct Exposure Criteria for Soil Exposures to Child Residents in a Managed Multifamily Residential Setting	Chemical Specific	mg/kg
$DEC_{A_MF_NC}$	Direct Exposure Criteria for Soil Exposures to Adult Residents in a Managed Multifamily Residential Setting	Chemical Specific	mg/kg
$DEC_{SW_MF_NC}$	Direct Exposure Criteria for Soil Exposures to Site Workers in a Managed Multifamily Residential Setting Non Cancer	Chemical Specific	mg/kg
$DEC_{SW_MF_C}$	Direct Exposure Criteria for Soil Exposures to Site Workers in a Managed Multifamily Residential Setting (Carcinogen)	Chemical Specific	mg/kg

PROPOSED

DEC_{MFres_Cnm}	Direct Exposure Criteria for Soil Exposures to Child and Adult Residents in a Managed Multifamily Residential Setting (Carcinogens)	Chemical Specific	mg/kg
DEC_{MFres_Cm}	Direct Exposure Criteria for Soil Exposures to Child and Adult Residents in a Managed Multifamily Residential Setting (Mutagens)	Chemical Specific	mg/kg
$DECmf_{-TCE}$	Direct Exposure Criteria for Soil Exposures to Child and Adult Residents in a Managed Multifamily Residential Setting (Trichloroethylene)	Chemical Specific	mg/kg
Variables			
ADAF(0-2)	Age Dependent Adjustment Factor for mutagenic cancer risk - 0-2 years	10	unitless
ADAF(16-30)	Age Dependent Adjustment Factor for mutagenic cancer risk - ages 16-30 years	1	unitless
ADAF(2-6)	Age Dependent Adjustment Factor for mutagenic cancer risk - ages 2-6 years	3	unitless
ADAF(6-16)	Age Dependent Adjustment Factor for mutagenic cancer risk - ages 6-16 years	3	unitless
SDa_mf	Soil dose for adult residents in Multifamily Residential setting	5475	mg/kg
SD(0-6)_mf	Soil dose for ages 0-6 in Multifamily Residential setting	12658.95954	mg/kg
SD(0-2)_mf	Soil dose for ages 0-2 in Multifamily Residential setting	64,035.09	mg/kg
SD(2-6)_mf	Soil dose for ages 2-6 in Multifamily Residential setting	25,317.92	mg/kg
SD(6-16)_mf	Soil dose for ages 6-16 in Multifamily Residential setting	22,955.97	mg/kg
SD(16-30)_mf	Soil dose for ages 16-30 in Multifamily Residential setting	3,421.88	mg/kg
AT	Averaging Time -Carcinogens	25,550	days
ATa_PRec	Averaging Time - Adult Non-carcinogen (passive recreationexposure)	8,760	days
ATa_res	Averaging Time - Adult Non-carcinogen (residential exposure)	8,760	days
ATc_PRec	Averaging Time - Child Non-carcinogen (passive recreation exposure)	2,190	days

PROPOSED

ATc_res	Averaging Time - Child Non-carcinogen (residential exposure)	2,190	days
ATsw_mf	Averaging Time Adult site worker non-carcinogen MultiFamily Residential Exposure Scenario	9,125	days
BW(0-2)	Body Weight - ages 0-2 years	11.4	kg
BW(0-6)	Body Weight - ages 0-6 years	17.3	kg
BW(16-30)	Body Weight - ages 16-30 years	80	kg
BW(2-6)	Body Weight - ages 2-6 years	17.3	kg
BW(6-16)	Body Weight - ages 6-16 years	47.7	kg
BWa	Body Weight - Adult	80	kg
CFsoil	Conversion Factor (kg/mg) for soil	0.000001	kg/mg
CSF	Cancer Slope Factor	chem specific	chem specific
CSF_{TCE-C}	Cancer Slope Factor for Trichloroethylene carcinogenic risks	chem specific	chem specific
CSF_{TCE-M}	Cancer Slope Factor for Trichloroethylene for mutagenic risks	chem specific	chem specific
ED(0-2)	Exposure Duration - ages 0-2 years	2	years
ED(0-6)	Exposure Duration - ages 0-6 years	6	years
ED(16-30)	Exposure Duration - ages 16-30 years	14	years
ED(2-6)	Exposure Duration - ages 2-6 years	4	years
ED(6-16)	Exposure Duration - ages 6-16 years	10	years
EDa	Exposure Duration - Adult	24	years
EDsw_mf	Exposure Duration site worker residential multifamily	25	years
EFres	Exposure Frequency Residential	365	days/year
EFsw_mf	Exposure Frequency site worker residential multifamily	250	days/year
HI	Hazard Index	1	unitless
TSDmf	Total Soil Dose for children and adults in a Multifamily Residential setting for eposures carcinogens	18,134.0	mg/kg
TSDMmf	Total Soil Dose for children and adults in a Multifamily Residential setting for exposures to mutagens	115,730.9	mg/kg
RfD	Reference Dose	chem specific	mg/kg/d
RL	Risk Level	0.000001	unitless
SIR(0-2)_mf	Soil Ingestion Rate - Residential Multifamily (ages 0 - 2 years)	100	mg/day

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SIR(0-6)_mf	Soil Ingestion Rate - (ages 0-6 years) Residential Multifamily	100	mg/day
SIR(16-30)_mf	Soil Ingestion Rate -Residential Multifamily (age 16-30)	50	mg/day
SIR(2-6)_mf	Soil Ingestion Rate - Residential Multifamily (ages 2-6 years)	100	mg/day
SIR(6-16)_mf	Soil Ingestion Rate - (ages 6-16 years)	60	mg/day
SIRa_mf	Soil Ingestion Rate - Adult Residential Multifamily	50	mg/day
SIRsw_mf	Soil Ingestion Rate - Site Worker Residential Multifamily	100	mg/day

(D) Passive Recreation Direct Exposure Criteria shall be calculated using the following equations:

(i) For non-carcinogenic substances:

$DEC_{C_PRec_NC}$ (mg/kg) = (RfD x HI x $BW_{(0-6)}$ x AT_{c_PRec}) / ($SIR_{(0-6)_PRec}$ x EF_{PRec} x $ED_{(0-6)}$ x CF_{soil})

(ii) For substances (except Trichloroethylene) that are carcinogenic, but not mutagenic:

DEC_{PRrec_Cnm} (mg/kg) = (RL x AT)/(CSF x CF_{soil} x TSD_{PRec})

Where:

TSD_{PRec} (mg/kg) = $SD_{0-6PRec}$ + SD_{aPRec}

$SD_{0-6PRec}$ (mg/kg) = ($SIR_{(0-6)_PRec}$ x $ED_{(0-6)}$ x EF_{PRec}) / $BW_{(0-6)}$

SD_{aPRec} (mg/kg) = (SIR_{aPRec} x ED_a x EF_{PRec}) / BW_a

(iii) For substances (except Trichloroethylene) that are carcinogenic and mutagenic:

DEC_{PRec_Cm} = (RL x AT) / (CSF x CF x $TSDM_{PRec}$)

Where:

$TSDM_{PRec}$ (mg/kg) = $SD_{0-2PRec}$ + $SD_{2-6PRec}$ + $SD_{6-16PRec}$ + $SD_{16-30PRec}$

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$SD_{0\text{-}2PRec}$ (mg/kg) = ($SIR_{(0\text{-}2)_PRec}$ x $ADAF_{(0\text{-}2)}$ x $ED_{(0\text{-}2)}$ x EF_{PRec}) / $BW_{(0\text{-}2)}$

$SD_{2\text{-}6PRec}$ (mg/kg) = ($SIR_{(2\text{-}6)_PRec}$ x $ADAF_{(2\text{-}6)}$ x $ED_{(2\text{-}6)}$ x EF_{PRec}) / $BW_{(2\text{-}6)}$

$SD_{6\text{-}16PRec}$ (mg/kg) = ($SIR_{(6\text{-}16)_PRec}$ x $ADAF_{(6\text{-}16)}$ x $ED_{(6\text{-}16)}$ x EF_{PRec}) / $BW_{(6\text{-}16)}$

$SD_{16\text{-}30PRec}$ (mg/kg) = ($SIR_{(16\text{-}30)_Prec}$ x $ADAF_{(16\text{-}30)}$ x $ED_{(16\text{-}30)}$ x EF_{PRec}) / $BW_{(16\text{-}30)}$

(iv) For Trichlorethylene

$DEC_{PRecTCE}$ = (RL x AT) / (($CSF_{TCE\text{-}M}$ x CF_{soil} x $TSDM_{PRec}$) + ($CSF_{TCE\text{-}C}$ x CF_{soil} x TSD_{PRec}))

Where:

$TSDM_{PRec}$ (mg/kg) = $SD_{0\text{-}2PRec}$ + $SD_{2\text{-}6PRec}$ + $SD_{6\text{-}16PRec}$ + $SD_{16\text{-}30PRec}$

$SD_{0\text{-}2PRec}$ (mg/kg) = ($SIR_{(0\text{-}2)_PRec}$ x $ADAF_{(0\text{-}2)}$ x $ED_{(0\text{-}2)}$ x EF_{PRec}) / $BW_{(0\text{-}2)}$

$SD_{2\text{-}6PRec}$ (mg/kg) = ($SIR_{(2\text{-}6)_PRec}$ x $ADAF_{(2\text{-}6)}$ x $ED_{(2\text{-}6)}$ x EF_{PRec}) / $BW_{(2\text{-}6)}$

$SD_{6\text{-}16PRec}$ (mg/kg) = ($SIR_{(6\text{-}16)_PRec}$ x $ADAF_{(6\text{-}16)}$ x $ED_{(6\text{-}16)}$ x EF_{PRec}) / $BW_{(6\text{-}16)}$

$SD_{16\text{-}30PRec}$ (mg/kg) = ($SIR_{(16\text{-}30)_Prec}$ x $ADAF_{(16\text{-}30)}$ x $ED_{(16\text{-}30)}$ x EF_{PRec}) / $BW_{(16\text{-}30)}$

TSD_{PRec} (mg/kg) = $SD_{0\text{-}6PRec}$ + SD_{aPRec}

$SD_{0\text{-}6PRec}$ (mg/kg) = ($SIR_{(0\text{-}6)_PRec}$ x $ED_{(0\text{-}6)}$ x EF_{PRec}) / $BW_{(0\text{-}6)}$

SD_{aPRec} (mg/kg) = (SIR_{aPRec} x ED_a x EF_{PRec}) / BW_a

(iv) The abbreviations in clauses (i) to (iv), inclusive, of this subparagraph shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Exposure Values for Soil Exposures - Passive Recreational			
Terms	Description	Value	Units
Criteria Types			
$DEC_{C_PRec_NC}$	Direct Exposure Criteria for Soil Exposures to Children aged 0-6 years in a Passive Recreation Setting (Non Cancer)	Chemical Specific	mg/kg
$DEC_{A_PRec_NC}$	Direct Exposure Criteria for Soil Exposures to Adult Residents in a Passive Recreation Setting (Non cancer)	Chemical Specific	mg/kg

PROPOSED

DEC_{PRec_Cnm}	Direct Exposure Criteria for Soil Exposures to Children and Adults in a Passive Recreation Setting (carcinogens)	Chemical Specific	mg/kg
DEC_{PRec_Cm}	Direct Exposure Criteria for Soil Exposures to Chidren and Adults in a Passive Recreation Setting (Mutagens)	Chemical Specific	mg/kg
$DECPRec_{_TCE}$	Direct Exposure Criteria for Soil Exposures to Children and Adults in a Passive Recreation Setting (Trichloroethylene)	Chemical Specific	mg/kg
Variables			
ADAF(0-2)	Age Dependent Adjustment Factor for mutagenic cancer risk - 0-2 years	10	unitless
ADAF(16-30)	Age Dependent Adjustment Factor for mutagenic cancer risk - ages 16-30 years	1	unitless
ADAF(2-6)	Age Dependent Adjustment Factor for mutagenic cancer risk - ages 2-6 years	3	unitless
ADAF(6-16)	Age Dependent Adjustment Factor for mutagenic cancer risk - ages 6-16 years	3	unitless
SDa_Prec	Soil dose for adult residents in Multifamily Residential setting	4680	mg/kg
SD(0-6)_PRec	Soil dose for ages 0-6 in Multifamily Residential setting	7213.872832	mg/kg
SD(0-2)_PRec	Soil dose for ages 0-2 in Multifamily Residential setting	36,491.23	mg/kg
SD(2-6)_PRec	Soil dose for ages 2-6 in Multifamily Residential setting	14,427.75	mg/kg
SD(6-16)_PRec	Soil dose for ages 6-16 in Multifamily Residential setting	13,081.76	mg/kg
SD(16-30)_PRec	Soil dose for ages 16-30 in Multifamily Residential setting	2,925.00	mg/kg
AT	Averaging Time -Carcinogens	25,550	days
ATa_PRec	Averaging Time - Adult Non-carcinogen (passive recreationexposure)	8,760	days
ATc_PRec	Averaging Time - Child Non-carcinogen (passive recreation exposure)	2,190	days
BW(0-2)	Body Weight - ages 0-2 years	11.4	kg
BW(0-6)	Body Weight - ages 0-6 years	17.3	kg
BW(16-30)	Body Weight - ages 16-30 years	80	kg
BW(2-6)	Body Weight - ages 2-6 years	17.3	kg
BW(6-16)	Body Weight - ages 6-16 years	47.7	kg

PROPOSED

BWa	Body Weight - Adult	80	kg
CFsoil	Conversion Factor (kg/mg) for soil	0.000001	kg/mg
CSF	Cancer Slope Factor	chem specific	chem specific
CSF_{TCE-C}	Cancer Slope Fator for Trichloroethylene non- mutagenic risks	chem specific	chem specific
CSF_{TCE-M}	Cancer Slope Fator for Trichloroethylene for mutagenic risks	chem specific	chem specific
ED(0-2)	Exposure Duration - ages 0-2 years	2	years
ED(0-6)	Exposure Duration - ages 0-6 years	6	years
ED(16-30)	Exposure Duration - ages 16-30 years	14	years
ED(2-6)	Exposure Duration - ages 2-6 years	4	years
ED(6-16)	Exposure Duration - ages 6-16 years	10	years
EDa	Exposure Duration - Adult	24	years
EF_PRec	Exposure Frequency Recreation	208	days/year
HI	Hazard Index	1	unitless
TSDMPRec	Total Soil Dose for children and adults in a Passive Recreation setting for exposures to mutagens	66,925.7	mg/kg
$_{TSDPRec}$	Total Soil Dose for children and adults in a Passive Recreation setting for exposures to Carcinogens	11,893.9	mg/kg
RfD	Reference Dose	chem specific	mg/kg/d
RL	Risk Level	0.000001	unitless
$SIR_{(0-2)_PRec}$	Soil Ingestion Rate - Passive Recreation ages 0-2 years	100	mg/day
$SIR_{(0-6)_PRec}$	Soil Ingestion Rate - Passive Recreation ages 0-6 years	100	mg/day
$SIR_{(16-30)_PRec}$	Soil Ingestion Rate - Passive Recreation ages 16-30 years	75	mg/day
$SIR_{(2-6)_PRec}$	Soil Ingestion Rate - Passive Recreation ages 2-6 years	100	mg/day
SIR_{a_PRec}	Soil Ingestion Rate - Passive Recreation Adult	75	mg/day
$SIRc_{(6-16)_PRec}$	Soil Ingestion Rate - Passive Recreation Ages 6-16 years	60	mg/day

(2) Pollutant Mobility Criteria

PROPOSED

(A) Pollutant Mobility Criteria for inorganic substances shall be calculated using the following equations:

(i) For GA area groundwater classification:

$$\mathrm{PMC}_{\mathrm{mg/L}} = \mathrm{GWPC} \times \mathrm{CF}$$

(ii) For GB area groundwater classification:

$$\mathrm{PMC}_{\mathrm{mg/L}} = \mathrm{GWPC} \times \mathrm{CF} \times \mathrm{DF}$$

(B) Pollutant Mobility Criteria for organic substance shall be calculated using the following equations:

(i) For GA area groundwater classification:

$$\mathrm{PMC}_{\mathrm{mg/kg}} = \mathrm{GWPC} \times \mathrm{CF} \times \mathrm{AAF}$$

(ii) For GB area groundwater classification:

$$\mathrm{PMC}_{\mathrm{mg/kg}} = \mathrm{GWPC} \times \mathrm{CF} \times \mathrm{AAF} \times \mathrm{DF}$$

(C) The abbreviations in subparagraphs (A) and (B) of this subdivision shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
AAF	Analytical Adjustment Factors	20	unitless
CF	Conversion Factor	0.001	mg/µg
DF	Dilution Factor	10	unitless
GWPC	Groundwater Protection Criteria	substance-specific	µg/L

PROPOSED

PMC	Pollutant Mobility Criteria	calculated	mg/kg or mg/L

(3) Groundwater Protection Criteria

(A) Groundwater Protection Criteria shall be calculated for carcinogenic substances using the following equation:

$$\mathrm{GWPC} = \left(\frac{\mathrm{RL}}{\mathrm{CSF}}\right) \times \left(\frac{\mathrm{BW} \times \mathrm{AT}}{\mathrm{IR} \times \mathrm{EF} \times \mathrm{ED} \times \mathrm{CF}}\right)$$

(B) Groundwater Protection Criteria shall be calculated for non-carcinogenic substances using the following equation:

$$\mathrm{GWPC} = \frac{\mathrm{RfD} \times \mathrm{HI} \times \mathrm{BW} \times \mathrm{AT} \times \mathrm{SA}}{\mathrm{IR} \times \mathrm{EF} \times \mathrm{ED} \times \mathrm{CF}}$$

(C) The abbreviations in subparagraphs (A) and (B) of this subdivision shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

PROPOSED

Terms	Description	Value	Units
AT	Averaging Time	25,550	days
BW	Body Weight	70	kg
CSF	Cancer Slope Factor	substance-specific	$(mg/kg\text{-}day)^{-1}$
CF	Conversion Factor	0.001	mg/µg
ED	Exposure Duration	70	years
EF	Exposure Frequency	365	days/year
GWPC	Risk-based Groundwater Protection Criterion	calculated	µg/L
HI	Hazard Index	1.0	unitless
IR	Ingestion Rate	2	L/day
RfD	Reference Dose	substance-specific	mg/kg-day
RL	Target Cancer Risk Level	1.0E-06	unitless
SA	Source Allocation	0.2	unitless

(D) If the Groundwater Protection Criteria calculated pursuant to subparagraph (A) or (B) of this subdivision exceeds the following ceiling values, the ceiling value shall be used in lieu of the calculated value:

Volatile Substances	Semi-volatile Substances	Pesticides, PCBs, and ETPH	Inorganic Substances	Units
1,000	1,000	1,000	50,000	µg/L

(E) The groundwater protection criteria may be adjusted up to the laboratory reporting limit if the commissioner determines that the calculated risk-based groundwater protection criteria is less than the laboratory reporting limit for such substance.

(F) The groundwater protection criteria may be adjusted down to the organoleptic threshold if the commissioner determines that the calculated risk-based groundwater protection criteria is higher than the organoleptic threshold for such substance.

PROPOSED

(4) Surface Water Protection Criteria

(A) Determining Water Quality Criteria

For substances that have no water quality criteria in the water quality standards, such criteria shall be determined using EPA's national recommended water quality criteria and, if no such criteria are available, then by using the following:

(i) Determining the Water Quality Criteria for Chronic Aquatic Life

(I) In accordance with title 40 CFR 132 Appendix A (Great Lakes Water Quality Initiative Methodologies for Development of Aquatic Life Criteria and Values);

(II) Using the Tier 1 protocols for calculating a Criterion Continuous Concentration; or

(III) If insufficient information is available to use the Tier 1 Criterion Continuous Concentration procedure, using the Tier 2 protocols for calculating a Secondary Continuous Concentration.

(ii) Calculating the Water Quality Criteria for Human Health for Fish Consumption:

(I) For carcinogenic substances:

$$\mathrm{WQC} = \frac{\mathrm{RL} \times \mathrm{BW} \times \mathrm{CF}}{\mathrm{CSF} \times \mathrm{FC} \times \mathrm{BAF}}$$

(II) For non-carcinogenic substances:

$$\mathrm{WQC} = \frac{\mathrm{RfD} \times \mathrm{BW} \times \mathrm{CF} \text{ x } \mathrm{RSC}}{\mathrm{FC} \times \mathrm{BAF}}$$

PROPOSED

(III) The abbreviations in subclauses (I) and (II) of this clause shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
BAF	Bioaccumulation Factor	substance-specific	unitless
BW	Body Weight	70	kg
CF	Conversion Factor	1,000	µg/mg
CSF	Cancer Slope Factor	substance-specific	$(mg/kg\text{-}day)^{-1}$
FC	Fish Consumption Rate	0.0175	kg/d
RfD	Reference Dose	substance-specific	mg/kg-day
RL	Risk Level	1.00E-06	unitless
WQC	Water Quality Criteria	calculated	µg/L
RSC	Relative Source Contribution	0.2	unitless

(B) Calculating the Surface Water Protection Criteria

The risk-based surface water protection criteria shall be calculated, for the lower of aquatic life or human health water quality criteria:

(i) Water quality criteria for freshwater chronic aquatic life protection as determined using subparagraph (A) of this subdivision, multiplied by ten (10); or

(ii) Water quality criteria for human health for fish consumption calculated using subparagraph (A) of this subdivision, multiplied by the applicable flow factor multiplied by ten (10), using the following values:

Flow Factor	Substance Risk Level
1	For known human carcinogens or substances which may bioaccumulate BCF>100
2	For non-carcinogenic substances
3	For carcinogenic substances

(C) If the Surface Water Protection Criteria calculated pursuant to subparagraph (B) of this subdivision exceeds the following ceiling values, the ceiling value shall be used in lieu of the calculated value:

PROPOSED

Volatile Substances	Semi-volatile Substances	Pesticides, PCBs and ETPH	Inorganic Substances	Units
10,000	10,000	10,000	10,000	µg/L

(D) The surface water protection criteria may be adjusted up to the laboratory reporting limit if the commissioner determines that the calculated risk-based surface water protection criteria is less than the laboratory reporting limit for such substance.

(5) Volatilization Criteria

(A) Residential Target Indoor Air Concentrations shall be calculated using the following equations:

(i) For carcinogenic substances:

$$\mathrm{TAC} = \frac{\mathrm{RL} \times \mathrm{BW} \times \mathrm{AT_c} \times \mathrm{CF}}{\mathrm{CSF_i} \times \mathrm{CexpF} \times \mathrm{CsensF} \times \mathrm{IR_{air}} \times \mathrm{EF} \times \mathrm{ED}}$$

(ii) For non-carcinogenic substances:

$$\mathrm{TAC} = \frac{\mathrm{HQ} \times \mathrm{BW} \times \mathrm{RfD_i} \times \mathrm{AT} \times \mathrm{CF}}{\mathrm{CexpF} \times \mathrm{IR_{air}} \times \mathrm{EF} \times \mathrm{ED}}$$

(iii) The abbreviations in this subparagraph shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
AT	Averaging Time – non-carcinogen	10,950	days
AT_c	Averaging Time – carcinogen	25,550	days
BW	Body Weight	70	kg
CexpF	Children's Exposure Factor	2	unitless
CF	Conversion Factor	1,000	µg/mg
CsensF	Children's Sensitivity Factor	substance-specific	unitless

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Terms	Description	Value	Units
	CsensF = 1 for non-carcinogens and non-mutagenic carcinogens. CsensF = 2 for mutagenic carcinogens		
CSF_i	Cancer Slope Factor – Inhalation	substance-specific	$(mg/kg\text{-}day)^{-1}$
ED	Exposure Duration	30	years
EF	Exposure Frequency	350	days/year
HQ	Hazard Quotient	1	unitless
IR_{air}	Inhalation Rate – air	20	m^3/day
RfD_i	Reference Dose – inhalation	substance-specific	mg/kg-day
RL	Risk Level	1.00E-06	unitless
TAC	Target Indoor Air Concentration	calculated	$\mu g/m^3$

(iv) If the residential Target Indoor Air Concentration calculated pursuant to clause (i) or (ii) of this subparagraph exceeds a ceiling value of 500 $\mu g/m^3$, the ceiling value shall be used in lieu of the calculated value.

(B) Industrial/Commercial Target Indoor Air Concentrations shall be calculated using the following equations:

(i) For carcinogenic substances:

$$TAC = \frac{RL \times BW \times AT_c \times CF}{CSF_i \times IR_{air} \times EF \times ED}$$

(ii) For non-carcinogenic substances:

$$TAC = \frac{HQ \times BW \times RfD_i \times AT \times CF}{IR_{air} \times EF \times ED}$$

PROPOSED

(iii) The abbreviations used in this subparagraph shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
AT	Averaging Time – non-carcinogen	9,125	days
AT_c	Averaging Time – carcinogen	25,550	days
BW	Body Weight	70	kg
CF	Conversion Factor	1,000	µg/mg
CSF_i	Cancer Slope Factor – inhalation	substance-specific	$(mg/kg\text{-}day)^{-1}$
ED	Exposure Duration	25	years
EF	Exposure Frequency	250	days/year
HQ	Hazard Quotient	1	unitless
IR_{air}	Inhalation Rate – air	10	m^3/day
RfD_i	Reference Dose – inhalation	substance-specific	mg/kg-day
RL	Risk Level	1.00E-06	unitless
TAC	Target Indoor Air Concentration	substance-specific	$\mu g/m^3$

(iv) If the industrial/commercial Target Indoor Air Concentration calculated pursuant to clause (i) or (ii) of this subparagraph exceeds a ceiling value of 500 $\mu g/m^3$, the ceiling value shall be used in lieu of the calculated value.

(C) Volatilization Criteria shall be calculated using the following equations:

(i) For Volatilization Criteria for Groundwater:

$$GWVC = \frac{TAC}{CF \times \alpha \times H}$$

(ii) If the groundwater volatilization criteria calculated pursuant to (i) this subparagraph exceeds a ceiling value of 50,000 µg/L, the ceiling value shall be used in lieu of the calculated value.

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(iii) For Volatilization Criteria for Soil Vapor:

$$SVVC_{mg/m^3} = \frac{TAC}{CF \times \alpha}$$

$$SVVC_{ppmv} = SVVC_{mg/m^3} \times \left(\frac{MV}{MW}\right)$$

(iv) The attenuation factor for diffusion and advection (α) shall be calculated using the following equations:

$$\alpha = \frac{A \times e^{B}}{e^{B} + A + (A/C) \times (e^{B} - 1)}$$

$$A = \frac{D^{eff}{}_{T} \times A_B}{Q_B \times L_T} \quad \textbf{or} \quad A = \frac{D^{eff}{}_{T}}{E_B \times (V_B/A_B) \times L_T}$$

$$B = \frac{Q_{soil} \times L_{crack}}{D^{eff}{}_{crack} \times \eta \times A_B} \quad \textbf{or} \quad B = \left(\left(\frac{Q_{soil}}{Q_B}\right) \times E_B \times \left(\frac{V_B}{A_B}\right) \times L_{crack}\right) / \left(D^{eff}{}_{crack} \times \eta\right)$$

$$C = \frac{Q_{soil}}{Q_B}$$

$$D^{eff}{}_{T} = \frac{L_T}{\left(L_{vadose}/D^{eff}{}_{vadose}\right) + \left(L_{cap}/D^{eff}{}_{cap}\right)}$$

$$D^{eff}{}_{crack} = D^{air} \times \left(\frac{\theta_{V-crack}{}^{3.33}}{\theta_{T-crack}{}^{2}}\right) + \left(\frac{D^{water}}{H}\right) \times \left(\frac{\theta_{m-crack}{}^{3.33}}{\theta_{T-crack}{}^{2}}\right)$$

$$D^{eff}{}_{vadose} = D^{air} \times \left(\frac{\theta_{V-vadose}{}^{3.33}}{\theta_{T-vadose}{}^{2}}\right) + \left(\frac{D^{water}}{H}\right) \times \left(\frac{\theta_{m-vadose}{}^{3.33}}{\theta_{T-vadose}{}^{2}}\right)$$

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$$D^{eff}{}_{cap} = D^{air} \times \left(\frac{\theta_{V-cap}{}^{3.33}}{\theta_{T-cap}{}^{2}}\right) + \left(\frac{D^{water}}{H}\right) \times \left(\frac{\theta_{m-cap}{}^{3.33}}{\theta_{T-cap}{}^{2}}\right)$$

(v) The abbreviations used in this subparagraph shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
α	Attenuation Factor for Diffusion and Advection	calculated	unitless
A_B	Surface Area of the Enclosed Space in Contact with Soil	site-specific	m^2
CF	Conversion Factor	1,000	L/m^3 or µg/mg
D^{air}	Molecular Diffusion Coefficient in Air	substance-specific	m^2/d
$D^{eff}{}_T$	Total Effective Diffusion	calculated	m^2/d
$D^{eff}{}_{crack}$	Effective Diffusion Through Foundation Cracks	calculated	m^2/d
$D^{eff}{}_{cap}$	Effective Diffusion Through Capillary Fringe	calculated	m^2/d
$D^{eff}{}_{vadose}$	Effective Diffusion Through Vadose Zone	calculated	m^2/d
D^{water}	Molecular Diffusion Coefficient in Water	substance-specific	m^2/d
D^{water}/D^{air}	Ratio of Molecular Diffusion in Water to Air = D^{water}/D^{air}	calculated	unitless
E_B	Enclosed Space Air Exchange Rate	site-specific	1/day
GWVC	Groundwater Volatilization Criteria	calculated	µg/L
H	Henry's Law Constant	substance-specific	unitless
k	Soil Vapor Permeability	site-specific	cm^2
L_T	Depth from foundation to source	site-specific	m
L_{cap}	Thickness of Capillary Fringe	site-specific	m
L_{crack}	Foundation Thickness	site-specific	m
L_{vadose}	Thickness of Vadose Zone = $L_T - L_{cap}$	calculated	m
MV	Molar Volume (at standard conditions)	24.45	L

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Terms	Description	Value	Units
MW	Molecular Weight	substance-specific	g/mol
η	Fraction of Enclosed Space Area Open for Vapor Intrusion	site-specific	m^2/m^2
$\theta_{m\text{-}cap}$	Volumetric Moisture Content in Cracks in Capillary Fringe	site-specific	unitless
$\theta_{T\text{-}cap}$	Total Porosity in Capillary Fringe	site-specific	unitless
$\theta_{V\text{-}cap}$	Volumetric Vapor Constant in Capillary Fringe	calculated	unitless
$\theta_{m\text{-}crack}$	Volumetric Moisture Content in Cracks	site-specific	unitless
$\theta_{T\text{-}crack}$	Total Porosity in Crack	site-specific	unitless
$\theta_{V\text{-}crack}$	Volumetric Vapor Content in Cracks	calculated	unitless
$\theta_{m\text{-}vadose}$	Volumetric Moisture Content in Vadose Zone	site-specific	unitless
$\theta_{T\text{-}vadose}$	Total Porosity in Vadose Zone	site-specific	unitless
$\theta_{V\text{-}vadose}$	Volumetric Vapor Content in Vadose Zone	calculated	unitless
ΔP	Indoor-Outdoor Air Pressure Difference	site-specific	g/ms^2
Q_B	Enclosed Space Volumetric Air Flow Rate	site-specific	m^3/d
Q_{soil}	Pressure Driven Soil Gas Flow Rate from the subsurface into the enclosed space	site-specific	m^3/d
Q_{soil}/Q_B	Ratio of Soil Gas Intrusion Rate to Building Ventilation Rate = Q_{soil}/Q_B	calculated	unitless
R_{crack}	Effective Crack Radius or Width = $\eta A_B/X_{crack}$	calculated	m
SVVC	Soil Vapor Volatilization Criteria	calculated	mg/m^3
TAC	Target Indoor Air Concentration calculated using subparagraph (A) or (B), as applicable	substance-specific	$\mu g/m^3$
μ	Viscosity of Air	calculated	g/ms
VB	Enclosed Space Volume	site-specific	m^3
V_B/V_A	Ratio of Enclosed Space Volume to Exposed Surface Area = V_B/V_A	calculated	m
X_{crack}	Total Length of Cracks through which Soil Gas Vapors are Flowing	calculated	m
Z_{crack}	Crack Opening Depth Below Grade	calculated	m

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(NEW) **Sec. 22a-134tt-App9. Appendix 9**

Appendix 9 to the RBCRs

Equations, Terms, and Values for Calculating Release-Specific Alternative Pollutant Mobility Criteria

(1) Release-Specific Pollutant Mobility Criteria shall be calculated using the following equation:

$$\text{Alt PMC} = \text{GWC} \times \text{DF}\left(K_d + \frac{(\theta_w + \theta_a H')}{\rho_b}\right)$$

(2) The abbreviations in subdivision (1) of this Appendix, shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
Alt PMC	Alternative Pollutant Mobility Criteria	calculated	mg/kg
GWC	Groundwater Criteria Goal	substance-specific (lowest of groundwater criteria applicable to release area*)	mg/L
DF	Dilution Factor	20 or calculated in accordance with section 22a-134tt-9(c)(3)(B)(iv) of the RSRs with $F_{adj} = 0$	unitless
K_d	Distribution Coefficient (for organic contaminants may be approximated by: $K_{oc}*f_{oc}$)	substance-specific (see table below for inorganic substances)	L/kg
K_{oc}	Organic Carbon Partition Coefficient	substance-specific (see table below for organic substances)	L/kg
f_{oc}	Soil Fraction of Organic Carbon	0.001 or tested for site-specific value (max value = 0.006)	kg/kg
θ_w	Water-filled Soil Porosity	0.28 or tested for site-specific value	L_{water}/L_{soil}
θ_a	Air-filled Soil Porosity	0.15 or tested for site-specific value	L_{air}/L_{soil}
H'	Henry's Law Constant	substance-specific (see tables below)	unitless
ρ_b	Dry Soil Bulk Density	1.5 or tested for site-specific value	kg/L

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* *The "lowest of groundwater criteria applicable to release area" is intended to be the criteria in Appendices C, D, and E.*

Soil Organic Carbon-Water Partition Coefficient (K_{oc}) and Henry's Law Constant (H') Values for Organic Substances

Substance	K_{oc} (L/kg)	H' (Dimensionless)
Acenaphthylene	6,800	4.51E-03
Acetone	0.575	1.75E-03
Acrylonitrile	2	4.10E-03
Alachlor	310	4.30E-07
Aldicarb	24.6	5.89E-08
Anthracene	23,500	2.67E-03
Atrazine	360	1.21E-07
Benzene	62	2.26E-01
Benzo(*a*)anthracene	358,000	1.37E-04
Benzo(*a*)pyrene	969,000	4.63E-05
Benzo(*b*)fluoranthene	1,230,000	4.55E-03
Benzo(*k*)fluoranthene	1,230,000	3.40E-05
Bis(2-chloroethyl)ether	76	7.38E-04
Bis(2-chloroisopropyl)ether	360	3.03E-03
Bis(2-ethylhexyl)phthalate	111,000	4.18E-06
Bromoform	126	2.18E-02
2-Butanone (MEK)	10	1.12E-03
Butyl benzyl phthalate	13,700	5.17E-05
Carbon tetrachloride	152	1.20E+00
Chlordane	51,300	1.99E-03

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Substance	K_{oc} (L/kg)	H' (Dimensionless)
Chlorobenzene	224	1.61E-01
Chloroform	53	1.39E-01
2-Chlorophenol	398	1.60E-02
Dibromochloromethane (Chlorodibromomethane)	63.1	3.21E-02
1,2-Dichlorobenzene (*o*)	379	7.95E-02
1,3-Dichlorobenzene (*m*)	700	1.08E-01
1,4-Dichlorobenzene (*p*)	616	1.12E-01
1,1-Dichloroethane	53	2.23E-01
1,2-Dichloroethane	38	4.51E-02
1,1-Dichloroethylene	65	6.11E-01
cis-1,2-Dichloroethylene	35.5	1.70E-01
trans-1,2-Dichloroethylene	38	3.80E-01
2,4-Dichlorophenol	159	1.30E-04
2,4-Dichlorophenoxyacetic acid (2,4-D)	29.6	1.45E-06
1,2-Dichloropropane	47	1.16E-01
1,3-Dichloropropene	27	1.44E-01
Dieldrin	25,500	6.19E-04
Di-*n*-butyl phthalate	1,570	3.85E-08
Di-*n*-octyl phthalate	140,000	2.74E-03
Ethylbenzene	204	1.41E-01
Ethylene dibromide (EDB)	66	2.76E-02
Fluoranthene	49,100	6.60E-04
Fluorene	7,710	2.61E-03
Heptachlor	9,530	4.47E-02
Heptachlor epoxide	83,200	3.90E-04

PROPOSED

Substance	K_{oc} (L/kg)	H' (Dimensionless)
Hexachlorobenzene	80,000	5.41E-02
□-HCH (Lindane)	1,350	5.74E-04
Hexachloroethane	1,780	1.59E-01
Methoxychlor	80,000	6.48E-04
Methyl isobutyl ketone	65	5.33E-03
Methyl-tert-butyl-ether (MTBE)	34	2.42E-02
Methylene chloride	10	1.31E-01
Naphthalene	1,190	1.98E-02
Pentachlorobenzene	32,100	2.87E-02
Pentachlorophenol	7,960	1.00E-06
Phenanthrene	21,200	9.43E-04
Phenol	28.8	1.63E-05
Pyrene	68,000	4.51E-04
Simazine	147	3.85E-08
Styrene	912	1.07E-01
1,1,1,2-Tetrachloroethane	86	4.51E-01
1,1,2,2-Tetrachloroethane	79	1.56E-02
Tetrachloroethylene	265	8.36E-02
Toluene	140	2.74E-01
Toxaphene	95,800	2.46E-04
1,1,1-Trichloroethane	135	9.47E-01
1,1,2-Trichloroethane	75	3.73E-02
Trichloroethylene	94	3.74E-01
Vinyl chloride	18.6	1.14E+00
Xylenes	1,700	2.16E-01

PROPOSED

Distribution Coefficient (K_d) and Henry's Law Constant (H') Values for Inorganic Substances

Substance	K_d (L/kg)	H' (Dimensionless)
Antimony	45	-
Arsenic	25	-
Barium	12	-
Beryllium	26	-
Cadmium	17	-
Chromium (hexavalent or total)	31	-
Chromium (trivalent only)	1,900	-
Copper	35	-
Cyanide	9.9	-
Lead	900	-
Mercury	0.06	4.67E-01
Nickel	18	-
Silver	0.13	-
Selenium	17	-
Thallium	45	-
Vanadium	1,000	-
Zinc	18	-

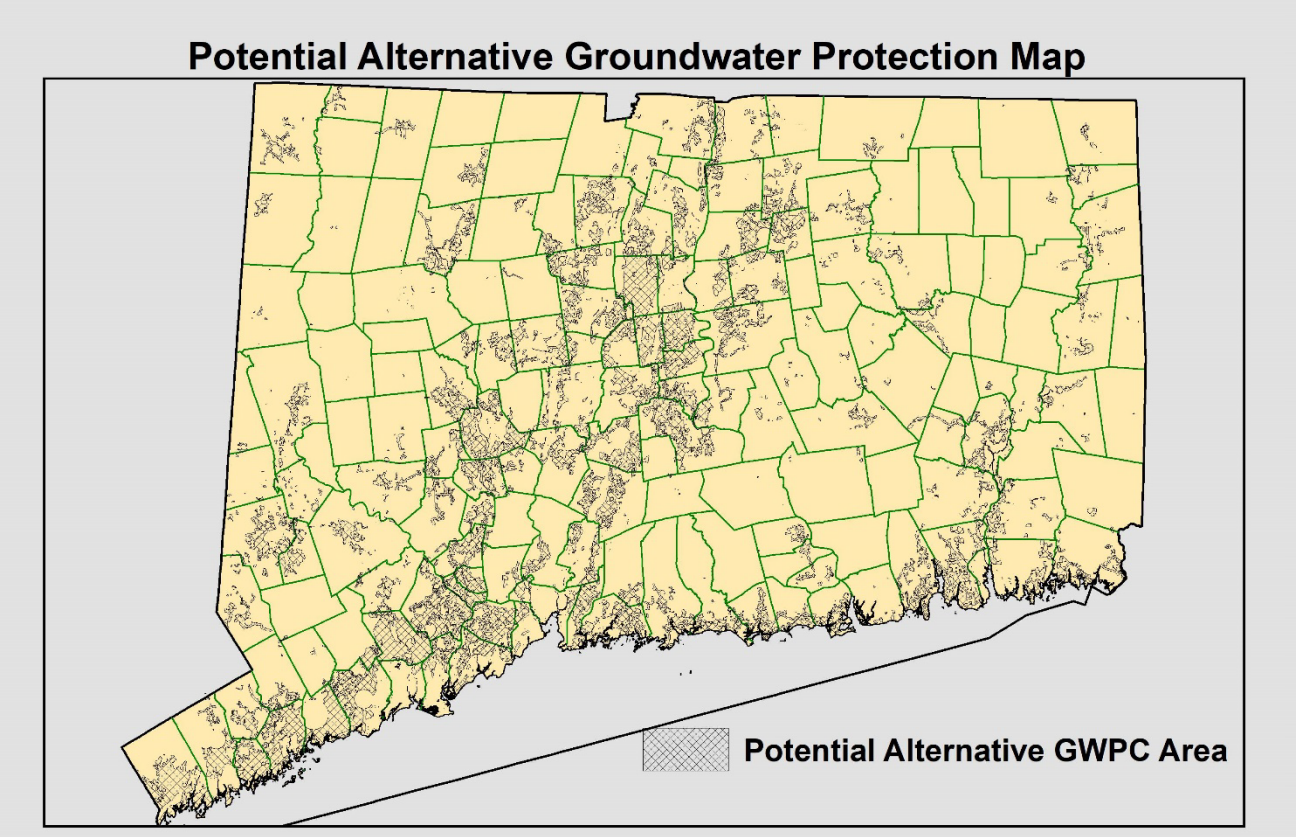
PROPOSED

PROPOSED

(NEW) **Sec. 22a-134tt-App10. Appendix 10**

Appendix 10 of the RBCRs

Potential Alternative Groundwater Protection Criteria Map, dated December 22, 2020



The map in this Appendix is for use in accordance with section22a-134tt-10(d)(2) of the RBCRs. The department shall make this map, titled "Potential Alternative Groundwater Protection Criteria Map" dated December 22, 2020, as provided in this Appendix, available on the department's Internet website and shall also make such map available during regular business hours at the Department of Energy and Environmental Protection, Division of Water Protection and Land Reuse, 79 Elm Street, 2nd floor, Hartford, Connecticut.

If a reader is viewing said map in hard copy or on the DEEP website, any such area shaded in the color or using a similar designation is an area where a potential alternative groundwater protection area has been identified. If a reader is viewing such map on the eRegs system, any area shaded in a cross-hatched pattern is an area where a potential alternative groundwater protection area has been identified.

(NEW) **Sec. 22a-134tt-App11. Appendix 11**

Appendix 11 to the RBCRs

Managed Multifamily Residential Direct Exposure Criteria for Soil

Substance	**Multifamily DEC (mg/kg)**
Acenaphthylene	1,000
Acetone	500
Acrylonitrile	0.41
Alachlor	87
Aldicarb	173
Anthracene	1,000
Antimony	35
Arsenic	10
Atrazine	52
Barium	34,600
Benzene	4
Benzo(a)anthracene	2.2
Benzo(a)pyrene	0.22
Benzo(b)fluoranthene	2.2
Benzo(k)fluoranthene	22
Beryllium	35
Bis(2-chloroethyl)ether	1.3
Oxybis, 2,2'- (1-chloropropane) (Bis(2-Chloroisopropyl)ether)	1,000
Bis(2-ethyl hexyl)phthalate	17
Bromoform	28
Butanone, 2-	500
Butyl benzyl phthalate	1,000
Cadmium	17
Carbon tetrachloride	20
Chlordane	4
Chlorobenzene	500
Chloroform	500
Chlorophenol, 2-	865
Chromium, hexavalent	.44
Chromium, trivalent	50,000
Copper	519
Cyanide	109

PROPOSED

D, 2,4-	173
Substance	**Multifamily DEC (MG/KG)**
Dibromochloromethane	2.6
Dichlorobenzene, 1,2-	500
Dichlorobenzene, 1,3-	346
Dichlorobenzene, 1,4-	261
Dichloroethane, 1,1-	500
Dichloroethane, 1,2-	2.4
Dichloroethylene, 1,1-	500
Dichloroethylene, cis-1,2-	346
Dichloroethylene, trans-1,2-	500
Dichlorophenol, 2,4-	519
Dichloropropane, 1,2-	39
Dichloropropene, 1,3-	2.2
Dieldrin	0.09
Di-n-butyl phthalate	260
Di-n-octyl phthalate	1,000
Endrin	52
Ethylbenzene	128
Ethylene dibromide	0.11
Fluoranthene	1,000
Fluorene	1,000
Heptachlor epoxide	.15
Heptachlor	.31
Hexachlorobenzene	0.88
Hexachloroethane	35
Lead	400
Lindane	1.3
Mercury - inorganic	52
Methoxychlor	346
Methyl isobutyl ketone	500
Methyl tert butyl ether	500
Methylene chloride	110
Naphthalene	1,000
Nickel	346
Pentachlorophenol	0.55
Phenanthrene	1,000
Phenol	1000

PROPOSED

Polychlorinated biphenyls (PCBs)	0.71
Substance	**Multifamily DEC(mg/kg)**
Pyrene	1,000
Selenium	865
Silver	865
Simazine	500
Styrene	500
Tetrachloroethane, 1,1,1,2-	8.5
Tetrachloroethane, 1,1,2,2-	1.1
Tetrachloroethylene	500
Thallium	1.7
Toluene	346
Toxaphene	0.20
Trichloroethane, 1,1,1-	500
Trichloroethane, 1,1,2-	24.7
Trichloroethylene	14.6
Vanadium	156
Vinyl chloride	0.31
Xylenes	500
Zinc	50,000
Extractable TPH by ETPH Analysis	500

PROPOSED

(NEW) **Sec. 22a-134tt-App12. Appendix 12**

Appendix 12 to the RBCRs

Passive Recreation Direct Exposure Criteria for Soil

Substance	**Passive Rec DEC (mg/kg)**
Acenaphthylene	1,000
Acetone	500
Acrylonitrile	0.70
Alachlor	152
Aldicarb	304
Anthracene	1,000
Antimony	61
Arsenic	10
Atrazine	91
Barium	50,000
Benzene	7
Benzo(a)anthracene	3.8
Benzo(a)pyrene	0.38
Benzo(b)fluoranthene	3.8
Benzo(k)fluoranthene	38
Beryllium	61
Bis(2-chloroethyl)ether	2
Oxybis, 2,2'- (1-chloropropane) (Bis(2-Chloroisopropyl)ether)	1,000
Bis(2-ethyl hexyl)phthalate	30
Bromoform	48
Butanone, 2-	500
Butyl benzyl phthalate	1,000
Cadmium	30
Carbon tetrachloride	31
Chlordane	6
Chlorobenzene	500
Chloroform	500
Chlorophenol, 2-	1,000
Chromium, hexavalent	.76
Chromium, trivalent	50,000
Copper	911
Cyanide	191

PROPOSED

D, 2,4-	304
Substance	**Passive Rec DEC (mg/kg)**
Dibromochloromethane	4.5
Dichlorobenzene, 1,2-	500
Dichlorobenzene, 1,3-	500
Dichlorobenzene, 1,4-	398
Dichloroethane, 1,1-	500
Dichloroethane, 1,2-	4.2
Dichloroethylene, 1,1-	500
Dichloroethylene, cis-1,2-	500
Dichloroethylene, trans-1,2-	500
Dichlorophenol, 2,4-	911
Dichloropropane, 1,2-	60
Dichloropropene, 1,3-	3.8
Dieldrin	0.13
Di-n-butyl phthalate	455
Di-n-octyl phthalate	1,000
Endrin	91
Ethylbenzene	195
Ethylene dibromide	0.19
Fluoranthene	1,000
Fluorene	1,000
Heptachlor epoxide	0.48
Heptachlor	0.24
Hexachlorobenzene	1.34
Hexachloroethane	54
Lead	400
Lindane	2.0
Mercury - inorganic	91
Methoxychlor	500
Methyl isobutyl ketone	500
Methyl tert butyl ether	500
Methylene chloride	190
Naphthalene	1,000
Nickel	607
Pentachlorophenol	0.95
Phenanthrene	1,000
Phenol	1000

PROPOSED

Polychlorinated biphenyls (PCBs)	1.1
Substance	**Passive Rec DEC (mg/kg)**
Pyrene	1,000
Selenium	1,518
Silver	1,518
Simazine	500
Styrene	500
Tetrachloroethane, 1,1,1,2-	14.6
Tetrachloroethane, 1,1,2,2-	1.9
Tetrachloroethylene	500
Thallium	3.0
Toluene	500
Toxaphene	0.35
Trichloroethane, 1,1,1-	500
Trichloroethane, 1,1,2-	37.7
Trichloroethylene	24
Vanadium	273
Vinyl chloride	0.53
Xylenes	500
Zinc	50,000
Extractable TPH by ETPH Analysis	500

Sec. 2. Sections 22a-133k-1 to 22a-133k-3, inclusive, of the Regulations of Connecticut State Agencies are amended to read as follows:

Sec. 22a-133k-1. **General Provisions**

[(a) **Definitions**

For the purposes of the RSRs, the following terms have the following meanings:

(1) "Application of pesticides" means the spraying, spreading, injection, placement, or other use of pesticides at a parcel for the pesticide's intended purpose, but does not include other releases of pesticides such as those from the handling, mixing, storing, spilling, leaking or disposing of pesticides, or releases of pesticides from equipment cleaning or repair.

(2) "Aquifer protection area" has the same meaning as provided in section 22a-354h of the Connecticut General Statutes.

(3) "Area of influence" has the same meaning as provided in section 22a-354b-1(a) of the Regulations of Connecticut State Agencies.

(4) "Areal extent of a groundwater plume" means the surface area beneath which groundwater is polluted by a release and in which one or more substances from such release or mobilized by such release is present at a concentration above the laboratory reporting limit.

PROPOSED

(5) "Background concentration" means the concentration of a substance in soil or groundwater that, based on a validated conceptual site model, is:

(A) In the general geographic vicinity of a release; and

(B) Either:

(i) Naturally occurring; or

(ii) Minimally affected by human influences at concentrations equal to or less than criteria specified in the RSRs.

(6) "Carcinogenic substance" means a substance defined as a "carcinogen" by federal or state agencies and for which a quantitative health risk extrapolation is available.

(7) "CFR" means the Code of Federal Regulations.

(8) "Commissioner" means the Commissioner of Energy and Environmental Protection or the commissioner's designee.

(9) "Conceptual site model" means a representation in three dimensions of environmental conditions at a release area that is developed through a multi-phased investigative approach which validates such representation with information about, including, but not limited to, a substance's release, fate and transport, and pathway to human and environmental receptors.

(10) "Demarcation layer" means a brightly-colored, tear-resistant, environmentally-stable marker layer installed at an appropriate depth, suitable to indicate the presence of polluted soil beneath such layer.

(11) "Department" means the Department of Energy and Environmental Protection.

(12) "Dilution factor" means the ratio by which the concentration of a substance dissolving into soil water is reduced by dilution with groundwater or surface water, as applicable.

(13) "Dilution and attenuation factor" or "Dilution attenuation factor" means the ratio by which the concentration of a substance dissolving into soil water is reduced by dilution with groundwater and by sorption to unsaturated or saturated soil, or by degradation, transformation or stabilization of the substance.

(14) "Diminishing state groundwater plume" means a groundwater plume that has been characterized seasonally and in three dimensions, provided that the characterization of such plume:

(A) Is consistent with a validated conceptual site model; and

(B) Demonstrates that such plume:

(i) Is not migrating, or has very limited potential to migrate, in any direction; and

(ii) Is comprised only of substances whose concentrations have decreased and will continue to decrease over time, except for the concentrations of related breakdown components, provided it is demonstrated that concentrations of such breakdown components are not a known risk to human health and the environment. For purposes of this clause, "breakdown components" means constituent compounds that result from the alteration of an original compound in the environment.

(15) "Direct exposure criteria" or "DEC" means the criteria identified in Appendix A of the RSRs, alternative direct exposure criteria approved by the commissioner pursuant to section 22a-133k-2(d) of the RSRs, or direct exposure criteria approved by the commissioner pursuant to section 22a-133k-2(b)(7) of the RSRs.

(16) "Downgradient" means in the direction of the maximum rate of decrease of hydraulic head.

(17) "Downgradient area" with respect to a release of a substance means the area bounded by:

(A) The width of the release area of such substance perpendicular to the direction of groundwater flow;

(B) Two side boundary lines parallel to the downgradient direction of groundwater flow extending from the two endpoints of said width to the downgradient parcel boundary; and

PROPOSED

(C) The downgradient parcel boundary extending between the two side boundary lines, excluding any portion of such downgradient area that is either affected by any other release of such substance or beneath an existing permanent structure.

(18) "Engineered control" means any physical barrier, system, technology or method that prevents exposure to polluted soil, or minimizes migration of liquids or vapor through such soil, and complies with the other requirements specified in section 22a-133k-2(f)(2) of the RSRs.

(19) "Environmental land use restriction" or "ELUR" has the same meaning as provided in section 22a-133q-1 of the Regulations of Connecticut State Agencies.

(20) "Environmentally isolated soil" means polluted soil which is above the seasonal high water table and is not subject to infiltration in accordance with section 22a-133k-2(c)(5)(A) of the RSRs, thereby preventing the leaching of pollutants from such soil into groundwater.

(21) "EPA" means the United States Environmental Protection Agency.

(22) "ETPH" means extractable total petroleum hydrocarbons.

(23) "Environmental use restriction" or "EUR" has the same meaning as provided in section 22a- 133q-1 of the Regulations of Connecticut State Agencies.

(24) "EUR regulations" has the same meaning as provided in section 22a-133q-1 of the Regulations of Connecticut State Agencies.

(25) "Excess lifetime cancer risk" means the estimated probability that an individual's exposure to a substance could result in cancer.

(26) "GA area" means an area where the groundwater classification is GA, GAA, or GAAs.

(27) "GB area" means an area where the groundwater classification is GB.

(28) "Groundwater" means that portion of "waters" as defined in section 22a-423 of the Connecticut General Statutes at or below the water table.

(29) "Groundwater classification" means the groundwater classification established in the Water Quality Standards.

(30) "Groundwater criteria" means surface water protection criteria, water quality criteria, volatilization criteria, groundwater protection criteria, and background concentration, as applicable.

(31) " Groundwater divide" means a line on the water table from which the water table slopes downward in both directions away from such line.

(32) "Groundwater plume" means groundwater that has been polluted by a release and is emanating from a release area and in which one or more substances from such release is present at a concentration above the laboratory reporting limit.

(33) "Groundwater protection criteria" or "GWPC" means the criteria identified in Appendix C of the RSRs, alternative groundwater protection criteria calculated by an LEP or approved by the commissioner pursuant to section 22a-133k-3(d)(2) of the RSRs, or groundwater protection criteria approved by the commissioner pursuant to section 22a-133k-3(i)(1) of the RSRs.

(34) "Hardscape" means man-made features that are incorporated into landscaped areas, including walkways constructed with asphalt, concrete, or pavers; gravel parking areas and driveways; paved or gravel storm water features; placement of natural rock; rip-rap; and non-vegetated retaining walls.

(35) "Hazard index" means the calculation of the potential for non-cancer health effects as a result of exposure to one or more substances with the same or similar modes of toxic action or toxic endpoints.

(36) "Hydraulic gradient" means the change in hydraulic head per unit distance.

(37) "Hydraulic head" means the elevation to which water rises in a piezometer or a well.

PROPOSED

(38) "Immobilization" or "Immobilize" means the act of binding a substance to create a solid that is resistant to leaching and eliminates or virtually eliminates the mobility of a substance from such solid, including, but not limited to, solidification to physically bind or enclose a substance within a stabilized mass, stabilization through chemical reactions between a stabilizing agent and a substance, or encapsulation by coating a substance.

(39) "Inaccessible soil" means soil that meets at least one of the following conditions:

(A) Is more than four feet below the ground surface;

(B) Is more than two feet below a paved ground surface comprised of bituminous concrete that, at a minimum, is three inches thick or reinforced concrete that, at a minimum, is four inches thick;

(C) Is beneath a building or other permanent structure; or

(D) Is polluted fill:

(i) Beneath a paved ground surface comprised of bituminous concrete that, at a minimum, is three inches thick or reinforced concrete that, at a minimum, is four inches thick; and

(ii) That exceeds the applicable direct exposure criteria solely due to:

(I) Semi-volatile organic substances or petroleum hydrocarbons that are normal constituents of bituminous concrete; or

(II) Metals at concentrations that are equal to or less than two times the applicable direct exposure criteria.

(40) "Industrial/commercial activity" means any activity related to the commercial production, distribution, manufacture or sale of goods, services, or any other activity which is not a residential activity.

(41) "Industrial/commercial direct exposure criteria" means the criteria identified as industrial/commercial direct exposure criteria in Appendix A of the RSRs, alternative direct exposure criteria approved by the commissioner pursuant to section 22a-133k-2(d) of the RSRs, or direct exposure criteria approved by the commissioner pursuant to section 22a-133k-2(b)(7) of the RSRs.

(42) "Industrial/commercial volatilization criteria" means the criteria identified as industrial/commercial volatilization criteria in Appendix E and Appendix F of the RSRs, alternative volatilization criteria approved by the commissioner pursuant to section 22a- 133k-3(c)(4) of the RSRs, or volatilization criteria approved by the commissioner pursuant to section 22a-133k-3(i)(3) of the RSRs.

(43) "Intermittent watercourse" is a type of watercourse, as the term is defined in section 22a-38 of the Connecticut General Statutes, delineated in accordance with section 22a-38 of the Connecticut General Statutes.

(44) "Laboratory reporting limit" means the lowest concentration at which an analyte can be detected in a sample of environmental media by a laboratory certified by the Department of Public Health pursuant to section 19a-29a of the Connecticut General Statutes and which concentration can be reported with a reasonable degree of accuracy and precision pursuant to section 22a-133k-1(h) of the RSRs.

(45) "Licensed environmental professional" or "LEP" means an environmental professional who has a current valid license issued by the commissioner pursuant to section 22a-133v of the Connecticut General Statutes.

(46) "Matrix interference" means either a positive or negative effect when measuring the concentration of a substance in a sample that creates erroneous results for an analyte.

(47) "Maximum extent practicable" means the greatest degree of remediation that can be achieved using sound engineering and hydrogeologic practices without taking cost into consideration.

PROPOSED

(48) "Maximum extent prudent" means the greatest degree of remediation that can be achieved using sound engineering and hydrogeologic practices that the commissioner deems reasonable, taking into consideration cost in proportion to social and environmental benefits, provided that a mere showing of expense will not necessarily render an alternative unreasonable.

(49) "Monitored natural attenuation" means representative groundwater monitoring of the natural attenuation of each substance in a groundwater plume to a concentration equal to or less than groundwater criteria, provided such monitoring demonstrates that:

(A) Such attenuation is occurring, and will continue to occur, as evidenced by changes in chemical concentrations, alterations of chemical components, and hydrogeologic conditions within the aquifer after completing the remediation of a release area in a manner that will achieve compliance with the RSRs; and

(B) The only remaining groundwater plume from a release is a diminishing state groundwater plume.

(50) "Natural attenuation" means a decrease in concentration of a substance in groundwater through operation of natural physical or chemical processes, including, but not limited to, adsorption, absorption, dilution, phase transfer, oxidation, organic complexation, biodegradation, dispersion and diffusion.

(51) "Naturally occurring" means present in the environment in forms that have not been influenced by human activity.

(52) "Ninety-five (95) percent upper confidence level of the arithmetic mean" means a value that, when repeatedly calculated for randomly drawn subsets of size *n* from a population, equals or exceeds the population arithmetic mean ninety-five (95) percent of the time.

(53) "Non-aqueous phase liquid" or "NAPL" means a liquid that is not dissolved in water.

(54) "Notice of Activity and Use Limitation" or "NAUL" has the same meaning provided in section 22a-133q-1 of the Regulations of Connecticut State Agencies.

(55) "Organoleptic" means the capability to produce a detectable sensory stimulus such as odor or taste.

(56) "Parcel" means a piece, tract, or lot of land, together with the buildings and other improvements situated thereon, a legal description of which piece, tract, or lot is contained in a deed or other instrument of conveyance.

(57) "PCBs" means polychlorinated biphenyls.

(58) "PPB" means parts per billion.

(59) "PPM" means parts per million.

(60) "Person" has the same meaning as provided in section 22a-2(b) of the Connecticut General Statutes.

(61) "Pesticide" has the same meaning as provided in section 22a-47(w) of the Connecticut General Statutes.

(62) "Pollutant mobility criteria" or "PMC" means the criteria identified in Appendix B of the RSRs, alternative pollutant mobility criteria calculated by an LEP or approved by the commissioner pursuant to section 22a-133k-2(d) of the RSRs, or pollutant mobility criteria approved by the commissioner pursuant to section 22a-133k-2(c)(6) of the RSRs.

(63) "Polluted fill" means soil which contained polluting substances at the time such soil was deposited as fill material.

(64) "Polluted material" means soil that has been historically intermixed with coal ash, wood ash, coal fragments, coal slag, coal clinkers, asphalt paving fragments, or any combination thereof.

PROPOSED

(65) "Polluted soil" means soil affected by a release of a substance at a concentration above the laboratory reporting limit for such substance.

(66) "Pollution" has the same meaning as provided in section 22a-423 of the Connecticut General Statutes.

(67) "Potential public water supply resource" means any "potential well fields" as defined in section 22a-354a of the Connecticut General Statutes, or any area mapped by the commissioner pursuant to section 22a-354c(b) of the Connecticut General Statutes.

(68) "Public roadway" means any portion of a federal, state, town, or other public highway, including, but not limited to, road, street, parkway, limited access highway, boulevard, or avenue paved with bituminous concrete or concrete, under the control of the federal government, the state or any political subdivision of the state, any quasi-governmental entity or municipal economic development agency or entity created or operating under the Connecticut General Statutes, that is dedicated, appropriated, or open to the movement of vehicles or pedestrians, including appurtenant sidewalks, medians, and shoulders, but excluding landscaped or grassy areas beyond the outer edge of the travel way.

(69) "Public water supply distribution system" means any combination of pipes, tanks, pumps, etc. which deliver water from the source or treatment facility to the consumer from any water company, as defined in section 25-32a of the Connecticut General Statutes, supplying water to two (2) or more consumers, or twenty-five (25) or more persons daily, at least sixty (60) days of the year.

(70) "Q99" means the daily stream flow that is predicted to be equaled or exceeded on ninety-nine (99) percent of days in a year, and is calculated using methods developed by the U.S. Geological Survey (StreamStats).

(71) "Release" means any discharge, spillage, uncontrolled loss, seepage, filtration, leakage, injection, escape, dumping, pumping, pouring, emitting, emptying, or disposal of a substance.

(72) "Release area" means the land area at and beneath which polluted soil is located as a result of a release.

(73) "Remediation" means the containment, removal, mitigation, or abatement of pollution, or a substance which poses a risk to human health or the environment, and includes, but is not limited to, the reduction of pollution by natural attenuation.

(74) "Reasonable confidence protocols" or "RCPs" means any reasonable confidence protocols, quality assurance requirements, or quality control requirements, posted by the commissioner on the department's internet website, regarding the laboratory measurements of the concentration of a substance in a sample.

(75) "Remediation Standard Regulations" or "RSRs" means sections 22a-133k-1 to 22a-133k-3, inclusive, of the Regulations of Connecticut State Agencies, including Appendix A to Appendix I, inclusive, of said regulations and when identified by a specific reference, "RSRs" also means any individual section or specific provision of sections 22a-133k-1 to 22a-133k-3, inclusive, of the Regulations of Connecticut State Agencies, including Appendix A to Appendix I, of said regulations.

(76) "Residential activity" means any activity at:

(A) A place intended for people to live, including, but not limited to, a residence, dwelling, house, apartment, condominium, nursing home, or dormitory;

(B) A pre-school, primary school, secondary school, day care center, playground, or outdoor recreational area; or

(C) A hospital, solely for the purposes of compliance with volatilization criteria.

PROPOSED

(77) "Residential direct exposure criteria" means the criteria identified as residential direct exposure criteria in Appendix A of the RSRs, alternative direct exposure criteria approved by the commissioner pursuant to section 22a-133k-2(d) of the RSRs, or direct exposure criteria approved by the commissioner pursuant to section 22a-133k-2(b)(7) of the RSRs.

(78) "Residential volatilization criteria" means the criteria identified as residential volatilization criteria in Appendix E and Appendix F of the RSRs, alternative volatilization criteria approved by the commissioner pursuant to section 22a-133k-3(c)(4) of the RSRs, or volatilization criteria approved by the commissioner pursuant to section 22a-133k-3(i)(3) of the RSRs.

(79) "Seasonal high water table" means, on an annual basis, the highest plane in the ground at which all pore spaces are filled with water at atmospheric pressure.

(80) "Seasonal low water table" means, on an annual basis, the lowest plane in the ground at which all pore spaces are filled with water at atmospheric pressure.

(81) "Sediment" means unconsolidated material occurring in a watercourse, as that term is defined in section 22a-38 of the Connecticut General Statutes, and in estuarine water or marine water.

(82) "Semi-volatile organic substance" means an organic substance that has a higher molecular weight and higher boiling point than a volatile organic substance.

(83) "Soil" means unconsolidated geologic material overlying bedrock, including, but not limited to, sediment that has been removed from any surface water body and placed on dry land.

(84) "Soil water" means that portion of "waters" as defined in section 22a-423 of the Connecticut General Statutes, which is above the water table.

(85) "Soil vapor" means gaseous substances in the space between particles of soil.

(86) "SPLP" means Synthetic Precipitation Leaching Procedure EPA Method 1312 as set forth in "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", SW-846, U.S. Environmental Protection Agency, Office of Solid Waste, Washington D.C. 20460.

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

(88) "Subject area" means an area where the RSRs require an EUR to be placed and maintained as part of the selected remedial approach. "Subject area" includes the area subject to the restrictions and requirements of an EUR after such EUR has been recorded. There can be multiple subject areas on a parcel, or an entire parcel may comprise a single subject area.

(89) "Surface-water protection criteria" or "SWPC" means the criteria identified in Appendix D of the RSRs, alternative surface water protection criteria calculated by an LEP or approved by the commissioner pursuant to section 22a-133k-3(b) of the Regulations of Connecticut State Agencies, or surface water protection criteria approved by the commissioner pursuant to section 22a-133k-3(i)(2) of the RSRs.

(90) "TCLP" means Toxicity Characteristic Leaching Procedure EPA Method 1311 as set forth in "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", SW-846, U.S. Environmental Protection Agency, Office of Solid Waste, Washington D.C. 20460.

(91) "Technically impracticable" means a determination by the commissioner that further reduction of the concentration of a substance in soil or groundwater cannot be achieved using sound engineering and hydrogeologic remediation practices.

(92) "TI Zone" means the areal extent of a substance that is technically impracticable to remediate to the applicable groundwater criteria.

(93) "Upgradient" means in the direction of maximum rate of increase of hydraulic head.

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(94) "Upgradient area" with respect to a release area of a substance means the area bounded by:

(A) The width of the release area of such substance perpendicular to the direction of groundwater flow;

(B) Two side boundary lines parallel to the upgradient direction of groundwater flow extending from the two endpoints of said width to the upgradient parcel boundary; and

(C) The upgradient parcel boundary extending between the two side boundary lines, excluding any portion of such upgradient area that is affected by any other release of such substance, or beneath an existing permanent structure.

(95) "Volatilization criteria" means the criteria identified in Appendix E and Appendix F of the RSRs, alternative volatilization criteria approved by the commissioner pursuant to section 22a-133k-3(c)(4) of the RSRs, or volatilization criteria approved by the commissioner pursuant to section 22a-133k-3(i)(3) of the RSRs.

(96) "Volatilization criteria for groundwater" means the criteria identified in Appendix E of the RSRs, alternative volatilization criteria approved by the commissioner pursuant to section 22a-133k-3(c)(4) of the RSRs, or volatilization criteria approved by the commissioner pursuant to section 22a-133k-3(i)(3) of the RSRs.

(97) "Volatilization criteria for soil vapor" means the criteria identified in Appendix F of the RSRs, alternative volatilization criteria approved by the commissioner pursuant to section 22a-133k-3(c)(4) of the RSRs, or volatilization criteria approved by the commissioner pursuant to section 22a-133k-3(i)(3) of the RSRs.

(98) "Volatile organic substance" means an organic substance that has a high vapor pressure and low boiling point at room temperature.

(99) "Volatile petroleum substance" means a volatile organic substance found in gasoline, diesel fuel, fuel oil, heating oil, kerosene, jet fuel, or similar fuels, along with volatile organic substances that may have been used as fuel additives.

(100) "Water table" means the plane in the ground at which all pore spaces are filled with water at atmospheric pressure.

(101) "Water quality criteria" means the lower of the human health or aquatic life criteria contained in Table 3 of the Water Quality Standards.

(102) "Water quality standards" means the Connecticut Water Quality Standards in sections 22a-426-1 to 22a-426-9, inclusive, of the Regulations of Connecticut State Agencies and the Classification Maps adopted pursuant to section 22a-426 of the Connecticut General Statues.

(103) "Wetland" has the same meaning as "wetlands" as provided in section 22a-38(15) of the Connecticut General Statutes or "wetland" as provided in section 22a-29(2) of the Connecticut General Statutes.

(b) **Applicability**

(1) General Applicability

(A) The RSRs apply to any action taken to remediate polluted soil, surface water or groundwater at or emanating from a release area which action is required pursuant to Chapter 445, Chapter 446k, or section 22a-208a(c)(2) of the Connecticut General Statutes, including, but not limited to, any such action required to be taken or verified by a licensed environmental professional.

(B) The RSRs do not apply to:

(i) Naturally occurring substances found in the environment in the absence of a release; or

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(ii) Pollution within the zone of influence of a groundwater discharge permitted by the commissioner in accordance with section 22a-430 of the Connecticut General Statutes.

(2) Characterization

All investigation and remediation undertaken to comply with the RSRs shall be based on a representative characterization of a release, using a conceptual site model developed in accordance with prevailing standards and guidelines, such as the department's "Site Characterization Guidance Document" as amended.

(3) Other Requirements

All remediation undertaken to satisfy the RSRs shall be conducted in accordance with all federal, state, and local requirements, including, but not limited to, 40 CFR Part 761, all permits, and other required authorizations. Nothing in this subsection shall be construed as requiring any further remediation of any release which has been remediated and which remediation has been approved in writing by the commissioner, unless the commissioner takes action to require such remediation pursuant to any section of Chapter 446k of the Connecticut General Statutes.

(4) Construction of Regulations

In the construction of the RSRs, terms or words in the singular may be construed and applied to more than one thing and terms or words in the plural may be construed and applied to the singular or just one thing.

(c) **Time-frames for Issuance of Approvals by the Commissioner**

The commissioner shall make best efforts within available resources to process in a timely manner any variance or alternative criteria request pursuant to the RSRs. The commissioner shall, upon request, provide estimated time frames for any such review. In establishing estimated time frames pursuant to this subsection, the commissioner shall take into account available resources, the complexity of the request, and the environmental and economic significance of the remediation.

(d) **Public Participation**

(1) Public Notice of Remediation

The public participation requirements of this subsection shall apply after a release has been investigated and a remedial action plan has been prepared but shall not apply to actions undertaken during an emergency or during other unplanned time-critical remedial actions.

(A) Providing Public Notice

The public notice prescribed in subparagraph (B) of this subdivision shall be provided through all of the following means:

(i) Submission of copies of such notice to the commissioner in accordance with subsection (g) of this section, and to the chief elected municipal official and the Director of Health of the municipality in which remediation will occur;

(ii) Publishing such notice in a newspaper having a general circulation in the municipality in which the remediation will occur; and

(iii) By either:

(I) Mailing a copy of such notice to each owner of record of each parcel that abuts the parcel to be remediated, at the address for such parcel on the last-completed grand list of the municipality in which the parcel is located; or

(II) Erecting and maintaining for at least thirty (30) days, a sign on the parcel to be remediated.

Such sign shall be not less than six (6) feet by four (4) feet, shall be clearly visible from the public roadway, and shall include the words "ENVIRONMENTAL CLEAN UP IN PROGRESS. FOR FURTHER INFORMATION CONTACT:" and include a telephone number and an

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electronic mail address from which any interested party may obtain additional information about the proposed remediation.

(B) Contents of Public Notice

Except for a sign erected in accordance with subparagraph (A)(iii)(II) of this subdivision, public notice of remediation required pursuant to subparagraph (A) of this subdivision shall include, at a minimum:

(i) The name and address of the owner of the parcel on which remediation will be undertaken and the person responsible for such remediation;

(ii) The address of the parcel or, if no address is available, a description of the location of the parcel relative to the nearest intersection of named streets;

(iii) The remediation identification number assigned by the department;

(iv) A brief description of the nature of the release and the substances being remediated;

(v) An electronic mail and postal mailing address, telephone number, and a point of contact to whom comments regarding the remediation can be submitted and from whom any interested person may obtain additional information about the proposed remediation;

(vi) A statement that public comments may be submitted, via electronic mail or in writing, for thirty (30) days after the date of publication of such notice; and

(vii) A brief description of the proposed remediation or a website where such information may be obtained. This description shall include, but need not be limited to:

(I) Use of any variance, engineered control, or EUR under the RSRs; and

(II) The approximate schedule to initiate and complete remediation, including any milestones or interim steps.

(2) Response to Public Comment

(A) There shall be a public comment period on the proposed remediation for thirty (30) days after publication of the newspaper notice required by subdivision (1)(A)(ii) of this subdivision.

(B) If no comments on the proposed remediation are received during the public comment period, the person responsible for remediation may commence with the proposed remediation.

(C) If comments on the proposed remediation are received during the public comment period, no later than thirty (30) days after close of the public comment period, the person responsible for remediation shall submit to the commissioner a written summary of all such comments and a proposed response to each such comment.

(D) Based on the summary of comments and proposed responses, the commissioner may:

(i) Direct the person responsible for remediation to send the written summary and response document to each person who submitted comments within thirty (30) days after the direction is given by the commissioner. If an electronic mail address is known, the summary and response document may be sent to a commenter using electronic mail;

(ii) Revise the written summary and response document and direct the person responsible for remediation to send the written summary and response document, as revised by the commissioner, to each person who submitted comments within thirty (30) days after the direction is given by the commissioner. If an electronic mail address is known, the summary and response document as revised by the commissioner may be sent to a commenter using electronic mail;

(iii) Determine that there is substantial public interest in the proposed remediation and direct the person responsible for the remediation to hold a public meeting regarding the proposed remediation. Notice of any such meeting shall be published in a newspaper of substantial circulation in the area of the proposed remediation at least thirty (30) days prior to such meeting. At such meeting all interested persons shall have reasonable opportunity to submit data, views, or

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arguments orally or in writing. Any such meeting shall not be conducted as, nor be considered to be, a contested case as that term is defined in section 4-166 of the Connecticut General Statutes. After the public meeting, the person responsible for remediation shall comply with subparagraph (C) of this subdivision and, except for this clause, the commissioner may then take actions specified under this subparagraph; or

(iv) Determine that the proposed remediation is premature, inadequate or deficient and indicate additional measures to be taken, including, but not limited to, additional investigation or different remediation.

(E) Within thirty (30) days after a public meeting held in accordance with subparagraph (D)(iii) of this subdivision, the person responsible for remediation shall provide to the commissioner a written summary of and response to any comments received during the public meeting and the commissioner may then take any of the actions in subclauses (i), (ii), or (iv) of subparagraph (D) of this subdivision.

(3) Requirements for Additional Public Notice

(A) If after commencing remediation there is a substantial change to the remedial actions for which notice of remediation has already been provided, the requirements of subdivision (1) and (2) of this subsection shall apply to and be complied with prior to undertaking any such change. For purposes of this subparagraph, a substantial change shall include, but not be limited to, use of any variance for environmentally isolated soil, inaccessible soil, engineered controls, or technical impracticability, for which public notice was not previously provided.

(B) After providing public notice of remediation in accordance with this subsection, if the remediation for which public notice was provided is not substantially initiated within three years of publication of such notice, notwithstanding the previous compliance with this subsection, the requirements of subdivision (1) and (2) of this subsection shall be undertaken again before remediation can commence.

(4) For the purposes of this subsection, "the person responsible for remediation" means the person legally required to investigate and remediate a parcel, or for voluntary remediation, the owner or person undertaking the investigation and remediation.

(e) **Environmental Use Restrictions**

(1) Whenever an EUR is required under the RSRs:

(A) An ELUR may always be used; and

(B) A NAUL may only be used:

(i) Pursuant to section 22a-133k-2(b)(2) of the RSRs, provided the subject area is zoned for industrial/commercial use and no holder of an interest in such area, other than the owner of such area, has a right of residential activity or use;

(ii) Pursuant to section 22a-133k-2(b)(3)(B) of the RSRs, provided the concentrations of substances in such inaccessible soil do not exceed ten (10) times the applicable direct exposure criteria;

(iii) Pursuant to section 22a-133k-2(b)(6) of the RSRs;

(iv) Pursuant to section 22a-133k-2(c)(5)(A) of the RSRs, provided that:

(I) The concentrations of substances in such soil do not exceed ten (10) times the applicable pollutant mobility criteria; or

(II) The total volume of soil that is environmentally isolated that exceeds ten (10) times the applicable pollutant mobility criteria is equal to or less than ten (10) cubic yards;

(v) Pursuant to section 22a-133k-2(d)(2)(A) of the RSRs;

(vi) Pursuant to section 22a-133k-2(f)(1) of the RSRs;

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(vii) Pursuant to section 22a-133k-2(f)(2)(B) or section 22a-133k-2(f)(2)(C) of the RSRs, provided that the concentrations of the substances in polluted soil at the subject area are equal to or less than ten (10) times the applicable direct exposure criteria;

(viii) Pursuant to section 22a-133k-3(c)(1) or section 22a-133k-3(c)(2)(A) of the RSRs, provided the subject area is zoned for industrial/commercial use and no holder of an interest in such area, other than the owner of such area, has a right of residential activity or use;

(ix) Pursuant to section 22a-133k-3(c)(2)(B) of the RSRs;

(x) Pursuant to sections 22a-133k-3(c)(3), 22a-133k-3(c)(4), and 22a-133k-3(c)(5) of the RSRs; or

(xi) When an ELUR is required and the parcel on which it is to be recorded is owned by the state of Connecticut or the state of Connecticut purchases a property subject to an existing ELUR, the NAUL shall be approved by the commissioner.

(2) Each EUR under the RSRs shall be subject to and comply with all applicable requirements in section 22a-133o of the Connecticut General Statutes, the EUR Regulations and the RSRs.

(3) If the RSRs require an EUR:

(A) Such EUR shall be in effect prior to:

(i) An LEP's verification, including an LEP's interim verification, as those terms are defined in sections 22a-134 (19) and (28) of the Connecticut General Statutes; or

(ii) When required by the commissioner, the review and approval of the remediation by the commissioner; or

(B) When voluntary remediation is conducted pursuant to section 22a-133y of the Connecticut General Statutes, the documents required to be prepared by sections 22a-133q-2(b) or 22a-133q-3(b) of the EUR regulations, as applicable, shall be submitted as part of the final remedial action report at the time such report is submitted to the commissioner. Upon approval of such report by the commissioner, the EUR shall be executed within thirty-six (36) days of such approval and be put into effect in accordance with the EUR regulations.

(4) An EUR shall only be deemed to be in effect when such EUR is recorded on the land records in compliance with the EUR regulations.

(5) When a remedy is selected under the RSRs for which an EUR is required to be in effect for different subject areas on a parcel, a request shall be submitted to the commissioner to extend any deadline specified in the RSRs to prepare the materials required to obtain and request such EUR. The commissioner may approve or deny in writing such extension request. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that significant progress has been made to complete the remediation of the parcel and strict adherence to the stated deadline would create an extraordinary hardship.

(f) **Financial Assurance**

(1) A financial assurance shall be required to support an engineered control variance or a technical impracticability variance. Such assurance shall be:

(A) Established and maintained for the duration of the period that the engineered control or technical impracticability variance will be used to achieve compliance with the RSRs;

(B) Directly available to the commissioner to cover the costs of complying with the variance, including, but not limited to, operation, maintenance, inspection, monitoring, reporting, and other reasonably anticipated repairs and contingencies, in the event that the commissioner determines that such measures have not been performed as required by the RSRs; and

(C) Established in an amount equal to the cost of twenty (20) percent of thirty (30) years of operation, maintenance, inspection, monitoring, reporting, and other reasonably anticipated repairs and contingencies, which amount shall be maintained in effect for as long as the variance is used

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to achieve compliance with the RSRs, except this amount may be adjusted in accordance with subdivision (4) of this subsection.

(2) One or more of the following instruments, and no others, shall be used to satisfy the financial assurance requirements of this subsection:

(A) Trust Agreement or Trust Fund;

(B) Irrevocable Standby Letter of Credit;

(C) Payment of Funds in Cash as directed by the commissioner; or

(D) Certificate of Insurance.

(3) The wording of any instrument used to satisfy the requirements of this subsection shall be identical to the language prescribed by the commissioner, which language shall be posted on the department's internet website. In addition, only an entity that satisfies the following requirements, as applicable, may issue an instrument used to satisfy the requirements of this subsection:

(A) Any trustee shall be an entity with authorization to act as a trustee and whose trust operations are regulated and examined by a federal or state agency;

(B) Any surety issuing a bond shall be among those listed as acceptable sureties on federal bonds in Circular 570 of the U.S. Department of Treasury;

(C) Any institution issuing a letter of credit shall be an entity that has the authority to issue letters of credit and whose letter of credit operations are regulated and examined by a federal or state agency; and

(D) Any insurer shall be licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more states.

(4) The amount of the financial assurance established pursuant to this subsection:

(A) Shall be adjusted for inflation at each five (5) year interval from the anniversary date of the establishment of the financial instrument. The adjustment shall be made by using an inflation factor derived from the most recent Implicit Price Deflator for Gross National Product published by the U.S. Department of Commerce in its "*Survey of Current Business"* and by multiplying the latest adjusted surety estimate for the site by that five-year inflation factor; and

(B) May be adjusted, subject to the discretion and written approval of the commissioner, to reflect any recalculation of the costs of operation, maintenance, inspection, monitoring, reporting, and other reasonably anticipated repairs and contingencies, in current dollars. Any request for an adjustment pursuant to this subparagraph shall be submitted to the commissioner in accordance with subsection (g) of this section.

(5) The requirements of this subsection shall not apply when:

(A) The entity responsible for remediation is a municipality, an agency or a political or administrative subdivision of the state or federal government; or

(B) The amount established under subparagraph (C) of subdivision (1) of this subsection is less than $10,000, unless the commissioner requires compliance with this subsection as a condition of approving the engineered control or technical impracticability variance.

(g) **Use of Form Prescribed by the Commissioner**

(1) Any submittal to the commissioner under the RSRs, including, but not limited to, a request for a variance, approval, notice, financial assurance, or EUR shall be submitted in writing on a form prescribed by the commissioner. Such form may require the following information:

(A) A description of the subject release;

(B) A description of the distribution and concentration of substances in soil and groundwater resulting from the subject release;

(C) The general characteristics of soil in the vicinity of the subject release area;

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(D) A map showing the extent of all release areas on a parcel and the subject release area, including all sample locations;

(E) A map showing the extent of the subject groundwater plume and the concentration of substances in such plume;

(F) The tabulated analytical results of all laboratory analyses of soil and groundwater at the subject release area;

(G) A detailed justification for any variance or approval requested;

(H) Any information specifically required by the RSRs;

(I) A signed certification by the person submitting the form and, if provided on the form, certification by an LEP; and

(J) Any other information deemed necessary by the commissioner.

(2) If an electronic system is available for any submission identified in subdivision (1) of this subsection, such submittal shall be made pursuant to the instructions prescribed by the commissioner for the use of such electronic system.

(h) **General Requirements for Analytical Data**

(1) Analytical Data Quality and Usability

(A) With respect to analytical data, the following shall apply:

(i) All analytical data used to comply with the RSRs shall be scientifically valid and defensible, with a level of precision, accuracy, and sensitivity commensurate with its intended use. All analytical data submitted shall include an analytical data quality assessment and data usability evaluation prepared by individuals qualified to make such assessment or evaluation; and

(ii) If the commissioner determines that analytical data is not scientifically valid and defensible, or not of a sufficient level of precision, accuracy, and sensitivity to support the intended use of the data, the commissioner shall identify in writing the reasons for such conclusions and such data shall not be relied upon to demonstrate compliance with the RSRs.

(B) The commissioner may specify, by posting on the department's internet website, methods or protocols to ensure that analytical data is of known and documented quality, including, but not limited to:

(i) RCPs for laboratory quality assurance and quality control measures or analytical methods for the evaluation of soil, sediment, groundwater, air, or soil vapor;

(ii) RCPs to be followed when establishing laboratory reporting limits; and

(iii) Methods and protocols for assessing data quality and evaluating data usability which can be used to determine whether data is scientifically valid and defensible, with a level of precision, accuracy, and sensitivity commensurate with its intended use.

(C) If an analytical data quality assessment or usability evaluation is conducted using a method or protocol other than the methods and protocols prescribed by the commissioner pursuant to this subdivision, such methods and protocols shall be documented and submitted for the commissioner's review and evaluation. If the commissioner determines that such method or protocol is not scientifically valid and defensible, or not of a sufficient level of precision, accuracy, and sensitivity to support the intended use of the data, the commissioner shall identify in writing the reasons for such conclusions and such data shall not be relied upon to demonstrate compliance with the RSRs.

(2) Laboratory Reporting Limit Requirements

The laboratory reporting limit for the analysis of all samples used to comply with the RSRs shall:

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(A) Be established at a concentration which is less than the applicable criteria, unless matrix interference or instrument limitations cannot be overcome by taking the additional actions listed in subdivisions (3) and (4) of this subsection;

(B) Not be artificially raised or lowered; and

(C) (i) Be equivalent to the concentration of the lowest standard used to calibrate the instrument actually analyzing a sample, provided such instrument has been calibrated in accordance with a method specified in an RCP or otherwise approved by the commissioner after consultation with the Commissioner of Public Health; or

(ii) Be equivalent to the concentration of a low-level reporting standard, as specified in an RCP or otherwise approved by the commissioner after consultation with the Commissioner of Public Health.

(3) Matrix Interference

(A) When analyzing a sample, if due to matrix interference the laboratory reporting limit for a substance is greater than the applicable RSR criteria for such substance, additional procedures, including, but not limited to, sample preparation procedures or alternative analytical methods shall be evaluated to determine whether the use of such procedures or methods will enable a laboratory reporting limit equal to or less than the applicable RSR criteria for such substance to be consistently and accurately achieved.

(B) In the circumstances described in subparagraph (A) of this subdivision, at a minimum, the following procedures or methods shall be evaluated in determining whether a laboratory reporting limit less than or equal to the applicable RSR criteria can be achieved:

(i) "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods." SW-846, U.S. Environmental Protection Agency, Office of Solid Waste, Washington D.C. 20460; or

(ii) Other analytical methods or procedures either approved in writing by EPA or, after consultation with the Commissioner of Public Health, approved in writing by the commissioner.

(C) (i) If pursuant to subparagraph (B) of this subdivision, a procedure or method is identified that will consistently and accurately achieve a laboratory reporting limit equal to or less than the applicable RSR criteria, the sample shall be re-analyzed for the subject substance using such procedure or method.

(ii) If after re-analysis the matrix interference is overcome and the lowest laboratory reporting limit for a substance that can be consistently and accurately achieved is now equal to or less than the applicable RSR criteria, the analytical results from such re-analysis can be used for the purpose of determining compliance with the RSRs.

(D) (i) If despite taking the actions to overcome matrix interference specified in subparagraphs (B) and (C) of this subdivision, a laboratory reporting limit less than or equal to the applicable RSR criteria cannot be consistently and accurately achieved, a report detailing the measures taken to overcome such matrix interference shall be submitted in writing to the commissioner. This report shall include, at a minimum, a description of the measures taken under subparagraphs (B) and (C) of this subdivision as well as the lowest achievable laboratory reporting limit consistently and accurately achievable under subparagraph (C)(i) of this subdivision.

(ii) The commissioner shall use the report submitted pursuant to clause (i) of this subparagraph to determine the lowest laboratory reporting limit for such substance that can be consistently and accurately achieved. If the commissioner determines that such laboratory reporting limit is still greater than the applicable RSR criteria, the commissioner may determine that compliance with the RSRs will be achieved when such laboratory substance has been remediated to such reporting limit. Any such determination by the commissioner shall be in writing and shall include the reasons for such determination.

(4) Instrument Limitations

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(A) When analyzing a sample, if due to instrument limitations the laboratory reporting limit for a substance is greater than the applicable RSR criteria for such substance, alternative analytical methods or alternative instrumentation shall be evaluated to determine whether the use of such procedures or methods will enable a laboratory reporting limit equal to or less than the applicable RSR criteria for such substance to be consistently and accurately achieved.

(B) In the circumstances described in subparagraph (A) of this subdivision, at a minimum, the following procedures or methods shall be evaluated in determining whether a laboratory reporting limit less than or equal to the applicable RSR criteria can be achieved:

(i) "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods." SW-846, U.S. Environmental Protection Agency, Office of Solid Waste, Washington D.C. 20460; or

(ii) Other analytical methods or instruments either approved in writing by EPA or, after consultation with the Commissioner of Public Health, approved in writing by the commissioner.

(C) (i) If pursuant to subparagraph (B) of this subdivision, a method or instrument is identified that will consistently and accurately achieve a laboratory reporting limit equal to or less than the applicable RSR criteria, the sample shall be re-analyzed for the subject substance using such method or instrument.

(ii) If after re-analysis the instrument limitation is overcome and the lowest laboratory reporting limit for a substance that can be consistently and accurately achieved is now equal to or less than the applicable RSR criteria, the analytical results from such re-analysis can be used for the purpose of determining compliance with the RSRs.

(D) (i) If despite taking the actions to overcome instrument limitations specified in subparagraphs (B) and (C) of this subdivision, a laboratory reporting limit less than or equal to the applicable RSR criteria cannot be consistently and accurately achieved, a report detailing the measures taken to overcome such instrument limitations shall be submitted in writing to the commissioner. This report shall include, at a minimum, a description of the measures taken under subparagraphs (B) and (C) of this subdivision as well as the lowest achievable laboratory reporting limit consistently and accurately achievable under subparagraph (C)(i) of this subdivision.

(ii) The commissioner shall use the report submitted pursuant to clause (i) of this subparagraph to determine the lowest laboratory reporting limit for such substance that can be consistently and accurately achieved. If the commissioner determines that such laboratory reporting limit is still greater than the applicable RSR criteria, the commissioner may determine that compliance with the RSRs will be achieved when such substance has been remediated to such laboratory reporting limit. Any such determination by the commissioner shall be in writing and shall include the reasons for such determination.

(i) **Applicability of Remediation to Volatilization Criteria**

(1) Provided the requirements of subdivision (2) of this subsection are satisfied, notwithstanding sections 22a-133k-3(a) and 22a-133-3(c) of the RSRs, volatile organic substances in groundwater may be remediated to:

(A) No more than fifteen (15) feet from the ground surface and no more than fifteen (15) feet from the lowest portion of a building under which groundwater is polluted with such substances; and

(B) The applicable groundwater volatilization criteria listed in the following table.

Volatile Substance	**Residential Volatilization Criteria for Groundwater in µg/L (ppb)**	**Industrial/Commercial Volatilization Criteria for Groundwater in µg/L (ppb)**
Acetone	50,000	50,000

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Volatile Substance	Residential Volatilization Criteria for Groundwater in µg/L (ppb)	Industrial/Commercial Volatilization Criteria for Groundwater in µg/L (ppb)
Benzene	215	530
Bromoform	920	3,800
2-Butanone (MEK)	50,000	50,000
Carbon Tetrachloride	16	40
Chlorobenzene	1,800	6,150
Chloroform	287	710
1,2-Dichlorobenzene	30,500	50,000
1,3-Dichlorobenzene	24,200	50,000
1,4-Dichlorobenzene	50,000	50,000
1,1-Dichloroethane	34,600	50,000
1,2-Dichloroethane	21	90
1,1-Dichloroethylene	1	6
1,2-Dichloropropane	14	60
1,3-Dichloropropene	6	25
Ethyl benzene	50,000	50,000
Ethylene dibromide (EDB)	4	16
Methyl-tert-butyl-ether	50,000	50,000
Methyl isobutyl ketone	50,000	50,000
Methylene chloride	50,000	50,000
Styrene	580	2,065
1,1,1,2-Tetrachloroethane	12	50
1,1,2,2-Tetrachloroethane	23	100
Tetrachloroethylene	1,500	3,820
Toluene	23,500	50,000
1,1,1-Trichloroethane	20,400	50,000
1,1,2-Trichloroethane	8,000	19,600
Trichloroethylene	219	540
Vinyl chloride	2	2
Xylenes	21,300	50,000

(2) Compliance with subparagraphs (A) to (D) of this subdivision is required in order to be eligible to use the remediation standards set forth in subdivision (1) of this subsection.

(A) Prior to February 16, 2021:

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(i) Remediation of such volatile organic substances shall have already been initiated or an LEP shall have documented in a Remedial Action Plan submitted to the commissioner such LEP's determination that no remediation of such substances is required; and

(ii) If required, public notice of such remediation shall have been published, pursuant to subsection (d) of this section or any provision of the Connecticut General Statutes;

(B) On or before February 16, 2023, remediation of such volatile organic substances shall have been completed and approved by the commissioner, or completed sufficient to support an LEP's verification, as that term is defined in section 22a-133v-1(dd) of the Regulations of Connecticut State Agencies;

(C) Compliance with all other requirements in the RSRs regarding volatile organic substances in groundwater shall have been achieved; and

(D) Documentation demonstrating compliance with this subsection is submitted to the commissioner by the earliest of the following dates:

(i) The applicable deadline set forth in section 22a-134a(g)(1)(B) or section 22a- 134a(g)(1)(C) of the Connecticut General Statutes;

(ii) The deadline set forth in any order issued by the commissioner;

(iii) The deadline set forth in any judgment issued by a court; or

(iv) February 16, 2026.

(3) In the event the requirements of subdivision (2) of this subsection are not complied with, volatile organic substances in groundwater shall be remediated to the standards set forth in section 22a-133k-3 of the RSRs, and not those in subdivision (1) of this subsection.]

<u>The remediation standards adopted pursuant to section 22a-133k of the Connecticut General Statutes shall be those standards adopted at sections 22a-134tt-1(a) to 22a-134tt-(d), inclusive of the Regulations of Connecticut State Agencies, sections 22a-134tt-7 to 22a-134tt-10, inclusive, of the Regulations of Connecticut State Agencies; and sections 22a-134tt-App2 to 22a-134tt-App12 of the Regulations of Connecticut State Agencies.</u>

Sec. 22a-133k-2. **Remediation Standards for Soil**

[(a) **Soil Criteria**

Unless otherwise specified in the RSRs, polluted soil at a release area shall be remediated so that the concentration of a substance in such soil is equal to or less than:

(1) The direct exposure criteria and the pollutant mobility criteria; or

(2) The background concentration for soil.

(b) **Direct Exposure Criteria**

(1) Residential Direct Exposure Criteria

Except as otherwise specified in the RSRs, polluted soil at a release area shall be remediated so that the concentrations of substances in such soil are equal to or less than the residential direct exposure criteria.

(2) Use of Industrial/Commercial Direct Exposure Criteria

(A) Except for soil polluted with PCBs, polluted soil at a release area may be remediated so that the concentrations of substances in such soil are equal to or less than the industrial/commercial direct exposure criteria provided that:

(i) The subject area is not currently used for any residential activity;

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(ii) Access to the parcel containing such release area is limited to individuals working at or temporarily visiting the subject parcel for industrial/commercial activity; and

(iii) An EUR is in effect for the subject area, which restriction shall:

(I) Prohibit residential activity; and

(II) Require compliance with clause (ii) of this subparagraph.

(B) Soil polluted with PCBs at a release area may be remediated so that the concentration of PCBs in such soil is equal to or less than the industrial/commercial direct exposure criteria for PCBs, provided that:

(i) The subject area is not currently used for any residential activity;

(ii) The parcel on which PCBs are present is used in accordance with title 40 CFR Part 761, including, but not limited to, those provisions of 40 CFR Part 761 regarding the requirement for high-occupancy areas;

(iii) The parcel upon which such release area is located is an outdoor electrical substation as defined in 40 CFR 761.123, or an other restricted access non-substation location, as defined in 40 CFR 761.123; and

(iv) An ELUR is in effect for the subject area, which restriction shall:

(I) Prohibit residential activity; and

(II) Require compliance with clauses (ii) and (iii) of this subparagraph.

(3) Conditional Exemptions for Inaccessible Soil

The provisions of this subdivision do not apply to soil polluted with PCBs.

(A) Soil at a release area that is fifteen feet or more below the ground surface is not required to be remediated to the direct exposure criteria.

(B) Inaccessible soil at a release area is not required to be remediated to the direct exposure criteria, provided that an EUR is in effect for the subject area, which restriction shall:

(i) Prohibit exposure to inaccessible soil, including, but not limited to, as a result of excavation, demolition, other intrusive activities, or natural occurrences;

(ii) Require that if soil is used to render polluted soil inaccessible, such soil is maintained and immediately replaced, as needed, to maintain the four (4) feet of soil cover and topography of the ground surface; and

(iii) Require, as applicable, that:

(I) Bituminous or reinforced concrete that renders the soil inaccessible is maintained in good condition, and free of gaps or cracks that could expose such soil;

(II) A building that is used to render soil inaccessible shall consist of a roof, exterior walls, and a concrete floor, maintained in good condition and free of gaps or cracks that could expose such soil and such building shall not be removed; or

(III) Provided that written notice is submitted to the commissioner, a permanent structure that renders the soil inaccessible, shall be maintained in good condition to the extent required to prevent exposure of such soil and shall not be removed.

(4) Conditional Exemption for Inaccessible Soil Polluted with PCBs

(A) Unless alternative criteria have been approved in accordance with subsection (d)(2) of this section, inaccessible soil polluted with PCBs may be remediated to the concentrations specified in subparagraph (B) of this subdivision, provided that an ELUR is in effect for the subject area, which restriction shall:

(i) Prohibit exposure to such inaccessible soil, including, but not limited to, as a result of excavation, demolition, other intrusive activities, or natural occurrences;

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(ii) Prohibit residential activity;

(iii) Require that if soil is used to render polluted soil inaccessible, that such soil used to render polluted soil inaccessible is maintained and immediately replaced, as needed, to maintain the elevation and topography of the ground surface; and

(iv) Require, as applicable, that:

(I) Bituminous or reinforced concrete that renders the soil inaccessible is maintained in good condition and free of gaps or cracks that could expose such soil;

(II) A building that is used to render soil inaccessible shall consist of a roof, exterior walls, and a concrete floor, maintained in good condition and free of gaps or cracks that could expose such soil and such building shall not be removed; or

(III) Provided that written notice is submitted to the commissioner, a permanent structure approved in writing by the commissioner that renders the soil inaccessible shall be maintained in good condition to the extent required to prevent exposure of such soil and shall not be removed.

(B) Provided the requirements of subparagraph (A) of this subdivision are met, inaccessible soil at a release area polluted with PCBs may be remediated so that the concentrations of PCBs in such soil are equal to or less than:

(i) Ten (10) ppm PCBs by dry weight; and

(ii) Twenty-five (25) ppm PCBs by dry weight if such inaccessible soil is located on an "other restricted access (nonsubstation) location" or an "outdoor electrical substation" as those terms are defined in 40 CFR 761.123, provided that PCBs may be remediated to fifty (50) ppm by dry weight at an outdoor electric substation if a label or notice is visibly placed in the area in accordance with 40 CFR 761.125(c)(2).

(5) Conditional Exemption for Incidental Sources

Soil at a release area polluted with metals, petroleum hydrocarbons, or semi-volatile organic substances is not required to be remediated to the direct exposure criteria for those substances, provided such pollution is the result of:

(A) An incidental release due to the normal operation of motor vehicles, not including refueling, repair or maintenance of a motor vehicle; or

(B) Normal paving and maintenance of a consolidated bituminous concrete surface, provided such bituminous concrete surface has been maintained for its intended purpose.

(6) Conditional Exemption for Soil Polluted with Pesticides

Soil polluted with pesticides at a release area as a result of the application of pesticides is not required to be remediated to the direct exposure criteria for such pesticides, provided that a determination has been made that such pesticides are present solely as a result of the application of pesticides and:

(A) If the release area is used for residential activity:

(i) Protective measures are developed, implemented, and maintained to prevent human exposure to soil polluted with pesticides that exceeds residential direct exposure criteria. At a minimum, such measures shall consist of:

(I) Blending existing soil so that the concentration of substances for such pesticides in the top one (1) foot of soil are equal to or less than the direct exposure criteria, except for the area around existing mature trees;

(II) Covering soil with pavement, hardscape, buildings, or permanent structures; or

(III) Growing dense or vexatious vegetation on steep slopes to minimize the potential for direct exposure and erosion; and

(ii) An EUR is in effect for the subject area, which restriction shall:

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(I) Identify the nature and extent of soil polluted with pesticides above residential direct exposure criteria and serve as notice of such polluted soil; and

(II) Require compliance with clause (i) of this subparagraph.

(B) If the release area is used for industrial/commercial activity:

(i) A soil management plan shall be developed, implemented, and maintained which plan shall include protective measures and ensure, at a minimum that any soil that exceeds the industrial/commercial direct exposure criteria is not exposed, including, but not limited to, as a result of excavation, demolition, or other activities and that any such soil is managed, restored, or disposed in a manner that is protective of human health and the environment and prevents human exposure to such soil, except that such soil management plan need not apply to any portion of a release area that is currently used for raising crops where pesticides are used; and

(ii) An EUR is in effect for the subject area, which restriction shall:

(I) Prohibit residential activity; and

(II) Require compliance with clause (i) of this subparagraph.

(7) Direct Exposure Criteria for Additional Polluting Substances

(A) Substances at a particular release area, for which direct exposure criteria are not specified in Appendix A of the RSRs shall be remediated to background concentration or to criteria obtained pursuant to this subdivision. A request under this subdivision shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs, and shall also include:

(i) A proposed risk-based direct exposure criterion calculated in accordance with Appendix G of the RSRs, for each substance in such request;

(ii) The laboratory reporting limit for each substance; and

(iii) Any information about the health effects each substance may cause due to exposure pathways not accounted for in the risk-based direct exposure criterion proposed under clause (i) of this subparagraph.

(B) The commissioner may approve or deny in writing a request made under subparagraph (A) of this subdivision. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that the requirements of this subdivision have been satisfied and that the proposed direct exposure criteria will be protective of human health and the environment.

(C) Unless prohibited in writing by the commissioner, criteria approved by the commissioner pursuant to subparagraph (A) of this subdivision, may be the subject of a request for alternative criteria under subsection (d)(2)(A) of this subsection.

(c) **Pollutant Mobility Criteria**

(1) Pollutant Mobility Criteria

(A) Except as otherwise specified in the RSRs, polluted soil at a release area located in a GA area shall be remediated to the seasonal low water table; whereas polluted soil at a release area located in a GB area shall be remediated to the seasonal high water table. All such polluted soil shall be remediated so that the concentrations of substances in such soil are equal to or less than the applicable pollutant mobility criteria, as determined using:

(i) Analytical results reported on a per mass basis in mg/kg analysis for such substances, other than inorganic substances and PCBs; and

(ii) TCLP or SPLP analysis expressed in mg/L, or mass analysis in mg/kg divided by twenty, for inorganic substances and PCBs.

(B) In GA areas, if it is determined that remediation to the seasonal low water table is technically impracticable or would not result in the permanent elimination of a source of pollution, this subsection shall apply to polluted soil above the seasonal high water table.

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(2) Optional Criteria for Polluted Soil in a GA Area

(A) Polluted Soil in any GA Area

Substances in polluted soil in a GA area may be remediated to a concentration equal to or less than the groundwater protection criteria for such substance based upon the analytical laboratory results of a TCLP or SPLP analysis.

(B) Polluted Soil, Except for PCBs or ETPH, in Certain GA Areas

(i) Substances, except for either PCBs or ETPH, in polluted soil in a GA area, may be remediated to a concentration at which the analytical laboratory results of:

(I) TCLP or SPLP analysis for such substance in soil is equal to or less than ten (10) times the groundwater protection criteria;

(II) TCLP or SPLP analysis for such substance in soil is equal to or less than the groundwater protection criteria multiplied by an alternative dilution or dilution and attenuation factor, approved in writing by the commissioner in accordance with subsection (d)(3)(B) of this section;

(III) Mass analysis for such substance in soil, is equal to or less than ten (10) times the applicable pollutant mobility criteria in Appendix B of the RSRs or approved in writing by the commissioner in accordance with subsection (c)(6) of this section; or

(IV) Mass analysis for such substance in soil is equal to or less than the applicable pollutant mobility criteria multiplied by an alternative dilution or dilution and attenuation factor approved in writing by the commissioner in accordance with subsection (d)(3)(B) of this section.

(ii) The remediation standards specified in clause (i) of this subparagraph may be used only if conditions at a release area satisfy the requirements of subparagraphs (C) and (D) of this subdivision and the notice requirements of subparagraph (E) of this subdivision are satisfied.

(C) Conditions at a release area shall comply with the following requirements:

(i) NAPL is not present as determined in accordance with subdivision (4) of this subsection;

(ii) The water table is at least fifteen (15) feet above the surface of the bedrock; and

(iii) The downward vertical flow velocity of groundwater is equal to or less than the horizontal flow velocity.

(D) Conditions at the release area shall satisfy clause (i) or (ii) of this subparagraph.

(i) (I) A public water supply distribution system is available within two hundred (200) feet of the parcel on which the release area is located, within two hundred (200) feet of all adjacent parcels, and within two hundred (200) feet of any parcel within the areal extent of the groundwater plume from the subject release area;

(II) The groundwater within the areal extent of the groundwater plume from the subject release area is not used for drinking water;

(III) No public or private water supply wells exist within five hundred (500) feet of the subject release area; and

(IV) The groundwater affected by the subject release area is not a potential public water supply resource or in an aquifer protection area; or

(ii) The groundwater plume resulting from the subject release is a diminishing state groundwater plume and either:

(I) The concentration of any substance in the groundwater plume from the subject release area and within seventy-five (75) feet of the nearest downgradient parcel boundary is equal to or less than the groundwater protection criteria; or

(II) The concentration of any substance within the groundwater plume from the subject release area is equal to or less than the groundwater protection criteria for such substance at a location

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downgradient of the subject release area, on the subject parcel, and within twenty-five (25) feet of such release area .

(E) Written notice of the use of optional criteria calculated by an LEP under subparagraph (B) of this subdivision shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs.

(3) Optional Criteria for Polluted Soil in a GB Area

(A) Polluted Soil in a GB Area

Provided that NAPL is not present in the release area above the seasonal high water table, as determined in accordance with subdivision (4) of this subsection, substances in soil in a GB area may be remediated to a concentration at which the results of a TCLP or SPLP analysis of each substance is equal to or less than the groundwater protection criteria:

(i) Multiplied by ten (10);

(ii) Multiplied by the ratio of the summation of the downgradient area and upgradient area compared to the release area, provided that such ratio is equal to or less than five hundred (500); or

(iii) Multiplied by an alternative dilution or dilution and attenuation factor approved in writing by the commissioner in accordance with subsection (d)(3) of this section.

(B) Optional Criteria Based Upon Release-Specific Dilution in a GB Area

(i) The criteria in this clause may only be used if the requirements in clauses (ii) and (iii) of this subparagraph are satisfied. Except for soil polluted with PCBs, substances in soil in a GB area may be remediated to a concentration at which the results of either:

(I) Mass analysis for each substance is equal to or less than the pollutant mobility criteria applicable to such substance in a GA area multiplied by a release-specific dilution factor calculated in accordance with clause (iv) of this subparagraph; or

(II) TCLP or SPLP analysis for each substance is equal to or less than the groundwater protection criterion for such substance multiplied by a release-specific dilution factor calculated in accordance with clause (iv) of this subparagraph.

(ii) Conditions at the subject release area comply with the following requirements:

(I) NAPL is not present above the seasonal high water table as determined in accordance with subdivision (4) of this subsection;

(II) The water table is at least fifteen (15) feet above the surface of the bedrock;

(III) The downward vertical flow velocity of groundwater is equal to or less than the horizontal flow velocity; and

(IV) For each substance in groundwater, the background concentration is equal to or less than the groundwater protection criteria.

(iii) Written notice of the use of optional criteria calculated by an LEP under this subparagraph shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs and shall also include the calculation in clause (iv) of this subparagraph, value and basis of terms, and the till infiltration rate and dilution factor from the following table, based on the geologic material and infiltration rate.

Geologic Material	**Infiltration Rate (feet/year)**
Stratified Drift	2.0
Till	0.5 - 1.0
Lacustrine Deposits	0.4

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(iv) The release-specific dilution factor referred to in clause (i) of this subparagraph, shall be calculated using the following formula, and the value of terms referred to in clause (i) of this subparagraph shall be calculated using the following formula:

$$DF = (1 + \left(\frac{Kid}{IL}\right))(1 - F_{adj})$$

Terms	Description	Value	Units
DF	Release-specific dilution factor	substance-specific	unitless
K	Hydraulic conductivity of the unconsolidated aquifer underlying the release area	calculated	ft/year
i	Horizontal hydraulic gradient	calculated	ft/ft
d	Aquifer mixing zone default value of 3 feet or a release-specific value calculated using: $d = (0.0112L^2)^{0.5} + d_\alpha[1 - e^{\left(-\frac{LI}{Kid_\alpha}\right)}]$	3, or as otherwise calculated	ft
d_α	Aquifer thickness	as determined from boring logs	ft
I	Infiltration rate, as identified in section 22a-133k-2(c)(3)(B)(iii)(IV) of the RSRs	calculated	ft/year
L	Length of the release area parallel to the direction of groundwater flow	as measured	ft
F_{adj}	Background concentration for groundwater divided by the groundwater protection criteria for the subject substance or, where the background concentration for groundwater cannot be quantified, one half the laboratory reporting limit for the subject substance divided by the groundwater protection criteria for the subject substance	calculated	unitless

(4) Determining the Presence of NAPL in Soil

For the purpose of this subsection, the presence of NAPL in soil shall be determined using either:

(A) The following equation where the variables in the equation are assigned the values in the Table following this equation:

$$C_{NAP} = (S/2\rho_b)(K_d\rho_b + \theta_w + H'\theta_a)$$

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Terms	Description	Units	Value
C_{NAP}	Concentration of an organic substance at which or above which such substance may be present in a non-aqueous phase	mg/kg	calculated
S	Effective solubility	mg/L	substance-specific
ρ_b	Dry soil bulk density	kg/L	1.5 or the lowest value measured at the subject release area
K_d	Soil-water partition coefficient, which is calculated using $K_d = K_{OC} * f_{OC}$	L/kg	calculated
K_{OC}	Soil organic carbon-water partition coefficient	L/kg	substance-specific
f_{OC}	Fraction organic carbon of soil	g/g	0.006 or the lowest value measured at the subject release area
θ_w	Water-filled soil porosity L_{water}/L_{soil}	L_{water}/L_{soil}	0.15 for unsaturated soil or 0.43 for saturated soil
θ_a	Air-filled soil porosity L_{air}/L_{soil}	L_{air}/L_{soil}	0.28 for unsaturated soil or 0.0 for saturated soil
H'	Henry's law constant (dimensionless)	unitless	H x 41 where 41 is a conversion factor
H	Henry's law constant	atm-m^3/mol	substance-specific

(B) The commissioner may approve or deny in writing a request for an alternative to the equation in subparagraph (A) of this subdivision to determine the presence of NAPL in soil. Such proposed alternative methods may be based upon emerging technologies and approaches for which guidance, a standard, or an industrial code has been published by a regulatory agency, governmental advisory group, or other recognized professional organization. A request under this subdivision shall be submitted to the commissioner on a form prescribed by the commissioner in accordance with section 22a-133k-1(g) of the RSRs, and shall also include any other information that the commissioner deems necessary to evaluate such request. Any approval by the commissioner may specify conditions necessary to protect human health and the environment.

(5) Conditional Exemptions to Pollutant Mobility Criteria

(A) Environmentally Isolated Soil

Polluted soil at a release area above the seasonal high water table is not required to be remediated to the pollutant mobility criteria, provided that:

(i) Such soil does not contain substances that are a continuing source of pollution;

(ii) Regardless of groundwater classification, if such soil contains volatile organic substances in excess of GA area pollutant mobility criteria, the concentrations of such substances have been reduced or immobilized to the maximum extent prudent;

(iii) An EUR is in effect for the subject area, which restriction shall:

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(I) Prohibit infiltration of liquid into such soil; and

(II) Require compliance with clause (i) and, if applicable, clause (ii) of this subparagraph; and

(iv) The EUR specified in clause (iii) of this subparagraph shall also:

(I) Require that any building that renders soil environmentally isolated consists of a roof and structural walls that prevent infiltration of liquid into the soil beneath the building footprint, and prohibit removal of such building; or

(II) Require that the use of a permanent structure that renders soil environmentally isolated and prevents infiltration of liquid into the soil beneath the structure's footprint has been approved in writing by the commissioner and prohibit the removal of such structure.

(B) Polluted Material

(i) Polluted material at a release area is not required to be remediated to the pollutant mobility criteria, provided that:

(I) The pollutant mobility criteria in such polluted material is exceeded solely as a result of the presence of coal ash, wood ash, coal fragments, coal slag, coal clinkers, asphalt paving fragments, or any combination thereof;

(II) Such polluted material is not polluted with any volatile organic substances that exceed the applicable pollutant mobility criteria,

(III) Such polluted material does not exceed the applicable soil vapor volatilization criteria, or if it does, all such polluted material is under a building in accordance with section 22a-133k-3(c)(3) of the RSRs, a permanent structure approved in writing by the commissioner, or an engineered control in compliance with subsection (f)(2)(B) of this section;

(IV) Such polluted material has achieved compliance with the direct exposure criteria in subsection (b) of this section;

(V) Such polluted material is not affecting and will not affect the quality of an existing use of groundwater, including, but not limited to, a potential public water supply resource or an aquifer protection area;

(VI) A public water supply distribution system is available within two hundred (200) feet of the parcel on which polluted material is located and within two hundred (200) feet of all parcels adjacent thereto; and

(VII) The placement of the polluted material used as fill was not prohibited by law at the time of placement.

(ii) This subparagraph shall apply only to polluted materials identified in clause (i) of this subparagraph and releases from such materials. It shall not apply to releases that are not from polluted materials, even if such releases are in the same location as the polluted materials identified in clause (i) of this subparagraph.

(C) Soil Subject to Infiltration

Polluted soil at a release area polluted with substances, other than volatile organic substances, that exceed DEC or PMC is not required to be remediated to the pollutant mobility criteria, provided that at such release area:

(i) Eighty (80) percent or more of the mass of the substances remaining at the release area has been subject to infiltration;

(ii) Infiltration was not obstructed by anthropogenic features, for at least five (5) years;

(iii) Groundwater monitoring complies with the requirements of section 22a-133k-3(h)(1) of the RSRs; and

(iv) The laboratory analytical results for all groundwater sample events collected as specified in section 22a-133k-3(h)(3) of the RSRs are equal to or less than the following:

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(I) For a GA area, an aquifer protection area, or groundwater area used as a source for either a private or public drinking water supply located in a GB area, the groundwater protection criteria and the surface water protection criteria or, if applicable, the water quality criteria; or

(II) For a GB area, other than a GB area specified in subclause (I) of this clause, the surface water protection criteria or, if applicable, the water quality criteria.

(D) Conditional Exemption for Incidental Sources

Soil at a release area polluted with metals, petroleum hydrocarbons, or semi-volatile organic substances is not required to be remediated to the pollutant mobility criteria, provided such pollution is the result of:

(i) An incidental release due to the normal operation of motor vehicles, not including refueling, repair or maintenance of a motor vehicle; or

(ii) Normal paving and maintenance of a consolidated bituminous concrete surface provided such bituminous concrete surface has been maintained for its intended purpose.

(E) Conditional Exemption for Soil Polluted with Pesticides

Soil polluted with pesticides at a release area as a result of the application of pesticides at such release area is not required to be remediated to the pollutant mobility criteria, provided that a determination has been made that such pesticides are present solely as a result of the application of pesticides and:

(i) Compliance with the direct exposure criteria or the requirements in subsection (b)(6) of this section has been achieved; and

(ii) Compliance with the groundwater standards specified in section 22a-133k-3(a) of the RSRs or the requirements of section 22a-133k-3(g) of the RSRs has been achieved.

(6) Pollutant Mobility Criteria for Additional Polluting Substances

(A) Substances at a release area for which pollutant mobility criteria are not specified in Appendix B of the RSRs shall be remediated to background concentration or to criteria obtained pursuant to this subdivision. A request under this subdivision shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs, and shall also include:

(i) A proposed risk-based pollutant mobility criteria for each substance calculated in accordance with Appendix G of the RSRs, as applicable to the groundwater classification of the release area;

(ii) A method for determining compliance with each criteria;

(iii) The laboratory reporting limit for each substance; and

(iv) Any information demonstrating whether a proposed criteria will ensure that soil water at such release area does not exceed:

(I) In a GA area, the groundwater protection criteria; or

(II) In a GB area, the groundwater protection criteria multiplied by a dilution factor of ten (10).

(B) The commissioner may approve or deny in writing a request made under subparagraph (A) of this subdivision. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that the requirements of this subdivision have been satisfied and that the proposed pollutant mobility criteria will be protective of human health and the environment.

(C) Unless prohibited in writing by the commissioner, criteria approved by the commissioner pursuant to subparagraph (A) of this subdivision, may be the subject of a request for alternative criteria under subsection (d)(3)(A) of this subsection.

(d) **Alternative Soil Criteria and Alternative Dilution or Dilution Attenuation Factor**

(1) Information Required in a Request for Approval of Alternative Soil Criteria

A request for approval of the alternative direct exposure criteria or alternative pollutant mobility criteria at a particular release area may be submitted to the commissioner under this subsection.

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Any such request shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs, including any additional information specified in subdivisions (2) or (3) of this subsection, as applicable, and shall also include:

(A) A detailed description of any other release area located on the same parcel as the subject release area and whether such other release area is affected or potentially affected by the subject release area, or is affecting or may potentially affect the subject release area; and

(B) When an EUR is required under this subsection, the acknowledgement and consent of the owner of the subject area to such alternative direct exposure criteria.

(2) Commissioner Approval of Alternative Release-Specific Direct Exposure Criteria

With respect to a substance, except PCBs, for which direct exposure criteria are specified in Appendix A of the RSRs or approved in writing by the commissioner pursuant to subsection (b)(7) of this section, the commissioner may approve or deny in writing a request for an alternative release-specific direct exposure criteria or an alternative method for determining compliance with such criteria.

(A) For substances in soil at a release area, no request shall be approved unless it is demonstrated to the commissioner's satisfaction that:

(i) The application of such alternative direct exposure criteria or method of compliance will protect human health and the environment from the risks associated with direct exposure to polluted soil;

(ii) The concentration of each carcinogenic substance in such soil is equal to or less than a 1×10^{-6} excess lifetime cancer risk level and the concentration of each non-carcinogenic substance in such soil does not exceed a hazard index of 1;

(iii) For a release area polluted with ten (10) or more carcinogenic substances, the cumulative excess lifetime cancer risk for all carcinogenic substances in such soil with the same target organ is equal to or less than 1×10^{-5}; and

(iv) For a release area polluted with ten (10) or more non-carcinogenic substances, the cumulative hazard index is equal to or less than 1 for non-carcinogenic substances in such soil with the same target organ.

(B) A request for approval of direct exposure criteria or method of compliance shall include a risk assessment prepared in accordance with the most recent EPA Risk Assessment Guidance for Superfund, or other risk assessment method approved by the commissioner.

(C) Any approval of the commissioner under this subdivision may require that an EUR is or will be in effect for the subject area, which restriction shall require compliance with any conditions specified by the commissioner when issuing such approval.

(3) Commissioner Approval of Alternative Release-Specific Pollutant Mobility Criteria

(A) Alternative Release-Specific Pollutant Mobility Criteria

With respect to substances for which pollutant mobility criteria are specified in Appendix B of the RSRs or approved by the commissioner pursuant to subsection (c)(6) of this section, the commissioner may approve or deny in writing a request for an alternative release-specific pollutant mobility criteria or an alternative method for determining compliance with such criteria. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that the application of such alternatives:

(i) For a substance in soil located in a GA area, will ensure that soil water at such release area is equal to or less than the groundwater protection criteria for such substance; or

(ii) For a substance in soil located in a GB area, will ensure that the groundwater plume, after dilution resulting from infiltration on the parcel, is equal to or less than the groundwater protection criteria for such substance.

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(B) Alternative Release-Specific Dilution or Dilution Attenuation Factor

With respect to substances for which pollutant mobility criteria are specified in Appendix B of the RSRs or approved by the commissioner pursuant to subsection (c)(6) of this section, the commissioner may approve or deny in writing a request for an alternative release-specific dilution or dilution attenuation factor. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that the application of such dilution attenuation factor:

(i) For a substance in soil located in a GA area, will ensure that the release area will not degrade groundwater quality and thereby prevent the achievement of the groundwater criteria or background concentration, in accordance with section 22a-133k-3 of the RSRs; or

(ii) For a substance in soil located in a GB area, will ensure that the soil water at the release area will not cause the groundwater at the nearest downgradient parcel boundary to exceed the groundwater protection criteria for each substance.

(C) Condition for Approval

For any request for approval of alternative pollutant mobility criteria or alternative dilution or dilution attenuation factor specified in this subdivision, alternative groundwater criteria shall not be used for the same substance for which alternative soil criteria is requested.

(4) LEP Calculation and Use of Alternative Release–Specific Pollutant Mobility Criteria

With respect to substances for which pollutant mobility criteria are specified in Appendix B of the RSRs, alternative release–specific pollutant mobility criteria for a particular release area may be calculated by an LEP in accordance with Appendix H of the RSRs and used at a release area, provided that:

(A) The calculated alternative pollutant mobility criteria shall not exceed one thousand (1,000) mg/kg in a GA area or ten thousand (10,000) mg/kg in a GB area;

(B) All representative laboratory analytical results of groundwater samples used to determine compliance with any such alternative criteria shall be conducted in accordance with section 22a-133k-3(h) of the RSRs. Alternative criteria under this subdivision shall not be used if any groundwater sample results are equal to or greater than:

(i) The groundwater protection criteria in Appendix C of the RSRs, if the subject release area is in a GA area, an aquifer protection area, or an area where groundwater is used as a source of either private or public drinking water supply;

(ii) Either the surface water protection criteria in Appendix D of the RSRs or, if required under section 22a-133k-3(a)(3) of the RSRs, the water quality criteria; and

(iii) The volatilization criteria in Appendix E of the RSRs; and

(C) Notice of the use and derivation of the calculated criteria is submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs.

(e) **Determining Compliance with the Soil Criteria**

(1) Direct Exposure Criteria

Unless an alternative method for determining compliance with direct exposure criteria has been approved in writing by the commissioner pursuant to subsection (d)(2) of this section, compliance with direct exposure criteria for each substance is achieved when either:

(A) All laboratory analytical results of soil samples from a release area are equal to or less than the applicable direct exposure criteria; or

(B) Except for PCBs, the ninety-five (95) percent upper confidence level of the arithmetic mean of a statistically representative sampling data set of all laboratory analytical results for such substance from a release area, consisting of ten (10) or more soil samples, is equal to or less than the applicable direct exposure criteria.

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(2) Pollutant Mobility Criteria

Unless an alternative method for determining compliance with pollutant mobility criteria has been approved in writing by the commissioner pursuant to subsection (d)(3) of this section, compliance with pollutant mobility criteria for each substance is achieved when either:

(A) All laboratory analytical results of soil samples from a release area are equal to or less than the applicable pollutant mobility criteria; or

(B) Except for PCBs, the ninety-five (95) percent upper confidence level of the arithmetic mean of a statistically representative sampling data set of all laboratory analytical results for such substance from a release area, consisting of ten (10) or more soil samples that are located above the water table, is equal to or less than the applicable pollutant mobility criteria.

(3) Background Concentration

Compliance when remediating to the background concentration for a given substance in soil is achieved when:

(A) A representative sampling program is used to characterize the background concentration for soil that is:

(i) Of similar texture and composition;

(ii) Collected from the nearest location practicable outside the subject release area, as demonstrated to the satisfaction of the commissioner; and

(iii) Not affected by another discrete release of the same substance, or having an effect on the concentrations of the same substance for which a background concentration is determined; and either

(B) All laboratory analytical results of soil samples from the subject release area are equal to or less than the background concentration for soil; or

(C) A statistical comparison of the background concentrations in soil to the concentrations of substances in soil from the subject release area, results in a statistically significant similarity.

(f) **Soil Criteria Variances**

(1) Widespread Polluted Fill Variance

(A) Eligibility

Geographically-extensive polluted fill present at a parcel may be eligible for a variance from compliance with the pollutant mobility criteria in accordance with subparagraph (B) or (C) of this subdivision, provided that:

(i) The fill for which a variance is sought does not contain volatile organic substances in excess of pollutant mobility criteria;

(ii) Such fill 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;

(iii) For each substance in such fill, compliance with the direct exposure criteria in subsection (b) of this section has been achieved;

(iv) Any substances released into such fill subsequent to the placement of such fill that exceed the pollutant mobility criteria shall be remediated to concentrations equal to or less than the concentrations of those substances already within such fill;

(v) The placement of such fill was not prohibited by law at the time of placement;

(vi) Such fill shall remain on the parcel within the area for which such variance has been certified by an LEP in accordance with subparagraph (B) of this subdivision or approved in writing by the commissioner in accordance with subparagraph (C) of this subdivision; and

(vii) The owner of the parcel for which a variance is sought acknowledges and consents to such variance and the EUR required by subparagraph (D) of this subdivision.

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(B) LEP Certification of a Widespread Polluted Fill Variance

A variance for widespread polluted fill in accordance with this subdivision may be certified in writing by an LEP, provided such LEP determines that a parcel complies with the eligibility requirements in subparagraph (A) of this subdivision and the LEP demonstrates that the following requirements have been satisfied:

(i) Such fill extends over an area larger than ten (10) acres;

(ii) Such fill is located within the coastal boundary, as defined in section 22a-94(b) of the Connecticut General Statutes;

(iii) Such fill is located within a GB area;

(iv) Such fill is not located within the drainage basin of a Class A stream, as identified in the Water Quality Standards;

(v) Compliance with the groundwater standards in section 22a-133k-3 of the RSRs has been achieved for each substance in groundwater;

(vi) Such fill is not hazardous waste, as defined in section 22a-448 of the Connecticut General Statutes;

(vii) Except in the case of a municipality or state or federal agency, the person requesting the variance or the owner of the parcel subject to the variance did not place the fill on the subject parcel and is not affiliated with any person responsible for such placement through any direct or indirect familial relationship or any contractual, corporate, or financial relationship other than that by which such person's or such owner's interest in such parcel was conveyed or financed; and

(viii) Notice of the use of such variance shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs.

(C) Commissioner Approval of a Widespread Polluted Fill Variance

The commissioner may approve or deny in writing a request for a variance under this subsection. No request shall be approved unless such request demonstrates to the commissioner's satisfaction the eligibility requirements in subparagraph (A) of this subdivision and the requirements of this subparagraph have been satisfied. A request for such variance shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs, and shall also include:

(i) Information demonstrating that a public water supply distribution system is available to all areas between the groundwater plume and the downgradient surface water discharge area;

(ii) The comparable cost of achieving compliance with pollutant mobility criteria without such variance;

(iii) The degree to which such fill exceeds pollutant mobility criteria;

(iv) The extent of such fill on the subject parcel that extends below the water table;

(v) The three-dimensional extent of such fill and the percentage of such fill occurring on the subject parcel; and

(vi) Information demonstrating that the person requesting the variance or the owner of the parcel subject to the variance did not place such fill on the subject parcel or is not affiliated with any person responsible for the placement of such fill through any direct or indirect familial relationship or any contractual, corporate or financial relationship other than that by which such person's or such owner's interest in such parcel is to be conveyed or financed.

(D) Actions Required for Maintaining a Widespread Polluted Fill Variance

(i) No later than one hundred and eighty (180) days after an LEP certifies a widespread polluted fill variance under subdivision (1)(B) of this subsection, an EUR that complies with the requirements of this subsection and the EUR regulations shall be in effect for the subject area,

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which restriction shall prohibit any movement or reuse of such fill in a manner that does not comply with the RSRs; or

(ii) No later than one hundred and eighty (180) days after a widespread polluted fill variance has been certified by an LEP or approved by the commissioner, a request for an ELUR or NAUL that complies with the requirements of this subsection and the EUR regulations shall be submitted to the commissioner. The EUR in effect for the subject area, shall:

(iii) Prohibit any movement or reuse of such fill in a manner that does not comply with the RSRs; and

(iv) Require compliance with any condition imposed by the commissioner when approving a variance under this section.

(2) Engineered Control Variance

(A) Eligibility

A release area may be eligible for a variance from compliance with the direct exposure criteria, the pollutant mobility criteria, or both, under this subdivision through the use of an engineered control, provided that:

(i) The commissioner authorized the disposal of solid waste or polluted soil at the subject release area;

(ii) The soil at such release area is polluted with a substance for which remediation is technically impracticable;

(iii) The commissioner has determined that the removal of such substance or substances from such release area would create an unacceptable risk to human health;

(iv) An LEP, pursuant to subparagraph (B) of this subdivision, has determined that the cost of remediating the polluted soil at the subject release area is significantly greater than the cost of installing and maintaining an engineered control for such soil and conducting groundwater monitoring that complies with section 22a-133k-3(h) of the RSRs at the subject release area; or

(v) The commissioner, pursuant to subparagraph (C) of this subdivision, has determined that the cost of remediating the polluted soil at the subject release area significantly outweighs the risk to the environment and human health if the engineered control fails, causing the mobilization of a substance in the soil or human exposure to such substance, and the cost of remediating the polluted soil at the subject release area is significantly greater than the cost of installing and maintaining an engineered control for such soil and conducting groundwater monitoring that complies with section 22a-133k-3(h) of the RSRs at the subject release area.

(B) LEP Certification of an Engineered Control Variance

A variance from compliance with the direct exposure criteria may be available when an engineered control is used at a release area, provided an LEP certifies to the commissioner, in accordance with section 22a-133k-1(g) of the RSRs, that the eligibility requirements of subparagraph (A) of this subdivision and the following requirements have been satisfied:

(i) The engineered control is designed and constructed and will be maintained to meet the following specifications, as applicable:

(I) For non-paved surfaces consisting of shallow-rooted vegetation, mulch, or gravel, there shall be a minimum of one (1) foot of material as measured from the ground surface, provided that the concentrations of any substances in such material are equal to or less than the applicable direct exposure criteria. Such material shall be underlain by a demarcation layer, unless there is a pre-existing mature lawn for a minimum of three (3) years;

(II) For non-paved surfaces consisting of shrubbery, such shrubbery shall be underlain by a minimum of eighteen (18) inches of material as measured from the ground surface, provided that the concentrations of any substances in such material are equal to or less than the applicable direct

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exposure criteria. Such material shall be underlain by a demarcation layer, unless there is pre-existing mature shrubbery;

(III) For non-paved surfaces consisting of trees, such trees shall be underlain by a minimum eighteen (18) inches of material, provided that the concentrations of any substances in such material are equal to or less than the applicable direct exposure criteria, measured vertically from the ground surface and extending horizontally to a radius equivalent to the full extent of the tree crown when mature. Such material shall be underlain by a demarcation layer, unless there are pre-existing trees;

(IV) For non-paved surfaces consisting of hardscape, a professional engineer shall sign and seal a plan and specifications indicating that the hardscape is appropriately designed to work for its intended use, with minimal maintenance and repair for fifteen (15) years, and is or shall be constructed with a minimum of nine (9) inches of a combined thickness of hardscape and sub-base. Such material shall be underlain by a demarcation layer, unless such hardscape is pre-existing;

(V) For paved surfaces, a professional engineer shall sign and seal a plan and specifications indicating that the engineered control is appropriately designed for such paved surface's intended use, with minimal maintenance and repair for fifteen (15) years, and shall be constructed with a minimum of two and one-half (2.5) inches of bituminous concrete with a minimum of six (6) inches of sub-base or a minimum of four (4) inches of reinforced concrete. In addition any bituminous concrete or reinforced concrete less than five (5) feet wide or less than five hundred (500) square feet, the surface shall be underlain by a demarcation layer, unless such paved surface is pre-existing; or

(VI) For a ground-mounted solar array anchored by a concrete ballast, the concrete ballast for the solar array shall be underlain with a minimum of one (1) foot of material and all remaining infrastructure associated with the solar array installation shall consist of a minimum of two (2) feet of material, provided that any substances in such are equal to or less than the applicable direct exposure criteria and all such material is underlain by a demarcation layer;

(ii) PCBs are not present in the soil in excess of the residential direct exposure criteria;

(iii) Consolidation of polluted soil under an engineered control is such that the soil does not exceed four (4) feet above the pre-consolidation elevation;

(iv) Measures are in place to ensure that the structural integrity, function, and effectiveness of the engineered control will be maintained. Such measures shall include, without limitation:

(I) Measures to prevent storm run-on or run-off from damaging the engineered control;

(II) Inspection of the engineered control conducted semi-annually. Such inspections may be done in conjunction with and satisfy the inspection requirements in the EUR Regulations; and

(III) Repairs to correct the effects of settling, subsidence, erosion, or other damaging events or conditions no later than sixty (60) days following identification of damage to the engineered control, provided if weather prevents repairs from being made within sixty (60) days of the identification of damage, as long as temporary repairs or measures have been taken, repairs can be made as soon as the weather permits;

(v) The owner of the subject area on which such engineered control will be placed acknowledges and consents to such engineered control;

(vi) An EUR is or will be in effect for the subject area, which restriction shall:

(I) Prohibit the disturbance of the engineered control and the polluted soil; and

(II) Require compliance with the requirements of this subparagraph, except for clauses (vii) and (viii);

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(vii) A copy of the required public notice that was posted in accordance with section 22a-133k-1(d) of the RSRs; and

(viii) Calculation of the required financial assurance in accordance with section 22a-133k-1(f) of the RSRs.

(C) Commissioner Approval of an Engineered Control Variance

The commissioner may approve or deny in writing a request for a variance under this subsection. No request shall be approved unless such request demonstrates to the commissioner's satisfaction that the eligibility requirements in subparagraph (A) of this subdivision and the requirements of this subparagraph have been met. A request for the commissioner's approval of an engineered control variance shall be submitted in accordance with section 22a-133k-1(g) of the RSRs. Any such request shall include a demonstration of compliance with the eligibility requirements of subparagraph (A) of this subdivision and include a detailed written report and plan which demonstrate that:

(i) Such engineered control is supported by specifications that are signed and sealed by a professional engineer and indicate that such engineered control will function with minimum maintenance, will promote drainage and minimize erosion of or other damage to such control, and will accommodate settling and subsidence of the underlying soil so as to maintain the control's functional integrity;

(ii) Measures are in place to ensure that the structural integrity, function, and effectiveness of the engineered control will be maintained. Such measures shall include, without limitation:

(I) Measures that ensure the continued effectiveness of the engineered control;

(II) Measures to prevent storm run-on or run-off from damaging the engineered control;

(III) Inspections, on a schedule approved by the commissioner. Such inspections may be done in conjunction with and satisfy the inspection requirements in the EUR Regulations; and

(IV) Repairs to correct the effects of any settling, subsidence, erosion or other damaging events or conditions no later than sixty (60) days following identification of damage to the engineered control, provided if weather prevents repairs from being made within sixty (60) days of the identification of damage, as long as temporary repairs or measures have been taken, repairs can be made as soon as the weather permits;

(iii) An EUR is or will be in effect for the subject area, which restriction shall:

(I) Prohibit any activity that could disturb either the engineered control or the polluted soil; and

(II) Except for clauses (iv) and (v) of this subparagraph, require compliance with the requirements of this subparagraph and with all conditions imposed by the commissioner when approving such variance under this subdivision;

(iv) A copy of the required public notice that was posted in accordance with section 22a-133k-1(d) of the RSRs;

(v) Calculation of the required financial assurance in accordance with section 22a-133k-1(f) of the RSRs;

(vi) The owner of the subject area on which such engineered control will be placed acknowledges and consents to such engineered control; and

(vii) In addition to clauses (i) to (vi), inclusive of this subparagraph:

(I) For a variance from direct exposure criteria, such engineered control shall be designed, constructed, and will be maintained, to physically isolate polluted soil from human contact with such soil;

(II) For a variance from pollutant mobility criteria, such engineered control shall be designed, constructed, and will be maintained, to minimize migration of liquids through polluted soil and

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reduce the permeability of such soil to a permeability of less than 10^{-6} cm/sec and groundwater monitoring at the release area shall be adequate to ensure that any substance migrating from the release area will be detected. In addition, if a variance under this subclause includes volatile organic substances, such engineered control shall be designed, constructed, and will be maintained, to ensure that any soil vapor migrating from the subject release area complies with all applicable volatilization criteria in accordance with section 22a-133k-3(c)(3) of the RSRs;

(III) For an engineered control that includes immobilization, including, but not limited to, the immobilization of NAPL, such engineered control shall be designed, constructed, and will be maintained, to reduce the migration of contaminants from the subject area, achieve compliance with groundwater criteria, and reduce the permeability of such soil to a permeability of less than 10^{-6} cm/sec or if permeability is reduced by immobilization that such permeability of impacted soil is approved in writing by the commissioner and at a minimum is adequate to immobilize contaminants in the soil to achieve compliance with applicable groundwater criteria; and

(IV) For an engineered control using paved surfaces or hardscape, the engineered control is based on specifications which demonstrate that the surface and sub-base materials are suitable for the intended use and are able to function with minimal maintenance and repair for fifteen (15) years and which specifications are signed and sealed by a professional engineer.

(D) Actions Required for Maintaining an Engineered Control Variance

After an engineered control has been certified by an LEP or approved by the commissioner pursuant to this subdivision, the following actions shall be taken within the timeframes prescribed:

(i) A Final Engineered Control Completion Statement shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs, within one hundred and twenty (120) days from completion of construction of the engineered control. Such statement shall be accompanied by as-built drawings, signed and sealed by a professional engineer, and certified by an LEP to demonstrate that the engineered control complies with the requirements of this subdivision;

(ii) A financial assurance mechanism shall be established within one hundred and twenty (120) days of completion of construction of the engineered control. Such financial assurance shall comply with the requirements of section 22a-133k-1(f) of the RSRs; and

(iii) A request for an EUR that complies with the requirements of this subsection and the EUR regulations shall be certified by an LEP or submitted to the commissioner, as applicable within one hundred and eighty (180) days of completion of construction of the engineered control.

(E) If the commissioner approves a request for an engineered control variance, under this subdivision, any such approval may include any additional measures which the commissioner deems appropriate to protect human health and the environment. Nothing in this subdivision shall preclude the commissioner from taking any action the commissioner deems necessary to protect human health or the environment if an approved engineered control fails.

(3) Public Roadways Variance

(A) The commissioner may grant a variance from compliance with the direct exposure criteria, the pollutant mobility criteria, or both, for polluted soil at a release area beneath an existing public roadway. Such variance, if approved, shall apply only so long as such polluted soil is beneath the public roadway. A request for such a variance shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs. Any such request shall also include a statement, in writing, from the entity that owns the public roadway, in which such entity acknowledges:

(i) Such entity's understanding of and consent to the variance requested under this subdivision;

(ii) That the polluted soil under and within the public roadway remains subject to the RSRs, including, but not limited to, any conditions imposed by the commissioner when approving a variance under this subdivision; and

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(iii) That if, at some future time, such public roadway is proposed to be removed, at least ninety (90) days before such public roadway is removed, notice of such removal shall be provided to the commissioner along with a proposed plan for the commissioner's review and approval of the investigation and remediation of all polluted soil for which a variance was obtained under this subdivision.

(B) Polluted soil at a release area is not eligible for a variance under this subdivision unless such soil is beneath an existing roadway.

(C) The commissioner may approve or deny in writing a request for a variance under this subdivision. No request shall be approved unless such request demonstrates to the commissioner's satisfaction that:

(i) The requirements of subparagraph (A) of this subdivision have been satisfied;

(ii) Removal of the polluted soil is neither feasible nor prudent; and

(iii) The granting of the variance will not endanger public health or the environment.

(D) The approval or any variance by the commissioner under this subdivision may include any conditions that the commissioner deems necessary to protect human health and the environment.

(g) **Non-aqueous Phase Liquids**

(1) NAPL shall be removed to the maximum extent practicable.

(2) The commissioner may approve or deny in writing a request for a variance from the requirement to remove NAPL to the maximum extent practicable in accordance with this subsection. No request shall be approved unless such request demonstrates to the commissioner's satisfaction that the requirements of subdivision (3) of this subsection have been satisfied. A request for the approval under this subsection shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs and shall include the acknowledgement and consent of all owners of the release area containing NAPL.

(3) A release area containing NAPL is eligible for a variance under this subsection only if:

(A) All NAPL for which a variance is sought has been contained or removed to the maximum extent prudent such that:

(i) There is no migration of such NAPL;

(ii) In the circumstance where NAPL contains PCBs, such PCBs shall be remediated in compliance with 40 CFR Part 761;

(iii) Compliance with applicable groundwater criteria for groundwater impacted by such NAPL has been achieved;

(iv) Where the NAPL contains volatile organic substances located at or above the seasonal low water table and is beneath a building without mitigation in accordance with section 22a-133k-3(c)(3) of the RSRs, compliance with volatilization criteria for soil vapor in accordance with section 22a-133k-3(c)(2) of the RSRs has been achieved; and

(B) An ELUR is or will be in effect for the subject area, which restriction shall:

(i) Except for ongoing remediation, prohibit the disturbance and exposure of NAPL;

(ii) Prohibit the construction of a building over such NAPL if there is NAPL containing volatile organic substances located at or above the seasonal low water table; and

(iii) Require compliance with subparagraph (A) of this subdivision.

(4) The requirements of this subsection shall not apply to NAPL subject to regulation under section 22a-449(d)-101 et seq. of the Regulations of Connecticut State Agencies. Any such NAPL shall remain subject to regulation under section 22a-449(d)-101 et seq. of the Regulations of Connecticut State Agencies.

(h) **Use of Polluted Soil and Reuse of Treated Soil**

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Any soil excavated from or treated at a release area during remediation shall be managed as follows:

(1) Hazardous Waste

Treatment, storage, disposal and transportation of soil which is hazardous waste, as defined pursuant to section 22a-448 of the Connecticut General Statutes, shall be carried out in conformance with the provisions of sections 22a-449(c)-101 to 119, inclusive, of the Regulations of Connecticut State Agencies, and any other applicable law;

(2) Special Waste

In accordance with section 22a-209-8 of the Regulations of Connecticut State Agencies, the commissioner may authorize polluted soil, which is not hazardous waste, as defined in section 22a-448 of the Connecticut General Statutes, to be disposed of as special wastes, as defined in section 22a-209-1 of the Regulations of Connecticut State Agencies.

(3) Polluted Soil

To be reused in any manner, polluted soil shall comply with all requirements of the RSRs, shall not be placed below the water table, shall not be placed in an area subject to erosion, and shall comply with the requirements in subparagraph (A), (B) or (C) of this subdivision. Prior to the reuse of such soil, a notice or request for the reuse of such soil pursuant to subparagraph (A), (B) or (C) of this subdivision shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs. Any such notice or request shall also include a map showing the proposed location and depth of the placement of such soil, and shall also demonstrate compliance with subparagraph (A), (B), or (C) of this subdivision. The commissioner may approve or deny in writing any request submitted pursuant to subparagraph (B) or (C) of this subdivision. No request shall be approved unless such request demonstrates to the commissioner's satisfaction, compliance with the requirements of subparagraph (B) or (C) of this subdivision, as applicable, and that the proposed reuse of soil is protective of human health and the environment.

(A) Polluted soil from a release area may be reused on the same parcel from which it was excavated by providing notice to the commissioner only if the following requirements are met:

(i) (I) If the soil to be reused is polluted with substances at concentrations that are all equal to or less than the applicable direct exposure criteria in Appendix A of the RSRs or criteria otherwise approved by the commissioner pursuant to subsection (b)(7) of this section and the applicable pollutant mobility criteria in Appendix B of the RSRs or criteria otherwise approved by the commissioner pursuant to subsection (c)(6) of this section, such soil may be reused at any location on such parcel; or

(II) If the concentration of any substance in such soil exceeds the GA area pollutant mobility criteria in Appendix B of the RSRs or criteria otherwise approved by the commissioner pursuant to subsection (c)(6) of this section, such soil may be reused only in a GB area and placed over soil and groundwater that has already been affected by a release; and

(ii) Any soil to be reused is not placed under a building, if the polluted soil contains volatile organic substances, other than volatile petroleum substances; and

(iii) Any soil to be reused does not contain PCBs.

(B) Polluted soil from a release area may be reused on the same parcel from which it was excavated, on a different parcel affected by the same release, or on an abutting parcel affected by a release of similar substances, only in the following circumstances:

(i) (I) If the polluted soil exceeds the direct exposure criteria or the pollutant mobility criteria applicable to the location on the parcel where the polluted soil will be reused or relocated, such polluted soil shall be rendered inaccessible pursuant to subsection (b)(3) of this section, environmentally isolated pursuant to subsection (c)(5)(A) of this section, or is subject to an engineered control pursuant to subsection (f)(2) of this section;

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(II) If the polluted soil contains volatile organic substances, other than volatile petroleum substances, that are greater than the GA area pollutant mobility criteria in Appendix B of the RSRs or criteria otherwise approved by the commissioner pursuant to subsection (c)(6) of this section, or if such polluted soil is placed under a building that overlies a release area that has already been affected by a release of volatile organic substances, the requirements of section 22a-133k-3(c)(3) of the RSRs shall apply; or

(III) If the polluted soil contains PCBs, the commissioner has issued a written approval in accordance with section 22a-467 of the Connecticut General Statutes and subsection (f)(2) of this section; and

(ii) Prior to any reuse on an abutting parcel affected by the same release, or on a different parcel affected by a release of similar substances, written approval from the commissioner is required.

(C) Polluted soil from a release area may be reused on a parcel other than the parcel for which the polluted soil was excavated, only if prior to any reuse, the commissioner approves such reuse in writing and such soil to be reused:

(i) Is polluted with substances at concentrations equal to or less than the applicable direct exposure criteria in Appendix A of the RSRs or criteria otherwise approved by the commissioner pursuant to subsection (b)(7) of this section and the applicable pollutant mobility criteria in Appendix B of the RSRs or criteria otherwise approved by the commissioner pursuant to subsection (c)(6) of this section for the location on the parcel where the polluted soil will be relocated;

(ii) Is placed over soil and groundwater which has already been affected by a release of similar substances; and

(iii) Either:

(I) The cumulative depth of all reused polluted soil from all other parcels does not exceed four (4) feet above the pre-remedial grade; or

(II) The cumulative depth of all reused polluted soil from all other parcels does not exceed ten (10) feet, provided that a demonstration has been made to the commissioner's satisfaction that the depth greater than four (4) feet is required for redevelopment purposes and all slopes are designed, created, and will be maintained to prevent erosion.

(4) Natural Soil

Polluted soil may be used at any parcel of land if:

(A) Any substance is present therein in concentrations not exceeding naturally-occurring conditions in soil at the release area from which such soil is removed; and

(B) No other substance is detectable in such soil at a concentration greater than its laboratory reporting limit.

(5) Polluted Soil Containing Pesticides

Notwithstanding the provisions of subdivision (3) of this subsection, the commissioner may approve or deny in writing a request for agricultural reuse of soil containing pesticides excavated on one parcel for reuse on another parcel. Any request regarding the reuse of soil under this subdivision shall be made to the commissioner in accordance with section 22a-133k-1(g) of the RSRs and, if soil is being reused on a parcel different from the parcel from which it was excavated, shall include the acknowledgement and consent of the owner of the parcel receiving such soil. No reuse shall be approved under this subdivision unless the request for reuse demonstrates to the commissioner's satisfaction that:

(A) The concentration of substances in soil to be reused is equal to or less than the direct exposure criteria and the pollutant mobility criteria for all substances, other than pesticides;

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(B) Such soil to be reused is excavated only from the soil horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral matter from which plants receive the most nutrients;

(C) Such soil is reused only at current agricultural properties;

(D) The pesticides in the soil to be reused are the result of the application of pesticides in accordance with accepted practices at the time of application; and

(E) Such reuse is protective of human health and the environment.

(i) **Additional Remediation of Polluted Soil**

Nothing in the RSRs shall preclude the commissioner from taking any action necessary to prevent or abate pollution or to prevent or abate any threat to human health or the environment, including without limitation:

(1) Ecological Risk Assessment and Remediation

At any location at which, despite remediation in accordance with the RSRs, the commissioner determines that there is a potential ecological risk, the commissioner may require that an ecological risk assessment be conducted and that additional remediation be conducted to mitigate any risks identified in such assessment;

(2) Aquatic Life Assessment and Remediation

At any location at which polluted soil has eroded into a surface water body, the commissioner may require that the effect of such polluted soil on aquatic life be assessed and that remediation to protect or restore aquatic life and surface water quality from the effects of such polluted soil be undertaken; or

(3) Multiple Polluting Substances

At any location at which there is polluted soil containing multiple polluting substances, the commissioner may require additional remediation to ensure that the risk posed by such substances does not exceed:

(A) A cumulative excess lifetime cancer risk of 10^{-5} for ten (10) or more carcinogenic substances with the same target organ; and

(B) A cumulative hazard index of 1 for non-carcinogenic substances with the same target organ.]

The remediation standards for soil adopted pursuant to this section 22a-133k of the Connecticut General Statutes shall be those standards adopted at sections 22a-134tt-8 to 22a-134tt-9, inclusive, of the Regulations of Connecticut State Agencies, and sections 22a-134tt-App2 to 22a-134tt-App3, inclusive, of the Regulations of Connecticut State Agencies, section 22a-134tt-App7 to App9, inclusive, of the Regulations of Connecticut State Agencies, and sections 22a-134tt-App11 to 22a-134tt-App12 of the Regulations of Connecticut State Agencies.

Sec. 22a-133k-3. **Remediation Standards for Groundwater**

[(a) **Groundwater Criteria**

Unless otherwise specified in the RSRs, all substances in groundwater from a release shall be remediated to comply with the following, as applicable:

(1) Groundwater in a GA Area

Remediation of substances in groundwater in a GA area, including the portion of a groundwater plume migrating from a GB area into a GA area, shall result in the reduction of each substance to a concentration equal to or less than:

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(A) The background concentration, except as provided in subsection (d) of this section, concerning groundwater protection criteria;

(B) Surface water protection criteria or background concentration; and

(C) Volatilization criteria.

(2) Groundwater in a GB Area

Except for any portion of a groundwater plume migrating from a GB area into a GA area that is subject to the requirements of subdivision (1) of this subsection, remediation of substances in groundwater in a GB area shall result in the reduction of each substance to a concentration equal to or less than:

(A)

(A) (i) The surface water protection criteria and volatilization criteria; or

(ii) The background concentration; and

(B) The groundwater protection criteria, where the existing use of groundwater is for drinking or other purposes, until the use of such groundwater for drinking or other purposes is permanently discontinued.

(3) Groundwater Plume Discharging to a Low-Dilution Surface Water Body

(A) Remediation of substances in groundwater shall result in the reduction of each substance to a concentration equal to or less than the criteria set forth in subparagraph (B) of this subdivision where such plume discharges to:

(i) A wetland;

(ii) A tidal flat;

(iii) An intermittent watercourse; or

(iv) A location where the areal extent of such groundwater plume occupies more than one half of one percent, or other percentage approved in writing by the commissioner, of the upstream drainage basin of the surface water body to which such plume discharges. The percentage of the upstream drainage basin shall be measured from the intersection of the surface water body with such groundwater plume.

(B) Each substance in groundwater specified in subparagraph (A) of this subsection shall be remediated to a concentration that is either:

(i) Equal to or less than the applicable water quality criteria or, if there are no such criteria, to criteria approved by the commissioner in accordance with subsection (i)(2) of this section; or

(ii) Equal to or less than the alternative surface water protection criteria calculated by an LEP in accordance with subsection (b)(2) of this section or approved by the commissioner in accordance with subsection (b)(3) of this section.

(b) **Alternative Surface Water Protection Criteria**

With respect to substances in groundwater for which surface water protection criteria are specified in Appendix D of the RSRs or approved by the commissioner pursuant to subsection (i)(2) of this section, alternative surface water protection criteria may be calculated by an LEP or approved in writing by the commissioner, pursuant to this subsection. For each substance, only one subdivision of this subsection may be used to calculate or to request commissioner approval of alternative surface water protection criteria. In addition, the commissioner may approve an alternative method of demonstrating compliance with surface water protection criteria under this subsection.

(1) Groundwater Plume Discharge to a Watercourse

(A) For a substance in a groundwater plume that discharges to an inland surface watercourse classified as AA, A, or B in the Water Quality Standards, alternative surface water protection

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criteria may be calculated. Any such calculation shall be performed by multiplying the applicable water quality criteria or, if there are no such water quality criteria, the criteria approved by the commissioner pursuant to subsection (i)(2) of this section, by a dilution factor derived from the following equation:

$$DF = (0.25 \times Q99)/Q_{plume}$$

Terms	Description	Value	Units
DF	Release-specific dilution factor	substance-specific	unitless
Q99	Daily stream flow equal to or exceeded on 99 percent of days in a year	waterbody-specific	ft^3/sec
Q_{plume}	Average daily discharge of the subject groundwater plume: $Q_{plume} = KiA$	calculated	ft^3/sec
K	Hydraulic conductivity	as measured	ft/sec
i	Hydraulic gradient	as measured	ft/ft
A	Area of discharge: A = h * w	as measured	ft^2
h	Thickness of groundwater plume at watercourse discharge area	as measured	ft
w	Width of groundwater plume at watercourse discharge area	as measured	ft

(B) For a substance in a groundwater plume that discharges to a coastal surface watercourse classified as SA or SB in the Water Quality Standards, alternative surface water protection criteria may be calculated. Any such calculation shall be performed by multiplying the applicable water quality criteria, or if there are no such water quality criteria, the criteria approved by the commissioner pursuant to subsection (i)(2) of this section, by a dilution factor derived from the following equation:

$$DF = ((W \times 0.25) \times L \times D)/(T \times Q_{plume})$$

Terms	Description	Value	Units
D	Mean depth of the watercourse at mean low tide where the groundwater plume discharges	calculated	ft
DF	Release-specific dilution factor	substance-specific	unitless
L	Distance along which the groundwater plume intersects the watercourse discharge area	calculated	ft

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Terms	Description	Value	Units
W	Cross-sectional distance from one shoreline to the other for the tidally influenced watercourse under low tide conditions (0.25*watercourse width) where the maximum value for W is 100 feet	calculated	ft
T	Daily discharge duration	0.5	day
Q_{plume}	Average daily discharge of the subject groundwater plume: Q_{plume} = KiA	calculated	ft^3/sec
K	Hydraulic conductivity	as measured	ft/day
i	Hydraulic gradient	as measured	ft/ft
A	Area of discharge: A = h * w	as measured	ft^2
h	Thickness of groundwater plume at watercourse discharge area	as measured	ft
w	Width of groundwater plume at watercourse discharge area	as measured	ft

(C) For purposes of this subdivision, no alternative surface water protection criteria shall exceed the maximum allowable alternative surface water protection criteria specified in the table below, which is the water quality criteria multiplied by a dilution factor calculated pursuant to subparagraph (A) or (B) of this subdivision.

Distance from compliance point to nearest downgradient surface water	Maximum Allowable Alternative SWPC
Less than or equal to 100 feet	100 times WQC
Greater than 100 feet to 200 feet	200 times WQC
Greater than 200 feet to 300 feet	300 times WQC
Greater than 300 feet to 400 feet	400 times WQC
Greater than 400 feet to 500 feet	500 times WQC
Greater than 500 feet to 600 feet	600 times WQC
Greater than 600 feet to 700 feet	700 times WQC
Greater than 700 feet to 800 feet	800 times WQC
Greater than 800 feet to 900 feet	900 times WQC
Greater than 900 feet	1,000 times WQC

(D) Written notice of the use of alternative surface water protection calculated by an LEP under this subdivision shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs and shall also include the calculation, value and basis of terms, and dilution factor used.

(2) Aquifer Dilution

(A) Alternative surface water protection criteria may be calculated in accordance with subparagraph (B) of this subdivision, provided that:

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(i) The portion of the groundwater plume for which such alternative criteria are calculated is at least five hundred feet from the nearest downgradient surface water; and

(ii) A dilution ratio for such groundwater plume is calculated pursuant to the following equation, and such ratio is equal to or greater than five:

DR = RC/DC

Terms	Description	Value	Units
DR	Release-specific dilution ratio	calculated	unitless
RC	Groundwater concentration of a substance within the release area	as measured	µg/L
DC	Groundwater concentration no more than fifty feet downgradient from the location where the RC was collected	as measured	µg/L

(B) For substances in a groundwater plume that comply with subparagraph (A) of this subdivision, alternative surface water protection criteria shall be calculated by multiplying the surface water protection criteria, or if applicable the water quality criteria, by the dilution factor identified in the following table:

Distance to nearest downgradient surface water	Dilution factor
Greater than 500 feet to 600 feet	5
Greater than 600 feet to 700 feet	6
Greater than 700 feet to 800 feet	7
Greater than 800 feet to 900 feet	8
Greater than 900 feet to 1000 feet	9
Greater than 1000 feet	10

(C) Written notice of the use of alternative surface water protection criteria calculated by an LEP under this subparagraph shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs and shall also include the calculation, value and basis of terms, and dilution factor used.

(3) Commissioner Approval

The commissioner may approve or deny in writing a request for a release-specific alternative surface water protection criteria or an alternative method of demonstrating compliance with surface water protection criteria. No request under this subdivision shall be approved until it is demonstrated to the commissioner's satisfaction that such alternative criteria or alternative method for demonstrating compliance will protect all existing and proposed uses of surface water and is protective of human health and the environment. A request for such approval shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs. Upon receipt of such request the commissioner shall specify which of the following shall be provided to the commissioner:

(A) The Q99 stream flow rate of the surface water body into which the subject groundwater plume discharges;

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(B) The identification of other surface water or groundwater discharges to the surface water body within one-half mile of the areal extent of the subject groundwater plume;

(C) A report on the instream water quality into which the subject groundwater plume discharges, including assessment and use attainment information in the most current integrated water quality report and any applicable total maximum daily loads; and

(D) The flow rate of the subject groundwater plume that discharges to the surface water body and the extent and degree of mixing of such discharge in such surface water.

(c) **Volatilization Criteria**

(1) Volatilization Criteria for Groundwater

(A) Residential Volatilization Criteria

Unless otherwise specified in this subsection, each volatile organic substance in groundwater shall be remediated to a concentration that is equal to or less than the residential volatilization criteria for groundwater.

(B) Industrial/Commercial Volatilization Criteria

Each volatile organic substance in groundwater may be remediated to a concentration that is equal to or less than the industrial/commercial volatilization criteria for groundwater, provided that the subject area above the groundwater polluted with volatile organic substances:

(i) Is not used for residential activity;

(ii) Has limited access only to those individuals working at or temporarily visiting for industrial/commercial activity; and

(iii) An EUR is in effect for the subject area or the entire parcel, which restriction shall:

(I) Prohibit residential activity; and

(II) Require compliance with clause (ii) of this subparagraph.

(C) Applicability of Volatilization Criteria

Subdivision (1) of this subsection shall apply to:

(i) Volatile organic substances, other than volatile petroleum substances, within thirty (30) feet or less of the ground surface and within thirty (30) feet or less of the lowest portion of a building under which groundwater is polluted with such substances; and

(ii) Volatile petroleum substances, within ten (10) feet or less of the ground surface and within ten (10) feet or less of the lowest portion of a building under which groundwater is polluted with such substances.

(2) Alternative Demonstration of Compliance with Volatilization Criteria for Groundwater

(A) Soil Vapor Below a Building

For volatile organic substances in groundwater, remediation to the volatilization criteria specified in subdivision (1) of this subsection may not be required if the concentration of such substances in soil vapors below a building is equal to or less than:

(i) The residential volatilization criteria for soil vapor; or

(ii) The industrial/commercial volatilization criteria for soil vapor, provided that to use such criteria, the requirements of subdivision (1)(B) of this subsection are satisfied.

(B) Concentrations at the Water Table

For volatile organic substances in groundwater, remediation to the volatilization criteria specified in subdivision (1) of this subsection may not be required if the substances in groundwater exceeding volatilization criteria are not at the water table and all of the laboratory analytical results from sampling the concentration of such substances at the water table, as seasonally demonstrated

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by groundwater monitoring representative of the uppermost portion of the water column are equal to or less than:

(i) The residential volatilization criteria for groundwater; or

(ii) The industrial/commercial volatilization criteria for groundwater, provided that to use such criteria, the requirements of subdivision (1)(B) of this subsection are satisfied.

(3) Exemption from Volatilization Criteria for Groundwater through Vapor Mitigation

For volatile organic substances in groundwater beneath an existing building, remediation to the volatilization criteria for groundwater specified in subdivision (1) of this subsection may not be required, provided that:

(A) Measures to prevent the migration of volatile organic substances into any overlying building have been implemented and submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs. The submittal shall also include:

(i) A brief description of the measures implemented to control the migration of such volatile organic substances into any overlying building;

(ii) A demonstration of the effectiveness of such control measures;

(iii) The plan for monitoring the effectiveness of such control measures over time and maintaining such control measures in good condition; and

(iv) A map showing all existing buildings, the areal extent of the groundwater plume, and the location of such control measures;

(B) The commissioner deems the measure proposed under subparagraph (A) of this subdivision acceptable and such measures have been and continue to be implemented and monitored; and

(C) An EUR, or other permanent control measures approved in writing by the commissioner, is or will be in effect for the subject area, which restriction or control measure shall:

(i) Prohibit removal of any building above such volatile organic substances in groundwater; and

(ii) Require compliance with:

(I) Control measures deemed acceptable by the commissioner under subparagraphs (A) and (B) of this subdivision; and

(II) Any condition specified by the commissioner in the approval of such permanent control measures under this subparagraph.

(4) Alternative Release-Specific Volatilization Criteria and Alternative Method of Demonstrating Compliance with Volatilization Criteria

With respect to volatile organic substances in groundwater or soil vapor for which volatilization criteria are specified in Appendix E or Appendix F of the RSRs or approved by the commissioner pursuant to subsection (i)(3) of this section, the commissioner may approve or deny in writing a request for a release-specific alternative volatilization criteria. In addition, the commissioner may approve or deny in writing an alternative method of determining compliance with such criteria.

(A) A request for approval of alternative volatilization criteria or for an alternative method of demonstrating compliance with volatilization criteria shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs, and shall also include:

(i) A description of the distribution and concentration of volatile organic substances in groundwater or soil vapor beneath any overlying building;

(ii) A description of any site-specific conditions, including, but not limited to, the value of all terms used and the source of any release-specific values.

(B) No request under subparagraph (A) of this subdivision shall be approved unless such request demonstrates to the commissioner's satisfaction that such criteria or alternative method of

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determining compliance is protective of human health and will ensure that volatile organic substances in groundwater or soil vapor do not accumulate in the air of any building at a concentration which:

(i) For any carcinogenic substance, creates a risk to human health in excess of a 10^{-6} excess lifetime cancer risk level, and for any non-carcinogenic substance, is equal to or less than a hazard index of one (1); and

(ii) For a groundwater plume or soil vapor polluted with ten (10) or more volatile organic substances, does not exceed a cumulative excess cancer risk level of 10^{-5} for carcinogenic substances, and for non-carcinogenic substances with the same target organ, the cumulative hazard index does not exceed one (1).

(C) Any approval of the commissioner under this subdivision, may require that an EUR is or will be in effect for the subject area, which restriction shall require compliance with any conditions specified by the commissioner when issuing such approval.

(5) Exemption from Volatilization Criteria for Groundwater Through a No Build Restriction

For volatile organic substances in groundwater, remediation to the applicable volatilization criteria specified in subdivision (1) of this subsection may not be required if the following conditions are satisfied:

(A) The water table is less than thirty (30) feet below the ground surface;

(B) No building exists over the groundwater polluted with such substances at a concentration above applicable volatilization criteria;

(C) One of the following has been satisfied:

(i) An EUR is in effect for the subject area, which restriction shall;

(I) Prohibit construction of a building at the subject area; and

(II) Require compliance with subparagraph (B) of this subdivision;

(ii) The commissioner has approved in writing a request demonstrating that no building can reasonably be expected to be constructed over the subject groundwater; or

(iii) The commissioner has approved in writing a request demonstrating that natural attenuation or other methods of remediation will, within five (5) years, reduce the concentration of volatile organic substances in such groundwater to a concentration equal to or less than:

(I) Residential volatilization criteria; or

(II) The industrial/commercial volatilization criteria, in which case subdivision (1)(A)(ii) of this subsection shall apply; and

(D) For any volatile organic substances, other than volatile petroleum substances, that exceed the applicable volatilization criteria within thirty (30) feet of any part of a building, the potential for a vapor intrusion pathway into such building shall be thoroughly evaluated. If such evaluation identifies a vapor intrusion pathway into such building, compliance with subdivision (3) of this subsection shall be required.

(6) Exemption from Volatilization Criteria Through Indoor Air Monitoring

For volatile organic substances in groundwater, remediation to the applicable volatilization criteria specified in subdivision (1) of this subsection may not be required for groundwater underlying an existing building. No request under subparagraph (A) of this subdivision shall be approved unless such request demonstrates to the commissioner's satisfaction that the conditions in the building overlying volatile organic substances in groundwater are protective of human health and the environment.

(A) A request in accordance with this subdivision shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs, and shall also include:

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(i) The acknowledgement and consent of the owner of the building for which approval of the air monitoring program is sought; and

(ii) An indoor air monitoring program and measures to control the level of any such volatile organic substances in the air of the subject building, including, but not limited to:

(I) A description of the distribution and concentration of volatile organic substances beneath the building;

(II) Any measures to be taken;

(III) The location of proposed monitoring points;

(IV) The proposed frequency of monitoring;

(V) The parameters to be monitored; and

(VI) The actions to be taken in the event such monitoring indicates that selected parameters are exceeded.

(B) The commissioner may approve or deny in writing a request submitted under this subdivision. Approval of any indoor air monitoring program pursuant to this subdivision shall require that an ELUR is or will be in effect for the subject area, which restriction shall require compliance with the indoor air monitoring program approved by the commissioner in writing, including any conditions imposed by the commissioner when approving such program.

(7) For the purpose of this subsection, "building" means any structure enclosed by a roof and walls that is capable of accumulating vapors from the subsurface.

(d) **Groundwater Protection Criteria**

(1) Exemption from Attaining Background Concentration in a GA Area

For substances in groundwater in a GA area, remediation to the background concentration may not be required if the concentration of each substance in a groundwater plume is equal to or less than the groundwater protection criteria and one of the following conditions exist:

(A)

(A) (i) A public water supply distribution system is available within two hundred (200) feet of the parcel on which the release area is located, within two hundred (200) feet of all adjacent parcels, and within two hundred (200) feet of any parcel within the areal extent of the groundwater plume;

(ii) Such groundwater plume is not located in an aquifer protection area; and

(iii) Such groundwater plume is not located within the area of influence of any public water supply well;

(B) Prior to any soil or groundwater remediation, the groundwater plume is a diminishing state groundwater plume; or

(C) Each substance in groundwater is remediated to a concentration equal to or less than the groundwater protection criteria, and further reduction of the concentrations of such substances to the background concentration cannot be achieved using sound engineering and hydrogeologic remediation practices.

(2) Alternative Groundwater Protection Criteria

With respect to substances in groundwater for which groundwater water protection criteria are specified in Appendix C of the RSRs, or approved by the commissioner pursuant to subsection (i)(1) of this section, alternative groundwater protection criteria may be calculated by an LEP pursuant to subdivision (3) of this subsection or approved in writing by the commissioner pursuant to subdivision (4) or (5) of this subsection.

(3) LEP Calculation of Alternative Groundwater Protection Criteria

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(A) For a substance in groundwater located in an area designated on the department's "Potential Alternative Groundwater Protection Criteria Map" in Appendix I of the RSRs, alternative groundwater protection criteria may be calculated by an LEP, in accordance with subparagraph (B) or (C) of this subdivision, as applicable, provided that:

(i) Written notice of the use of alternative groundwater protection criteria is submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs, and any such notice includes:

(I) The alternative groundwater protection criteria calculation in accordance with subparagraph (B) or (C) of this subdivision; and

(II) Documentation demonstrating compliance with the requirements of this subdivision, including, but not limited to, a water supply well receptor survey;

(ii) Any alternative groundwater protection criteria shall not exceed:

(I) One hundred (100) times the groundwater protection criteria specified in Appendix C of the RSRs or approved by the commissioner in accordance with subsection (i)(1) of this section; and

(II) The residential volatilization criteria for groundwater specified in Appendix E of the RSRs or approved by the commissioner in accordance with subsection (i)(3) of this section;

(iii) No public or private drinking water supply well is present on any subject parcel within or adjacent to the areal extent of the portion of the subject groundwater plume in which a substance exceeds the background concentration;

(iv) A public water supply distribution system is available within five hundred (500) feet downgradient and two hundred (200) feet in any direction of the subject groundwater plume;

(v) All releases to soil that constitute a source of pollution resulting in the subject groundwater plume have been remediated so there is no longer an on-going source in soil impacting groundwater;

(vi) No alternative pollutant mobility criteria is used for the same substance for which an alternative groundwater protection criteria is used;

(vii) The subject groundwater plume is a diminishing state groundwater plume; and

(viii) The alternative groundwater protection criteria being calculated is not used for any portion of the subject groundwater plume located in bedrock unless approved by the commissioner in accordance with subdivision (5) of this subsection.

(B) For volatile organic substances, the following equation shall be used to calculate alternative groundwater protection criteria in accordance with this subdivision:

$$\text{Alternative GWPC} = \frac{\text{TAC} \times \text{HV} \times \text{ER} \times \text{MC}}{\text{f} \times \text{WFR}}$$

Terms	Description	Value	Units
Alternative GWPC	Criteria in groundwater as alternative to groundwater protection criteria	calculated	µg/L
TAC	Target Indoor Air Concentration as approved by the commissioner in accordance with Appendix G of the RSRs	substance-specific	$\mu g/m^3$

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Terms	Description	Value	Units
f	Fraction of substance concentration volatilized	0.5	unitless
HV	House Volume	1,000	m^3
ER	Air exchange rate per day, as a time weighted average	134	times per day
MC	Mixing coefficient	0.33	none
WFR	Water Flow Rate	3,183	L/day

(C) For semi-volatile organic substances, inorganic substances and pesticides, the following equation shall be used to calculate alternative groundwater protection criteria in accordance with this subdivision:

$$\text{Alternative GWPC} = \text{WSF} \times \text{RSC} \times \text{DEC} \times \text{UCF}$$

Terms	Description	Value	Units
Alternative GWPC	Criteria in groundwater as alternative to groundwater protection criteria	calculated	µg/L
WSF	Water to soil concentration factor, based upon accumulation of arsenic in soil	0.02	(mg/L)/ (mg/kg)
RSC	Relative source contribution to account for other background contributions to semi-volatile organic substances in soil	0.2	unitless
DEC	Residential direct exposure criteria in Appendix A of the RSRs or criteria approved by the commissioner pursuant to section 22a-133k-2(b)(7) of the RSRs	substance-specific	mg/kg
UCF	Unit Conversion Factor	1,000	µg/mg

(4) Commissioner Approval of Alternative Groundwater Protection Criteria Not In Mapped Areas

For a substance in groundwater that is not located in an area designated on the department's "Potential Alternative Groundwater Protection Criteria Map" in Appendix I of the RSRs, the commissioner may approve or deny in writing a request for an alternative groundwater protection criteria pursuant to this subparagraph. A request for such alternative groundwater protection criteria shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs. No request shall be approved unless such request demonstrates to the commissioner's satisfaction:

(A) Compliance with the requirements of clauses (i) to (viii), inclusive, of subdivision (3)(A) of this subsection;

(B) Calculation of proposed alternative groundwater protection criteria in accordance with subparagraphs (B) and (C) of subdivision (3) of this subsection, as applicable; and

(C) Compliance with clause (i) or (ii) of this subparagraph.

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(i) Documentation from a public or private water company subject to regulation by the Department of Public Health demonstrating that public drinking water is available in the area where the subject groundwater plume is located, including a public water service area map on file with the Department of Public Health indicating that public water is available. This clause can be used only if:

(I) A public water supply distribution system has become available to any parcel within or adjacent to the areal extent of the portion of the groundwater plume not previously included on the department's "Potential Alternative Groundwater Protection Criteria Map" in Appendix I of the RSRs; and

(II) The subject groundwater plume is not located in an aquifer protection area or in an aquifer suitable for development of a public water supply.

(ii) As a result of stratified drift aquifer conditions where the subject groundwater plume is located:

(I) The aquifer is not suitable for development of a public water supply due to the hydrogeology, depth, saturated thickness of the surficial materials or other hydrogeologic factors;

(II) There is less than twenty (20) feet of saturated sand or sand and gravel in such aquifer or pumping more than fifteen (15) gallons per minute from such aquifer is not sustainable for public water use; and

(III) A cross-sectional map is provided showing the nature and distribution of surficial materials in such aquifer.

(5) Commissioner Approval of Alternative Groundwater Protection Criteria Where Any Portion of a Plume Is In Bedrock

For a substance in groundwater that is located in an area designated on the department's "Potential Alternative Groundwater Protection Criteria Map" in Appendix I of the RSRs, and where the portion of the groundwater plume is located in bedrock. A request for such alternative groundwater protection criteria shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs. No request shall be approved unless such request includes a map showing the horizontal and vertical extent of the bedrock groundwater plume that exceeds or could be expected to exceed the groundwater protection criteria and demonstrates to the commissioner's satisfaction:

(A) Compliance with the requirements of clauses (i) to (vii), inclusive, of subdivision (3)(A) of this subsection; and

(B) That the groundwater plume that exceeds the groundwater protection criteria will not pose a risk to human health and the environment.

(e) **Technical Impracticability Variance**

Groundwater may be eligible for a variance from compliance with the surface water protection criteria or the groundwater protection criteria if the commissioner determines that compliance with such criteria is technically impracticable. No request for a variance shall be approved unless such request demonstrates to the commissioner's satisfaction that the requirements of this subsection have been satisfied.

(1) Request for Technical Impracticability Variance

(A) A request for a technical impracticability variance shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs, and shall also include:

(i) The substance and its concentration in the groundwater plume for which a variance is sought;

(ii) A map showing the horizontal and vertical extent of the groundwater plume that exceeds or could be expected to exceed surface water protection criteria or groundwater protection criteria;

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(iii) A demonstration of compliance with the soil standards in section 22a-133k-2 of the RSRs, and unless it is demonstrated that remediation of soil is technically impracticable, that polluted soil is not contributing to the groundwater plume;

(iv) Laboratory analytical results of all representative sampling before, during, and after the implementation of such actions and a description of all actions to remediate the groundwater plume;

(v) A feasibility study for achieving compliance with the criteria for which a variance is sought that evaluates remediation methods and demonstrates that achieving compliance with such criteria in a reasonable timeframe is technically impracticable;

(vi) A demonstration that the subject groundwater plume is in a steady-state or is a diminishing state groundwater plume, or that the subject groundwater plume is hydraulically controlled;

(vii) A map and description of the proposed TI zone, including the identification of existing groundwater withdrawals and potential for future withdrawal of groundwater on parcels within and adjacent to the proposed TI zone, and a demonstration that such withdrawals will not induce movement of the subject groundwater plume into uncontaminated areas or adversely affect the protectiveness of the proposed variance;

(viii) A study to determine the risks posed by the polluted groundwater that would remain if a variance was granted. If such study shows a risk or a potential risk to human health or the environment, a contingency plan to eliminate or minimize such risk shall be included;

(ix) Measures for long-term monitoring, operation, maintenance, and reporting, to ensure that the selected remedy remains effective in its protectiveness. Such measures shall:

(I) Demonstrate through groundwater monitoring that the groundwater plume is not increasing in size or concentration, or otherwise migrating in a manner that would alter the risk assumptions of clause (viii) of this subparagraph;

(II) Confirm that unacceptable risks to human health and the environment do not occur and if such risks do occur, contingency actions will be taken to abate such risks, including, but not limited to, changes in land use; and

(III) Demonstrate through monitoring that any proposed operation and maintenance controls are working properly and remain effective; and

(x) The type and estimated amount of financial assurance to be posted in accordance with the requirements of section 22a-133k-1(f) of the RSRs.

(B) Based upon the information submitted in accordance with subparagraph (A) of this subdivision, the commissioner shall indicate, in writing, either that a groundwater plume does not qualify for a variance under this subsection, or alternatively, that the information specified in subdivision (2) of this subsection shall be submitted and may include conditions the commissioner deems appropriate to protect public health and the environment.

(2) Additional Information to be Submitted Upon Request

After submission of the information required in this subdivision, the commissioner may approve or deny in writing a request for a technical impracticability variance. Unless otherwise specified by the commissioner, the following information shall be submitted within one hundred and twenty (120) days of a request for such information by the commissioner. The information shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs, and shall also include:

(A) A demonstration that public notice has been provided in accordance with section 22a-133k-1(d) of the RSRs;

(B) A certification that written notice of the extent and degree of such pollution allowed to remain in place has been provided to each owner of record of each parcel within the TI zone, at

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the address for such owner on the last-completed grand list of the municipality where the parcel is located, and to the Director of Health of the municipality or municipalities in which the TI zone is located;

(C) If the commissioner has specified that an ELUR is required, the acknowledgement and consent from the owner of each parcel in the TI zone to such variance;

(D) A demonstration that financial assurance has been obtained in accordance with section 22a-133k-1(f) of the RSRs; and

(E) A demonstration, as specified by the commissioner in the written request for information under this subdivision, that either an ELUR is in effect on each parcel in the TI zone or other permanent control measure is in place. Any ELUR or other permanent control measure shall:

(i) Require compliance with the plan and measures specified in clauses (viii) and (ix) of subdivision (1)(A) of this subsection;

(ii) Include conditions the commissioner deems appropriate to protect public health and the environment;

(iii) In addition to any requirement in the EUR Regulations, require the preparation of a report every five (5) years, which reviews the implementation and effectiveness of the variance approved by the commissioner, including, but not limited to, the impact of the use of groundwater on parcels adjacent to the TI zone. Such reports shall be maintained by the parcel owner who is requesting such variance until the technical impracticability variance is no longer required under this subsection and shall be provided to the commissioner upon request; and

(iv) In addition, for a variance from compliance with the groundwater protection criteria:

(I) Prohibit the use of groundwater for drinking or other purposes; and

(II) Prohibit the withdrawal of groundwater, unless a withdrawal has been approved in writing by the commissioner.

(f) **Conditional Exemption for Incidental Sources**

Compliance with the groundwater criteria specified in subsection (a) of this section is not required for the following substances in groundwater under the circumstances described in this subsection:

(1) Trihalomethanes or any other substance within drinking water released from a public water supply distribution system; or

(2) Metals, petroleum hydrocarbons, or semi-volatile organic substances, provided such substances are the result of:

(A) An incidental release due to the normal operation of motor vehicles, not including refueling, repair or maintenance of a motor vehicle; or

(B) Normal paving and maintenance of a consolidated bituminous concrete surface provided such bituminous concrete surface has been maintained for its intended purpose.

(g) **Conditional Exemption for Groundwater Polluted with Pesticides**

Compliance with the groundwater criteria specified in subsection (a) of this section is not required for pesticides in groundwater resulting from the application of pesticides at the release area, provided that:

(1) A determination has been made that such pesticides are present solely as a result of the application of pesticides;

(2) Compliance with the soil standards in section 22a-133k-2 of the RSRs has been achieved for any release of pesticides;

(3) The nature and approximate extent of pesticides in the groundwater has been evaluated;

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(4) Potable water supply wells on the parcel where pesticides are in groundwater have been sampled and any exposure pathway to drinking water in such wells is eliminated or mitigated to the extent necessary to protect human health;

(5) A potable water supply well receptor survey identifying surrounding drinking water uses has been conducted;

(6) With respect to the parcel for which a demonstration of compliance with the RSRs is being made, if pesticides in the groundwater on such parcel exceed the groundwater criteria a notice is recorded on the municipal land records identifying such exceedance;

(7) If pesticides applied at a parcel, for which a demonstration of compliance with the RSRs is being made, are present in groundwater on other parcels at concentrations exceeding the groundwater criteria, best efforts have been made to ensure that an EUR has been placed providing notice that pesticides in groundwater on such affected parcels exceeds the groundwater criteria. A certification stating such best efforts have been made shall be submitted with the notice required under subdivision (8) of this section; and

(8) Notice of compliance with the requirements of this subsection, including all documents demonstrating such compliance, is submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs, and is also submitted to the Director of Health of the municipality in which such pesticides in groundwater are located.

(h) **Applying the Groundwater Criteria**

Compliance with the standards for groundwater in this section, or standards specified in section 22a-133k-2 of the RSRs that refer to or require groundwater monitoring, shall be based upon groundwater monitoring conducted in compliance with this subsection.

(1) Groundwater monitoring shall be capable of determining:

(A) The conceptual site model for the release is valid;

(B) The background concentration at the nearest location upgradient of and unaffected by the release;

(C) The effectiveness of any soil remediation to prevent the pollution of groundwater by substances from the release area;

(D) The effectiveness of any measures to render soil environmentally isolated;

(E) The effectiveness of any remediation to eliminate or minimize any risks to human health and the environment associated with each release being remediated, including, but not limited to, any risks identified during remediation or identified in any risk assessment conducted in accordance with subsection (e)(2) of this section;

(F) Whether the concentration of a substance in groundwater is equal to or less than the applicable groundwater criteria for such substance;

(G) Whether a ground-water groundwater plume in a GB area interferes with any existing use of groundwater, including, but not limited to, a drinking water supply or an industrial, agricultural, or commercial use of groundwater; and

(H) The effectiveness of monitored natural attenuation to achieve compliance with groundwater criteria within a reasonable timeframe.

(2) Pre-requisites for Determining Compliance with Groundwater Criteria

The groundwater samples that will be used in determining compliance with an applicable criteria for a substance shall be collected after:

(A) All remedial actions conducted to achieve compliance with pollutant mobility criteria and the applicable groundwater criteria for such substance have been concluded, other than natural attenuation of a groundwater plume or the recording of an EUR;

PROPOSED

(B) The aquifer is no longer subject to the transient effects on hydraulic head attributable to withdrawal from or injection to groundwater for the purpose of remediation, or other effects due to site redevelopment or remediation;

(C) Any changes to the geochemistry induced by remedial actions or monitoring well construction methods that might influence the concentration of such substance have stabilized and equilibrium geochemical conditions are established; and

(D) The groundwater plume is a diminishing state groundwater plume.

(3) Determining Compliance with Groundwater Criteria

With the exception of monitoring conducted in accordance with subparagraph (B)(ii) or (C)(ii) of this subdivision, when determining compliance with applicable groundwater criteria for substances, a minimum of four (4) sampling events shall be performed which reflect seasonal variability on a quarterly basis, provided that all sampling events used to demonstrate compliance are performed within two (2) years prior to the most current sampling event used to determine compliance, and shall comply with this subdivision.

(A) Determining Compliance with Groundwater Protection Criteria or the Background Concentration

Compliance with the groundwater protection criteria or the background concentration for each substance in groundwater is achieved when sampling locations used for compliance are representative of the subject groundwater plume, and either:

(i) All laboratory analytical results for such substance at all sampling locations are equal to or less than the groundwater protection criteria or the background concentration, whichever is applicable; or

(ii) The ninety-five percent upper confidence level of the arithmetic mean of a statistically representative sampling data set consisting of all laboratory analytical results for such substance for no less than twelve consecutive monthly samples, calculated individually for each sampling location, is equal to or less than the groundwater protection criteria or the background concentration, whichever is applicable.

(B) Determining Compliance with Surface Water Protection Criteria or Water Quality Criteria

Compliance with the surface water protection criteria for each substance in groundwater is achieved when sampling locations are representative of the subject groundwater plume, and either

(i) For sample locations in that portion of such groundwater plume which is upgradient of the area at which such groundwater discharges to the receiving surface water body:

(I) All laboratory analytical results for such substance are less than or equal to the surface water protection criteria or, if applicable, the water quality criteria; or

(II) The ninety-five (95) percent upper confidence level of the arithmetic mean of a statistically representative sampling data set consisting of all laboratory analytical results for such substance for no less than twelve (12) consecutive monthly samples, calculated individually for each sampling location, is equal to or less than the surface water protection criteria or, if applicable, the water quality criteria; or

(ii) The ninety-five (95) percent upper confidence level of the arithmetic mean of a statistically representative sampling data set consisting of all laboratory analytical results for such substance in the entire groundwater plume, collected to reflect seasonal variability on a quarterly basis, is equal to or less than the surface water protection criteria or, if applicable, the water quality criteria.

(C) Determining Compliance with Volatilization Criteria

(i) Compliance with volatilization criteria for each substance in groundwater is achieved when the sampling is representative of the subject groundwater plume and all laboratory analytical

PROPOSED

results for such substance are equal to or less than the applicable volatilization criteria for groundwater.

(ii) Compliance with volatilization criteria for each substance in soil vapor is achieved when the sampling is representative of the subject soil vapor, including during the heating and cooling seasons, and the results of all laboratory analytical results for such substance are equal to or less than the applicable volatilization criteria for soil vapor.

(D) Alternative Methods to Determine Compliance with the Groundwater Criteria

The commissioner may approve or deny in writing a request for an alternative to the methods prescribed in this subdivision to determine compliance with an applicable groundwater criteria. Such proposed alternative methods may be based upon emerging technologies and approaches for which guidance, a standard, or an industrial code has been published by a regulatory agency, governmental advisory group, or other recognized professional organization. A request under this subdivision shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs, and shall also include any other information that the commissioner deems necessary to evaluate such request. Any approval by the commissioner may specify conditions necessary to protect human health and the environment.

(4) Upgradient Groundwater Plume

(A) In the circumstance where it is demonstrated that substances in a groundwater plume from an upgradient parcel are migrating onto the subject downgradient parcel, the concentrations of such substances in the groundwater plume at the downgradient parcel may be equal to or less than the concentrations of such substances found in the groundwater plume at the boundary between such parcels, provided that:

(i) Soil on the downgradient parcel has been remediated and compliance with the standards for soil in section 22a-133k-2 of the RSRs has been achieved;

(ii) At the downgradient parcel, all exposure pathways to drinking water supply wells and from volatilization of volatile organic substances into buildings have been eliminated or mitigated to the extent necessary to protect human health; and

(iii) Such substances are not already present in a groundwater plume at the downgradient parcel.

(B) In the circumstance where it is demonstrated that substances in a groundwater plume from an upgradient parcel are migrating onto a downgradient parcel and such substances have co-mingled with the same substances found in a groundwater plume at the downgradient parcel, in addition to the requirements in subparagraph (A) of this subdivision:

(i) The co-mingled groundwater plume on the downgradient parcel may be equal to or less than the concentrations of such substances found in the groundwater plume at the boundary between such parcels; and

(ii) All exposure pathways to drinking water supply wells and from volatilization of volatile organic substances into buildings at all parcels impacted by the groundwater plume emanating from the downgradient parcel have been eliminated or mitigated to the extent necessary to protect human health.

(C) Notice of the use of this provision as part of remediation shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs and shall demonstrate compliance with this subdivision.

(D) This section does not apply to substances in a groundwater plume on a downgradient parcel where such substances are not migrating onto such parcel from an upgradient parcel or such substances are different than those migrating onto such parcel.

(i) **Additional Polluting Substances**

(1) Groundwater Protection Criteria for Additional Polluting Substances

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(A) Any substance in groundwater for which a groundwater protection criterion is not specified in Appendix C of the RSRs, shall be remediated to the background concentration or to criteria obtained pursuant to this subdivision. A request under this subdivision shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs, and shall also include:

(i) A proposed risk-based groundwater protection criteria for each substance calculated in accordance with Appendix G of the RSRs;

(ii) The laboratory reporting limit for each substance;

(iii) A description of the organoleptic properties of each substance; and

(iv) Any information about the health effects such substance may cause due to exposure not accounted for in the proposed risk-based groundwater protection criteria.

(B) The commissioner may approve or deny in writing a request made under subparagraph (A) of this subdivision. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that the requirements of this subdivision have been satisfied and that the proposed groundwater protection criteria will be protective of human health and the environment.

(C) Unless prohibited in writing by the commissioner, criteria approved by the commissioner pursuant to subparagraph (B) of this subdivision, may be the subject of a request for alternative criteria under subsection (d)(2) of this section.

(2) Surface Water Protection Criteria for Additional Polluting Substances

(A) Any substance in groundwater for which a surface water protection criterion is not specified in Appendix D of the RSRs or for which there are no water quality criteria, shall be remediated to the background concentration or to criteria obtained pursuant to this subdivision. A request under this subdivision shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs, and shall also include:

(i) A proposed risk-based surface water protection criteria for each substance calculated in accordance with Appendix G of the RSRs;

(ii) The laboratory reporting limit for each substance;

(iii) A description of the bioaccumulative properties of each substance; and

(iv) Any information about the ecological effects each substance may cause due to exposure not accounted for in the proposed risk-based surface water protection criteria.

(B) The commissioner may approve or deny in writing a request made under subparagraph (A) of this subdivision. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that the requirements of this subdivision have been satisfied and that the proposed surface water protection criteria will be protective of human health and the environment.

(C) Unless prohibited in writing by the commissioner, criteria approved by the commissioner pursuant to subparagraph (B) of this subdivision, may be the subject of a request for alternative criteria under subsection (b) of this section.

(3) Volatilization Criteria for Additional Polluting Substances

(A) Any substance in groundwater for which a volatilization criterion is not specified in Appendix E or Appendix F of the RSRs, shall be remediated to the background concentration or to criteria obtained pursuant to this subdivision. Such request may include target indoor air concentrations and volatilization criteria to apply to such substances in groundwater or soil vapor. A request under this subdivision shall be submitted to the commissioner in accordance with section 22a-133k-1(g) of the RSRs, and shall also include:

(i) A risk-based target indoor air concentration or volatilization criteria for each substance calculated in accordance with Appendix G of the RSRs;

(ii) The laboratory reporting limit for each substance;

PROPOSED

(iii) A description of the odor threshold of each substance; and

(iv) Any information about the health effects each substance may cause due to exposure not accounted for in the proposed risk-based volatilization criteria.

(B) Such volatilization criteria shall ensure that such target indoor air concentrations will not be exceeded above the polluted groundwater.

(C) The commissioner may approve or deny in writing a request made under subparagraph (A) of this subdivision. No request shall be approved unless it is demonstrated to the commissioner's satisfaction that the requirements of this subdivision have been satisfied and that the proposed volatilization criteria will be protective of human health and the environment.

(D) Unless prohibited in writing by the commissioner, criteria approved by the commissioner pursuant to subparagraph (C) of this subdivision, may be the subject of a request for alternative criteria under subsection (c)(4) of this section.

(j) **Additional Remediation of Groundwater**

Nothing in the RSRs shall preclude the commissioner from taking any action necessary to prevent or abate pollution, or to prevent or abate any threat to human health or the environment. If the presence of any substance impairs the aesthetic quality of any groundwater which is or can reasonably be expected to be a source of water for drinking or other uses, additional remediation shall be conducted in order to reduce the concentration of such substance to a concentration appropriate for such use.

Appendix A to the RSRs

Direct Exposure Criteria for Soil

Substance	**Residential DEC in mg/kg(ppm)**	**Industrial/Commercial DEC in mg/kg(ppm)**
Volatile Organic Substances		
Acetone	500	1,000
Acrylonitrile	1.1	11
Benzene	21	200
Bromoform	78	720
2-Butanone (MEK)	500	1,000
Carbon tetrachloride	4.7	44
Chlorobenzene	500	1,000
Chloroform	100	940
Dibromochloromethane	7.3	68
1,2-Dichlorobenzene	500	1,000
1,3-Dichlorobenzene	500	1,000
1,4-Dichlorobenzene	26	240
1,1-Dichloroethane	500	1,000
1,2-Dichloroethane	6.7	63
1,1-Dichloroethylene	1	9.5
cis-1,2-Dichloroethylene	500	1,000

PROPOSED

Substance	Residential DEC in mg/kg(ppm)	Industrial/Commercial DEC in mg/kg(ppm)
trans-1,2-Dichloroethylene	500	1,000
1,2-Dichloropropane	9	84
1,3-Dichloropropene	3.4	32
Ethylbenzene	500	1,000
Ethylene dibromide (EDB)	0.007	0.067
Methyl-tert-butyl-ether	500	1,000
Methyl isobutyl ketone	500	1,000
Methylene chloride	82	760
Styrene	500	1,000
1,1,1,2-Tetrachloroethane	24	220
1,1,2,2-Tetrachloroethane	3.1	29
Tetrachloroethylene	12	110
Toluene	500	1,000
1,1,1-Trichloroethane	500	1,000
1,1,2-Trichloroethane	11	100
Trichloroethylene	56	520
Vinyl chloride	0.32	3
Xylenes	500	1,000
Semi-volatile Organic Substances		
Acenaphthylene	1,000	2,500
Anthracene	1,000	2,500
Benzo(a)anthracene	1	7.8
Benzo(b)fluoranthene	1	7.8
Benzo(k)fluoranthene	8.4	78
Benzo(a)pyrene	1	1
Bis(2-chloroethyl)ether	1	5.2
Bis(2-chloroisopropyl) ether	8.8	82
Bis(2-ethyl hexyl) phthalate	44	410
Butyl benzl phthalate	1,000	2,500
2-chlorophenol	340	2,500
Di-n-butyl phthalate	1,000	2,500
Di-n-octyl phthalate	1,000	2,500
2,4-Dichlorophenol	200	2,500
Fluoranthene	1,000	2,500

PROPOSED

Substance	Residential DEC in mg/kg(ppm)	Industrial/Commercial DEC in mg/kg(ppm)
Fluorene	1,000	2,500
Hexachloroethane	44	410
Hexachlorobenzene	1	3.6
Naphthalene	1,000	2,500
Pentachlorophenol	5.1	48
Phenanthrene	1,000	2,500
Phenol	1,000	2,500
Pyrene	1,000	2,500
Inorganic Substances		
Antimony	27	8,200
Arsenic	10	10
Barium	4,700	140,000
Beryllium	2	2
Cadmium	34	1,000
Chromium, trivalent	3,900	51,000
Chromium, hexavalent	100	100
Copper	2,500	76,000
Cyanide	1,400	41,000
Lead	400	1,000
Mercury	20	610
Nickel	1,400	7,500
Selenium	340	10,000
Silver	340	10,000
Thallium	5.4	160
Vanadium	470	14,000
Zinc	20,000	610,000
Pesticides, PCBs and Extractable Total Petroleum Hydrocarbons		
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	20,000

PROPOSED

Substance	Residential DEC in mg/kg(ppm)	Industrial/Commercial DEC in mg/kg(ppm)
Heptachlor epoxide	0.067	0.63
Heptachlor	0.14	1.3
Lindane	20	610
Methoxychlor	340	10,000
Toxaphene	0.56	5.2
PCBs (The use of the Industrial/Commercial DEC requires the parcel to be used pursuant to section 22a-133k-2(b)(4), and in accordance with title 40 CFR Part 761)	1	10
TPH- Total Petroleum Hydrocarbons by EPA Method 418.1 (This method shall not be used for the analysis of samples collected after June 30, 2009)	500	2,500
Extractable Total Petroleum Hydrocarbons by ETPH Analysis	500	2,500

Appendix B to the RSRs

Pollutant Mobility Criteria for Soil

Substance	GA Area PMC in mg/kg (ppm)	GB Area PMC in mg/kg (ppm)
Volatile Organic Substances		
Acetone	14	140
Acrylonitrile	0.01	0.1
Benzene	0.02	0.2
Bromoform	0.08	0.8
2-Butanone (MEK)	8	80
Carbon tetrachloride	0.1	1
Chlorobenzene	2	20
Chloroform	0.12	1.2
Dibromochloromethane	0.01	0.1
1,2-Dichlorobenzene	3.1	3.1
1,3-Dichlorobenzene	12	120
1,4-Dichlorobenzene	1.5	15
1,1-Dichloroethane	1.4	14
1,2-Dichloroethane	0.02	0.2

PROPOSED

Substance	GA Area PMC in mg/kg (ppm)	GB Area PMC in mg/kg (ppm)
1,1-Dichloroethylene	0.14	1.4
cis-1,2-Dichloroethylene	1.4	14
trans-1,2-Dichloroethylene	2	20
1,2-Dichloropropane	0.1	1.0
1,3-Dichloropropene	0.01	0.1
Ethyl benzene	10.1	10.1
Ethylene dibromide (EDB)	0.01	0.1
Methyl-tert-butyl-ether	2	20
Methyl isobutyl ketone	7	14
Methylene chloride	0.1	1.0
Styrene	2	20
1,1,1,2-Tetrachloroethane	0.02	0.2
1,1,2,2-Tetrachloroethane	0.01	0.1
Tetrachloroethylene	0.1	1
Toluene	20	67
1,1,1-Trichloroethane	4	40
1,1,2-Trichloroethane	0.1	1
Trichloroethylene	0.1	1.0
Vinyl chloride	0.04	0.40
Xylenes	19.5	19.5
Semi-volatile Organic Substances		
Acenaphthylene	8.4	84
Anthracene	40	400
Benzo(a)anthracene	1	1
Benzo(b)fluoranthene	1	1
Benzo(k)fluoranthene	1	1
Benzo(a)pyrene	1	1
Bis(2-chloroethyl)ether	1	2.4
Bis(2-chloroisopropyl)ether	1	2.4
Bis(2-ethyl hexyl)phthalate	1	11
Butyl benzl phthalate	20	200
2-chlorophenol	1	7.2
Di-n-butyl phthalate	14	140
Di-n-octyl phthalate	2	20

PROPOSED

Substance	GA Area PMC in mg/kg (ppm)	GB Area PMC in mg/kg (ppm)
2,4-Dichlorophenol	1	4
Fluoranthene	5.6	56
Fluorene	5.6	56
Hexachloroethane	1	1
Hexachlorobenzene	1	1
Naphthalene	5.6	56
Pentachlorophenol	1	1
Phenanthrene	4	40
Phenol	80	800
Pyrene	4	40
Pesticides and Extractable Total Petroleum Hydrocarbons		
Alachlor	0.230	0.4
Aldicarb	1	1
Atrazine	0.2	0.2
Chlordane	0.066	0.066
Dieldrin	0.007	0.007
2-4 D	1.4	14
Heptachlor epoxide	0.02	0.02
Heptachlor	0.013	0.013
Lindane	0.02	0.04
Methoxychlor	0.8	8
Simazine	0.8	8
Toxaphene	0.33	0.6
Total Petroleum Hydrocarbon by EPA Method 418.1 (This method shall not be used for the analysis of samples collected after June 30, 2009)	500	2,500
Extractable Total Petroleum Hydrocarbons by ETPH Analysis	500	2,500

Substances	GA Area PMC by TCLP or by SPLP in mg/L (ppm)	GB Area PMC by TCLP or by SPLP in mg/L (ppm)
Inorganic Substances and PCBs		
Antimony	0.006	0.06
Arsenic	0.05	0.5

PROPOSED

Substances	GA Area PMC by TCLP or by SPLP in mg/L (ppm)	GB Area PMC by TCLP or by SPLP in mg/L (ppm)
Barium	1	10.0
Beryllium	0.004	0.04
Cadmium	0.005	0.05
Chromium, total	0.05	0.5
Copper	1.3	13
Cyanide (by SPLP only)	0.2	2
Lead	0.015	0.15
Mercury	0.002	0.02
Nickel	0.1	1.0
Selenium	0.05	0.5
Silver	0.036	0.36
Thallium	0.005	0.05
Vanadium	0.05	0.50
Zinc	5	50
PCBs	0.0005	0.005

Appendix C to the RSRs
Groundwater Protection Criteria

Substance	GWPC in µg/L (ppb)
Volatile Organic Substances	
Acetone	700
Acrylonitrile	0.5
Benzene	1
Bromoform	4
2-Butanone (MEK)	400
Carbon tetrachloride	5
Chlorobenzene	100
Chloroform	6
Dibromochloromethane	0.5
1,2-Dichlorobenzene	600
1,3-Dichlorobenzene	600
1,4-Dichlorobenzene	75
1,1-Dichloroethane	70

PROPOSED

Substance	GWPC in µg/L (ppb)
1,2-Dichloroethane	1
1,1-Dichloroethylene	7
cis-1,2-Dichloroethylene	70
trans-1,2-Dichloroethylene	100
1,2-Dichloropropane	5
1,3-Dichloropropene	0.5
Ethyl benzene	700
Ethylene dibromide (EDB)	0.05
Methyl-tert-butyl-ether	100
Methyl isobutyl ketone	350
Methylene chloride	5
Styrene	100
1,1,1,2-Tetrachloroethane	1
1,1,2,2-Tetrachloroethane	0.5
Tetrachloroethylene	5
Toluene	1,000
1,1,1-Trichloroethane	200
1,1,2-Trichloroethane	5
Trichloroethylene	5
Vinyl chloride	2
Xylenes	530
Semi-volatile Organic Substances	
Acenaphthylene	420
Anthracene	2,000
Benzo(a)anthracene	0.06
Benzo(b)fluoranthene	0.08
Benzo(k)fluoranthene	0.5
Benzo(a)pyrene	0.2
Bis(2-chloroethyl)ether	12
Bis(2-chloroisopropyl)ether	12
Bis(2-ethyl hexyl)phthalate	2
Butyl benzl phthalate	1,000
2-chlorophenol	36
Di-n-butyl phthalate	700
Di-n-octyl phthalate	100

PROPOSED

Substance	GWPC in µg/L (ppb)
2,4-Dichlorophenol	20
Fluoranthene	280
Fluorene	280
Hexachloroethane	3
Hexachlorobenzene	1
Naphthalene	280
Pentachlorophenol	1
Phenanthrene	200
Phenol	4,000
Pyrene	200
Inorganic Substances	
Antimony	6
Arsenic	50
Asbestos (in mfl)	7
Barium	1,000
Beryllium	4
Cadmium	5
Chromium (total)	50
Copper	1,300
Cyanide	200
Lead	15
Mercury	2
Nickel	100
Selenium	50
Silver	36
Thallium	5
Vanadium	50
Zinc	5,000
Pesticides, PCBs and Extractable Total Petroleum Hydrocarbons	
Alachlor	2
Aldicarb	3
Atrazine	3
Chlordane	0.3
Dieldrin	0.002
2-4 D	70

PROPOSED

Substance	GWPC in µg/L (ppb)
Heptachlor epoxide	0.2
Heptachlor	0.4
Lindane	0.2
Methoxychlor	40
Simazine	4
Toxaphene	3
PCB's	0.5
Total Petroleum Hydrocarbon by EPA Method 418.1 (This method shall not be used for the analysis of samples collected after June 30, 2009)	500
Extractable Total Petroleum Hydrocarbons by ETPH Analysis	250

Appendix D to the RSRs

Surface Water Protection Criteria for Substances in Groundwater

Substance	SWPC in µg/L(ppb)
Volatile Organic Substances	
Acrylonitrile	20
Benzene	710
Bromoform	10,800
Carbon tetrachloride	132
Chlorobenzene	420,000
Chloroform	14,100
Dibromochloromethane	1,020
1,2-Dichlorobenzene	170,000
1,3-Dichlorobenzene	26,000
1,4-Dichlorobenzene	26,000
1,2-Dichloroethane	2,970
1,1-Dichloroethylene	96
1,3-Dichloropropene	34,000
Ethylbenzene	580,000
Methylene chloride	48,000
1,1,2,2-Tetrachloroethane	110
Tetrachloroethylene	88
Toluene	4,000,000
1,1,1-Trichloroethane	62,000

PROPOSED

Substance	SWPC in µg/L(ppb)
1,1,2-Trichloroethane	1,260
Trichloroethylene	2,340
Vinyl chloride	15,750
Semi-volatile Organic Substances	
Acenaphthylene	0.3
Anthracene	1,100,000
Benzo(a)anthracene	0.3
Benzo(b)fluoranthene	0.3
Benzo(k)fluoranthene	0.3
Benzo(a)pyrene	0.3
Bis(2-chloroethyl) ether	42
Bis(2-chloroisopropyl) ether	3,400,000
Bis(2-ethyl hexyl)phthalate	59
Di-n-butyl phthalate	120,000
2,4-Dichlorophenol	15,800
Fluoranthene	3,700
Fluorene	140,000
Hexachloroethane	89
Hexachlorobenzene	0.077
Phenanthrene	14
Phenol	9,200,0000
Pyrene	110,000
Inorganic Substances	
Antimony	86,000
Arsenic	4
Asbestos (in mfl)	7
Beryllium	4
Cadmium	6
Chromium, trivalent	1,200
Chromium, hexavalent	110
Copper	48
Cyanide	52
Lead	13
Mercury	0.4
Nickel	880

PROPOSED

Substance	SWPC in µg/L(ppb)
Selenium	50
Silver	12
Thallium	63
Zinc	123
Pesticides and PCBs	
Chlordane	0.3
Dieldrin	0.1
Endrin	0.1
Heptachlor epoxide	0.05
Heptachlor	0.05
Toxaphene	1
PCBs	0.5

Appendix E to the RSRs
Volatilization Criteria for Groundwater

Volatile Substance	Residential Volatilization Criteria for Groundwater in µg/L (ppb)	Industrial/Commercial Volatilization Criteria for Groundwater in µg/L (ppb)
Acetone	50,000	50,000
Benzene	215	530
Bromoform	75	2,300
2-Butanone (MEK)	50,000	50,000
Carbon Tetrachloride	5.3	14
Chlorobenzene	1,800	23,000
Chloroform	26	62
1,2-Dichlorobenzene	5,100	50,000
1,3-Dichlorobenzene	4,300	50,000
1,4-Dichlorobenzene	1,400	3,400
1,1-Dichloroethane	3,000	41,000
1,2-Dichloroethane	6.5	68
1,1-Dichloroethylene	190	920
1,2-Dichloropropane	7.4	58
1,3-Dichloropropene	11	360
Ethyl benzene	50,000	50,000
Ethylene dibromide (EDB)	0.30	11

PROPOSED

Volatile Substance	Residential Volatilization Criteria for Groundwater in µg/L (ppb)	Industrial/Commercial Volatilization Criteria for Groundwater in µg/L (ppb)
Methyl-tert-butyl-ether	50,000	50,000
Methyl isobutyl ketone	13,000	50,000
Methylene chloride	160	2,200
Styrene	3,100	42,000
1,1,1,2-Tetrachloroethane	2	64
1,1,2,2-Tetrachloroethane	1.8	54
Tetrachloroethylene	340	810
Toluene	23,500	50,000
1,1,1-Trichloroethane	650	16,000
1,1,2-Trichloroethane	220	2,900
Trichloroethylene	27	67
Vinyl chloride	1.6	52
Xylenes	21,300	50,000

Appendix F to the RSRs

Volatilization Criteria for Soil Vapor

Volatile Substance	Residential Volatilization Criteria for Soil Vapor in parts per million by volume (ppmv)	Residential Volatilization Criteria for Soil Vapor in milligrams per cubic meter (mg/m^3)	Industrial/ Commercial Volatilization Criteria for Soil Vapor in parts per million by volume (ppmv)	Industrial/ Commercial Volatilization Criteria for Soil Vapor in milligrams per cubic meter (mg/m^3)
Acetone	57	140	290	690
Benzene	0.78	2.5	1.4	4.6
Bromoform	0.04	0.42	0.98	10
2-Butanone (MEK)	130	376	230	690
Carbon Tetrachloride	0.06	0.38	0.12	0.75
Chlorobenzene	6.1	28	60	280
Chloroform	0.078	0.38	0.14	0.69
1,2-Dichlorobenzene	9.2	55	95	570
1,3-Dichlorobenzene	9.2	55	95	570
1,4-Dichlorobenzene	3	18	5.5	33
1,1-Dichloroethane	14	58	150	600

PROPOSED

Volatile Substance	Residential Volatilization Criteria for Soil Vapor in parts per million by volume (ppmv)	Residential Volatilization Criteria for Soil Vapor in milligrams per cubic meter (mg/m^3)	Industrial/ Commercial Volatilization Criteria for Soil Vapor in parts per million by volume (ppmv)	Industrial/ Commercial Volatilization Criteria for Soil Vapor in milligrams per cubic meter (mg/m^3)
1,2-Dichloroethane	0.013	0.053	0.11	0.43
1,1-Dichloroethylene	1.9	7.6	7	28
1,2-Dichloropropane	0.021	0.098	0.13	0.58
1,3-Dichloropropene	0.035	0.16	0.89	4.0
Ethyl benzene	9.3	40	93	400
Ethylene dibromide (EDB)	0.0005	0.0056	0.007	0.053
Methyl-tert-butyl-ether	34	120	73	260
Methyl isobutyl ketone	6.8	28	68	280
Methylene chloride	0.65	2.3	6.8	24
Styrene	9.3	39	95	400
1,1,1,2-Tetrachloroethane	0.009	0.062	0.22	1.5
1,1,2,2-Tetrachloroethane	0.0012	0.0083	0.028	0.19
Tetrachloroethylene	0.56	3.8	1	6.9
Toluene	42	160	180	690
1,1,1-Trichloroethane	70	380	130	690
1,1,2-Trichloroethane	0.31	1.7	3.1	17
Trichloroethylene	0.14	0.76	0.26	1.4
Vinyl chloride	0.041	0.11	1	2.6
Xylenes	38	170	160	690

PROPOSED

Appendix G to the RSRs

Equations, Terms, and Values for Calculating Release-Specific Direct Exposure Criteria, Pollutant Mobility Criteria, Groundwater Protection Criteria, Surface Water Protection Criteria, and Volatilization Criteria, for Additional Polluting Substances and Alternative Volatilization Criteria.

(1) Direct Exposure Criteria for Additional Polluting Substances

(A) Residential Direct Exposure Criteria shall be calculated using the following equations:

(i) For carcinogenic substances:

$$RDEC_{RB} = \left(\frac{RL}{CSF}\right) \div \left[\left(\frac{IR_{child} \times ED_{child} \times EF \times CF}{BW_{child} \times AT_c}\right) + \left(\frac{IR_{adult} \times ED_{adult} \times EF \times CF}{BW_{adult} \times AT_c}\right)\right]$$

(ii) For non-carcinogenic substances:

$$RDEC_{RB} = (RfD \times HI) \div \left[\left(\frac{IR_{child} \times ED_{child} \times EF \times CF}{BW_{child} \times AT_{child}}\right) + \left(\frac{IR_{adult} \times ED_{adult} \times EF \times CF}{BW_{adult} \times AT_{adult}}\right)\right]$$

(iii) The abbreviations in clauses (i) and (ii) of this subparagraph shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	**Description**	**Value**	**Units**
AT_c	Averaging Time – carcinogens	25,550	days
AT_{adult}	Averaging Time – adult non-carcinogen	8,760	days
AT_{child}	Averaging Time – child non-carcinogen	2,190	days
BW_{adult}	Body Weight – adult	70	kg
BW_{child}	Body Weight – child	15	kg
CF	Conversion Factor	0.000001	kg/mg
CSF	Cancer Slope Factor	Substance-specific	$(mg/kg\text{-}day)^{-1}$
$RDEC_{RB}$	Residential Risk-based Direct Exposure Criterion	calculated	mg/kg
ED_{adult}	Exposure Duration – adult non-carcinogen	24	years
ED_{child}	Exposure Duration – child non-carcinogen	6	years
EF	Exposure Frequency	365	days/year
HI	Hazard Index	1.0	unitless
IR_{adult}	Ingestion Rate – adult	100	mg/day
IR_{child}	Ingestion Rate – child	200	mg/day
RfD	Reference Dose	Substance-specific	mg/kg-day
RL	Target Cancer Risk Level	1.0E-06	unitless

(iv) If the residential Direct Exposure Criteria calculated pursuant to this subparagraph exceeds the following ceiling values, the ceiling value shall be used in lieu of the calculated value:

Volatile Organic Substances	**Semi-volatile Organic Substances**	**Pesticides, PCBs and ETPH**	**Inorganic Substances**	**Units**
500	1,000	500	50,000	mg/kg

PROPOSED

(v) The residential direct exposure criteria may be adjusted up to the laboratory reporting limit if the commissioner determines that the calculated residential risk-based direct exposure criteria is less than the laboratory reporting limit for such substance.

(B) Industrial/commercial Direct Exposure Criteria shall be calculated using the following equations:

(i) For carcinogenic substances:

$$\text{I/C DEC}_{\text{RB}} = \left(\frac{\text{RL}}{\text{CSF}}\right) \times \left(\frac{\text{BW} \times \text{AT}_{\text{c}}}{\text{IR} \times \text{ED} \times \text{EF} \times \text{CF}}\right)$$

(ii) For non-carcinogenic substances:

$$\text{I/C DEC}_{\text{RB}} = \left(\frac{\text{RfD} \times \text{HI} \times \text{BW} \times \text{AT}}{\text{IR} \times \text{ED} \times \text{EF} \times \text{CF}}\right)$$

(iii) The abbreviations in clauses (i) and (ii) of this subparagraph shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	**Description**	**Value**	**Units**
AT_c	Averaging Time – carcinogens	25,550	days
AT	Averaging Time – non-carcinogen	9,125	days
BW	Body Weight – adult	70	kg
CF	Conversion Factor	0.000001	kg/mg
CSF	Cancer Slope Factor	substance-specific	$(\text{mg/kg-day})^{-1}$
$I/CDEC_{RB}$	Industrial/Commercial Risk-based Direct Exposure Criterion	calculated	mg/kg
ED	Exposure Duration	25	years
EF	Exposure Frequency	250	days/year
HI	Hazard Index	1.0	unitless
IR	Ingestion Rate	50	mg/day
RfD	Reference Dose	substance-specific	mg/kg-day
RL	Target Cancer Risk Level	1.0E-06	unitless

(iv) If the industrial/commercial direct exposure criteria calculated pursuant to this subparagraph exceeds the following ceiling values, the ceiling value shall be used in lieu of the calculated value:

PROPOSED

Volatile Organic Substances	Semi-volatile Organic Substances	Pesticides, PCBs and ETPH	Inorganic Substances	Units
1,000	2,500	1,000	50,000	mg/kg

(v) The industrial/commercial direct exposure criteria may be adjusted up to the laboratory reporting limit if the commissioner determines that the calculated industrial/commercial risk-based direct exposure criteria is less than the laboratory reporting limit for such substance.

(2) Pollutant Mobility Criteria for Additional Polluting Substances

(A) Pollutant Mobility Criteria for inorganic substances shall be calculated using the following equations:

(i) For GA area groundwater classification:

$$PMC_{mg/L} = GWPC \times CF$$

(ii) For GB area groundwater classification:

$$PMC_{mg/L} = GWPC \times CF \times DF$$

(B) Pollutant Mobility Criteria for organic substances shall be calculated using the following equations:

(i) For GA area groundwater classification:

$$PMC_{mg/kg} = GWPC \times CF \times AAF$$

(ii) For GB area groundwater classification:

$$PMC_{mg/kg} = GWPC \times CF \times AAF \times DF$$

(C) The abbreviations in subparagraphs (A) and (B) of this subdivision shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
AAF	Analytical Adjustment Factors	20	unitless
CF	Conversion Factor	0.001	mg/µg
DF	Dilution Factor	10	unitless
GWPC	Groundwater Protection Criteria	substance-specific	µg/L

PROPOSED

Terms	Description	Value	Units
PMC	Pollutant Mobility Criteria	calculated	mg/kg or mg/L

(3) Groundwater Protection Criteria for Additional Polluting Substances

(A) Groundwater Protection Criteria shall be calculated for carcinogenic substances using the following equation:

$$GWPC = \left(\frac{RL}{CSF}\right) \times \left(\frac{BW \times AT}{IR \times EF \times ED \times CF}\right)$$

(B) Groundwater Protection Criteria shall be calculated for non-carcinogenic substances using the following equation:

$$GWPC = \frac{RfD \times HI \times BW \times AT \times SA}{IR \times EF \times ED \times CF}$$

(C) The abbreviations in subparagraphs (A) and (B) of this subdivision shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
AT	Averaging Time	25,550	days
BW	Body Weight	70	kg
CSF	Cancer Slope Factor	substance-specific	$(mg/kg\text{-}day)^{-1}$
CF	Conversion Factor	0.001	mg/µg
ED	Exposure Duration	70	years
EF	Exposure Frequency	365	days/year
GWPC	Risk-based Groundwater Protection Criterion	calculated	µg/L
HI	Hazard Index	1.0	unitless
IR	Ingestion Rate	2	L/day
RfD	Reference Dose	substance-specific	mg/kg-day
RL	Target Cancer Risk Level	1.0E-06	unitless
SA	Source Allocation	0.2	unitless

(D) If the Groundwater Protection Criteria calculated pursuant to subparagraph (A) or (B) of this subdivision exceeds the following ceiling values, the ceiling value shall be used in lieu of the calculated value:

PROPOSED

Volatile Organic Substances	Semi-volatile Organic Substances	Pesticides, PCBs, and ETPH	Inorganic Substances	Units
1,000	1,000	1,000	1,000	µg/L

(E) The groundwater protection criteria may be adjusted up to the laboratory reporting limit if the commissioner determines that the calculated risk-based groundwater protection criteria is less than the laboratory reporting limit for such substance.

(F) The groundwater protection criteria may be adjusted down to the organoleptic threshold if the commissioner determines that the calculated risk-based groundwater protection criteria is higher than the organoleptic threshold for such substance.

(4) Surface Water Protection Criteria for Additional Polluting Substances

(A) Determining Water Quality Criteria

For substances that have no water quality criteria in the water quality standards, such criteria shall be determined using EPA's national recommended water quality criteria and, if no such criteria are available, then by using the following:

(i) Determining the Water Quality Criteria for Chronic Aquatic Life

(I) In accordance with title 40 CFR 132 Appendix A (Great Lakes Water Quality Initiative Methodologies for Development of Aquatic Life Criteria and Values);

(II) Using the Tier 1 protocols for calculating a Criterion Continuous Concentration; or

(III) If insufficient information is available to use the Tier 1 Criterion Continuous Concentration procedure, using the Tier 2 protocols for calculating a Secondary Continuous Concentration.

(ii) Calculating the Water Quality Criteria for Human Health for Fish Consumption:

(I) For carcinogenic substances:

$$\mathrm{WQC} = \frac{\mathrm{RL} \times \mathrm{BW} \times \mathrm{CF}}{\mathrm{CSF} \times \mathrm{FC} \times \mathrm{BAF}}$$

(II) For non-carcinogenic substances:

$$\mathrm{WQC} = \frac{\mathrm{RfD} \times \mathrm{BW} \times \mathrm{CF} \times \mathrm{RSC}}{\mathrm{FC} \times \mathrm{BAF}}$$

(III) The abbreviations in subclauses (I) and (II) of this clause shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
BAF	Bioaccumulation Factor	substance-specific	unitless
BW	Body Weight	70	kg
CF	Conversion Factor	1,000	µg/mg

PROPOSED

Terms	Description	Value	Units
CSF	Cancer Slope Factor	substance-specific	$(mg/kg\text{-}day)^{-1}$
FC	Fish Consumption Rate	0.0175	kg/d
RfD	Reference Dose	substance-specific	mg/kg-day
RL	Risk Level	1.00E-06	unitless
WQC	Water Quality Criteria	substance-specific	µg/L
RSC	Relative Source Contribution	0.2	unitless

(B) Calculating the Surface Water Protection Criteria

The risk-based surface water protection criteria shall be calculated, for the lower of aquatic life or human health water quality criteria:

(i) Water quality criteria for freshwater chronic aquatic life protection as determined using subparagraph (A) of this subdivision, multiplied by ten (10); or

(ii) Water quality criteria for human health for fish consumption calculated using subparagraph (A) of this subdivision, multiplied by the applicable flow factor multiplied by ten (10), using the following values:

Flow Factor	Substance Risk Level
1	For known human carcinogens or substances which may bioaccumulate BCF> 100
2	For non-carcinogenic substances
3	For carcinogenic substances

(C) If the Surface Water Protection Criteria calculated pursuant to subparagraph (B) of this subdivision exceeds the following ceiling values, the ceiling value shall be used in lieu of the calculated value:

Volatile Substances	Semi-volatile Organic Substances	Pesticides, PCBs and ETPH	Inorganic Substances	Units
10,000	10,000	10,000	10,000	µg/L

(D) The surface water protection criteria may be adjusted up to the laboratory reporting limit if the commissioner determines that the calculated risk-based surface water protection criteria is less than the laboratory reporting limit for such substance.

(5) Volatilization Criteria for Additional Polluting Substances

(A) Residential Target Indoor Air Concentrations shall be calculated using the following equations:

(i) For carcinogenic substances:

PROPOSED

$$TAC = \frac{RL \times BW \times AT_c \times CF}{CSF_i \times CexpF \times CsensF \times IR_{air} \times EF \times ED}$$

(ii) For non-carcinogenic substances:

$$TAC = \frac{HQ \times BW \times RfD_i \times AT \times CF}{CexpF \times IR_{air} \times EF \times ED}$$

(iii) The abbreviations in this subparagraph shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	**Description**	**Value**	**Units**
AT	Averaging Time – non-carcinogen	10,950	days
AT_c	Averaging Time – carcinogen	25,550	days
BW	Body Weight	70	kg
CexpF	Children's Exposure Factor	2	unitless
CF	Conversion Factor	1,000	µg/mg
CsensF	Children's Sensitivity Factor CsensF = 1 for non-carcinogens and non-mutagenic carcinogens. CsensF = 2 for mutagenic carcinogens	substance-specific	unitless
CSF_i	Cancer Slope Factor – Inhalation	substance-specific	$(mg/kg\text{-}day)^{-1}$
ED	Exposure Duration	30	years
EF	Exposure Frequency	350	days/year
HQ	Hazard Quotient	1	unitless
IR_{air}	Inhalation Rate – air	20	m^3/day
RfD_i	Reference Dose – inhalation	substance-specific	mg/m^3
RL	Risk Level	1.00E-06	unitless
TAC	Target Indoor Air Concentration	substance-specific	$\mu g/m^3$

(iv) If the residential Target Indoor Air Concentration calculated pursuant to clause (i) or (ii) of this subparagraph exceeds a ceiling value of 500 $\mu g/m^3$, the ceiling value shall be used in lieu of the calculated value.

(B) Industrial/Commercial Target Indoor Air Concentrations shall be calculated using the following equations:

(i) For carcinogenic substances:

PROPOSED

$$TAC = \frac{RL \times BW \times AT_c \times CF}{CSF_i \times IR_{air} \times EF \times ED}$$

(ii) For non-carcinogenic substances:

$$TAC = \frac{HQ \times BW \times RfD_i \times AT \times CF}{IR_{air} \times EF \times ED}$$

(iii) The abbreviations used in this subparagraph shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	**Description**	**Value**	**Units**
AT	Averaging Time – non-carcinogen	9,125	days
AT_c	Averaging Time – carcinogen	25,550	days
BW	Body Weight	70	kg
CF	Conversion Factor	1,000	µg/mg
CSF_i	Cancer Slope Factor – inhalation	substance-specific	$(mg/kg\text{-}day)^{-1}$
ED	Exposure Duration	25	years
EF	Exposure Frequency	250	days/year
HQ	Hazard Quotient	1	unitless
IR_{air}	Inhalation Rate – air	10	m^3/day
RfD_i	Reference Dose – inhalation	substance-specific	mg/m^3
RL	Risk Level	1.00E-06	unitless
TAC	Target Indoor Air Concentration	substance-specific	$\mu g/m^3$

(iv) If the industrial/commercial Target Indoor Air Concentration calculated pursuant to clause (i) or (ii) of this subparagraph exceeds a ceiling value of five hundred (500) $\mu g/m^3$, the ceiling value shall be used in lieu of the calculated value.

(C) Volatilization Protection Criterion shall be calculated using the following equations:

(i) For Volatilization Criteria for Groundwater:

$$GWVC = \frac{TAC}{CF \times \alpha \times H}$$

PROPOSED

(ii) If the groundwater volatilization criteria calculated pursuant to clause (i) of this subparagraph exceeds a ceiling value of fifty thousand (50,000) µg/L, the ceiling value shall be used in lieu of the calculated value.

(iii) For Volatilization Criteria for Soil Vapor:

$$SVVC_{mg/m^3} = \frac{TAC}{CF \times \alpha}$$

$$SVVC_{ppmv} = SVVC_{mg/m^3} \times \left(\frac{MV}{MW}\right)$$

(iv) The attenuation factor for diffusion and advection (α) shall be calculated using the following equations:

$$\alpha = \frac{A \times e^{B}}{e^{B} + A + (A/C) \times (e^{B} - 1)}$$

$$A = \frac{D^{eff}{}_{T} \times A_B}{Q_B \times L_T} \quad \textbf{or} \quad A = \frac{D^{eff}{}_{T}}{E_B \times (V_B/A_B) \times L_T}$$

$$B = \frac{Q_{soil} \times L_{crack}}{D^{eff}{}_{crack} \times \eta \times A_B} \quad \textbf{or} \quad B = \left(\left(\frac{Q_{soil}}{Q_B}\right) \times E_B \times \left(\frac{V_B}{A_B}\right) \times L_{crack}\right) / \left(D^{eff}{}_{crack} \times \eta\right)$$

$$C = \frac{Q_{soil}}{Q_B}$$

$$D^{eff}{}_{T} = \frac{L_T}{\left(L_{vadose}/D^{eff}{}_{vadose}\right) + \left(L_{cap}/D^{eff}{}_{cap}\right)}$$

PROPOSED

$$D^{eff}{}_{crack} = D^{air} \times \left(\frac{\theta_{V-crack}{}^{3.33}}{\theta_{T-crack}{}^{2}}\right) + \left(\frac{D^{water}}{H}\right) \times \left(\frac{\theta_{m-crack}{}^{3.33}}{\theta_{T-crack}{}^{2}}\right)$$

$$D^{eff}{}_{vadose} = D^{air} \times \left(\frac{\theta_{V-vadose}{}^{3.33}}{\theta_{T-vadose}{}^{2}}\right) + \left(\frac{D^{water}}{H}\right) \times \left(\frac{\theta_{m-vadose}{}^{3.33}}{\theta_{T-vadose}{}^{2}}\right)$$

$$D^{eff}{}_{cap} = D^{air} \times \left(\frac{\theta_{V-cap}{}^{3.33}}{\theta_{T-cap}{}^{2}}\right) + \left(\frac{D^{water}}{H}\right) \times \left(\frac{\theta_{m-cap}{}^{3.33}}{\theta_{T-cap}{}^{2}}\right)$$

(v) The abbreviations used in this subparagraph shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	**Description**	**Value**	**Units**
α	Attenuation Factor for Diffusion and Advection	calculated	unitless
A_B	Surface Area of the Enclosed Space in Contact with Soil	site-specific	m^2
CF	Conversion Factor	1,000	L/m^3 or µg/mg
D^{air}	Molecular Diffusion Coefficient in Air	substance-specific	m^2/d
$D^{eff}{}_T$	Total Effective Diffusion	calculated	cm^2/s
$D^{eff}{}_{crack}$	Effective Diffusion Through Foundation Cracks	calculated	cm^2/s
$D^{eff}{}_{cap}$	Effective Diffusion Through Capillary Fringe	calculated	cm^2/s
$D^{eff}{}_{vadose}$	Effective Diffusion Through Vadose Zone	calculated	cm^2/s
D^{water}	Molecular Diffusion Coefficient in Water	substance-specific	m^2/d
D^{water}/D^{air}	Ratio of Molecular Diffusion in Water to Air = D^{water}/D^{air}	calculated	unitless
E_B	Enclosed Space Air Exchange Rate	site-specific	1/day
GWVC	Groundwater Volatilization Criteria	calculated	µg/L
H	Henry's Law Constant	substance-specific	unitless
k	Soil Vapor Permeability	site-specific	cm^2
L_T	Depth from foundation to source	site-specific	m
L_{cap}	Thickness of Capillary Fringe	site-specific	m

PROPOSED

Terms	Description	Value	Units
L_{crack}	Foundation Thickness	site-specific	m
L_{vadose}	Thickness of Vadose Zone = L_T - L_{cap}	calculated	m
MV	Molar Volume (at standard conditions)	24.45	L
MW	Molecular Weight	substance-specific	g/mol
η	Fraction of Enclosed Space Area Open for Vapor Intrusion	site-specific	m^2/d
$\theta_{m\text{-}cap}$	Volumetric Moisture Content in Cracks in Capillary Fringe	site-specific	unitless
$\theta_{T\text{-}cap}$	Total Porosity in Capillary Fringe	site-specific	unitless
$\theta_{V\text{-}cap}$	Volumetric Vapor Constant in Capillary Fringe = $\theta_{T\text{-}cap}$ - $\theta_{m\text{-}cap}$	calculated	unitless
$\theta_{m\text{-}crack}$	Volumetric Moisture Content in Cracks	site-specific	unitless
$\theta_{T\text{-}crack}$	Total Porosity in Crack	site-specific	unitless
$\theta_{V\text{-}crack}$	Volumetric Vapor Content in Cracks = $\theta_{T\text{-}crack}$ - $\theta_{m\text{-}crack}$	calculated	unitless
$\theta_{m\text{-}vadose}$	Volumetric Moisture Content in Vadose Zone	site-specific	unitless
$\theta_{T\text{-}vadose}$	Total Porosity in Vadose Zone	site-specific	unitless
$\theta_{V\text{-}vadose}$	Volumetric Vapor Content in Vadose Zone = $\theta_{T\text{-}vadose}$ - $\theta_{m\text{-}vadose}$	calculated	unitless
ΔP	Indoor-Outdoor Air Pressure Difference	site-specific	g/ms^2
Q_B	Enclosed Space Volumetric Air Flow Rate = $V_B E_B$	calculated	m^3/d
Q_{soil}	Pressure Driven Soil Gas Flow Rate from the subsurface into the enclosed space = $(2\pi k \Delta P X_{crack})/[\mu \ln(2Z_{crack}/R_{crack})]$	calculated	m^3/d
Q_{soil}/Q_B	Ratio of Soil Gas Intrusion Rate to Building Ventilation Rate = Q_{soil}/Q_B	calculated	unitless
R_{crack}	Effective Crack Radius or Width = $\eta A_B/X_{crack}$	calculated	m
SVVC	Soil Vapor Volatilization Criteria	calculated	mg/m^3
TAC	Target Indoor Air Concentration calculated using subparagraph (A) or (B), as applicable	substance-specific	$\mu g/m^3$
μ	Viscosity of Air	substance-specific	g/ms
VB	Enclosed Space Volume	site-specific	m^3
V_B/V_A	Ratio of Enclosed Space Volume to Exposed Surface Area = V_B/V_A	calculated	m
X_{crack}	Total Length of Cracks through which Soil Gas Vapors are Flowing	site-specific	m

PROPOSED

Terms	Description	Value	Units
Z_{crack}	Crack Opening Depth Below Grade	site-specific	m

Appendix H to the RSRs

Equations, Terms, and Values for Calculating Release-Specific Alternative Pollutant Mobility Criteria

(1) Release-Specific Pollutant Mobility Criteria shall be calculated using the following equation:

$$\text{Alt PMC} = \text{GWC} \times \text{DF}\left(K_d + \frac{(\theta_w + \theta_a H')}{\rho_b}\right)$$

(2) The abbreviations in subdivision (1) of Appendix H of the RSRs, shall be interpreted in accordance with the following table and shall be assigned the values specified therein:

Terms	Description	Value	Units
Alt PMC	Alternative Pollutant Mobility Criteria	calculated	mg/kg
GWC	Groundwater Criteria Goal	substance-specific (lowest of groundwater criteria applicable to release area)	mg/L
DF	Dilution Factor	20 or calculated in accordance with section 22a-133k-2(c)(2)(E)(ii) of the RSRs with $F_{adj} = 0$	unitless
K_d	Distribution Coefficient for Organic Contaminants may be approximated by: $K_{oc}*f_{oc}$	substance-specific (see table below for inorganic substances)	L/kg
K_{oc}	Soil Organic Carbon-water Partition Coefficient	substance-specific (see table below for organic substances)	L/kg
f_{oc}	Soil Fraction of Organic Carbon	0.001 or tested for site-specific value (max value = 0.006)	kg/kg
θ_w	Water-filled Soil Porosity	0.28	L_{water}/L_{soil}
θ_a	Air-filled Soil Porosity	0.15	L_{air}/L_{soil}
H'	Henry's Law Constant	substance-specific (see tables below)	unitless
ρ_b	Dry Soil Bulk Density	1.5	kg/L

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Soil Organic Carbon-Water Partition Coefficient (K_{oc}) and Henry's Law Constant (H') Values for Organic Substances

Substance	**K_{oc} (L/kg)**	**H' (Dimensionless)**
Acenaphthylene	6,800	4.51E-03
Acetone	0.575	1.75E-03
Acrylonitrile	2	4.10E-03
Alachlor	310	4.30E-07
Aldicarb	24.6	5.89E-08
Anthracene	23,500	2.67E-03
Atrazine	360	1.21E-07
Benzene	62	2.26E-01
Benzo(*a*)anthracene	358,000	1.37E-04
Benzo(*a*)pyrene	969,000	4.63E-05
Benzo(*b*)fluoranthene	1,230,000	4.55E-03
Benzo(*k*)fluoranthene	1,230,000	3.40E-05
Bis(2-chloroethyl)ether	76	7.38E-04
Bis(2-chloroisopropyl)ether	360	3.03E-03
Bis(2-ethylhexyl)phthalate	111,000	4.18E-06
Bromoform	126	2.18E-02
2-Butanone (MEK)	10	1.12E-03
Butyl benzyl phthalate	13,700	5.17E-05
Carbon tetrachloride	152	1.20E+00
Chlordane	51,300	1.99E-03
Chlorobenzene	224	1.61E-01
Chloroform	53	1.39E-01
2-Chlorophenol	398	1.60E-02
Dibromochloromethane (Chlorodibromomethane)	63.1	3.21E-02
1,2-Dichlorobenzene (*o*)	379	7.95E-02
1,3-Dichlorobenzene (*m*)	700	1.08E-01
1,4-Dichlorobenzene (*p*)	616	1.12E-01
1,1-Dichloroethane	53	2.23E-01
1,2-Dichloroethane	38	4.51E-02
1,1-Dichloroethylene	65	6.11E-01
cis-1,2-Dichloroethylene	35.5	1.70E-01
trans-1,2-Dichloroethylene	38	3.80E-01
2,4-Dichlorophenol	159	1.30E-04

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Substance	K_{oc} (L/kg)	H' (Dimensionless)
2,4-Dichlorophenoxyacetic acid (2,4-D)	29.6	1.45E-06
1,2-Dichloropropane	47	1.16E-01
1,3-Dichloropropene	27	1.44E-01
Dieldrin	25,500	6.19E-04
Di-*n*-butyl phthalate	1,570	3.85E-08
Di-*n*-octyl phthalate	140,000	2.74E-03
Ethylbenzene	204	1.41E-01
Ethylene dibromide (EDB)	66	2.76E-02
Fluoranthene	49,100	6.60E-04
Fluorene	7,710	2.61E-03
Heptachlor	9,530	4.47E-02
Heptachlor epoxide	83,200	3.90E-04
Hexachlorobenzene	80,000	5.41E-02
g-HCH (Lindane)	1,350	5.74E-04
Hexachloroethane	1,780	1.59E-01
Methoxychlor	80,000	6.48E-04
Methyl isobutyl ketone	65	5.33E-03
Methyl-tert-butyl-ether (MTBE)	34	2.42E-02
Methylene chloride	10	1.31E-01
Naphthalene	1,190	1.98E-02
Pentachlorobenzene	32,100	2.87E-02
Pentachlorophenol	7,960	1.00E-06
Phenanthrene	21,200	9.43E-04
Phenol	28.8	1.63E-05
Pyrene	68,000	4.51E-04
Simazine	147	3.85E-08
Styrene	912	1.07E-01
1,1,1,2-Tetrachloroethane	86	4.51E-01
1,1,2,2-Tetrachloroethane	79	1.56E-02
Tetrachloroethylene	265	8.36E-02
Toluene	140	2.74E-01
Toxaphene	95,800	2.46E-04
1,1,1-Trichloroethane	135	9.47E-01
1,1,2-Trichloroethane	75	3.73E-02
Trichloroethylene	94	3.74E-01

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Substance	K_{oc} (L/kg)	H' (Dimensionless)
Vinyl chloride	18.6	1.14E+00
Xylenes	1,700	2.16E-01

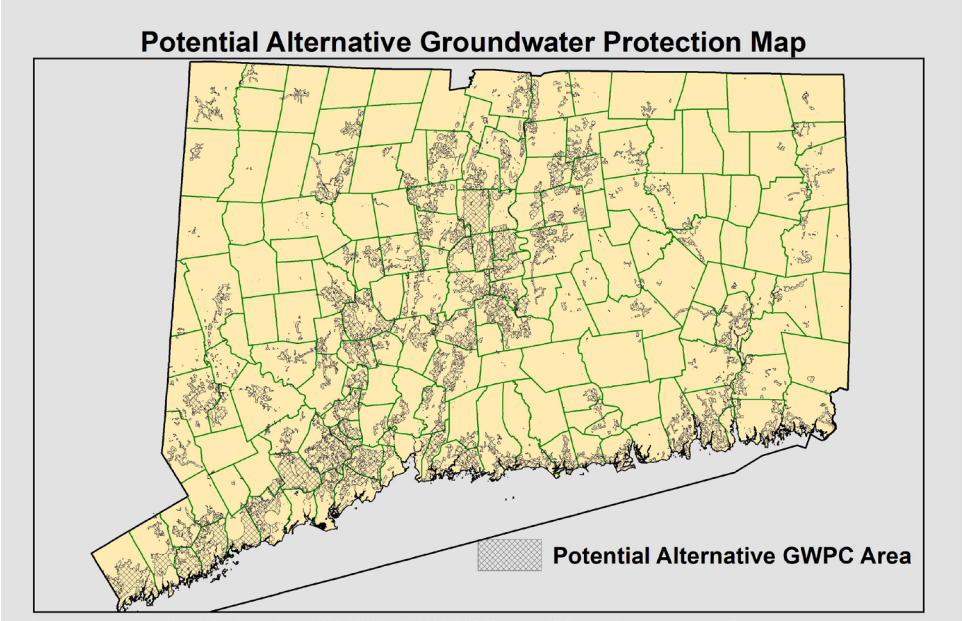
Distribution Coefficient (K_d) and Henry's Law Constant (H') Values for Inorganic Substances

Substance	K_d (L/kg)	H' (Dimensionless)
Antimony	45	-
Arsenic	25	-
Barium	12	-
Beryllium	26	-
Cadmium	17	-
Chromium (hexavalent or total)	31	-
Chromium (trivalent only)	1,900	-
Copper	35	-
Cyanide	9.9	-
Lead	900	-
Mercury	0.06	4.67E-01
Nickel	18	-
Silver	0.13	-
Selenium	17	-
Thallium	45	-
Vanadium	1,000	-
Zinc	18	-

Appendix I of the RSRs

Potential Alternative Groundwater Protection Map, dated December 22, 2020

PROPOSED



The map in this Appendix is for use in accordance with section 22a-133k-3(d)(2) of the RSRs. The department shall make this map, titled "Potential Alternative Groundwater Protection Criteria Map" dated December 22, 2020, as provided in this Appendix, available on the department's Internet website and shall also make such map available during regular business hours at the Department of Energy and Environmental Protection, Division of Water Protection and Land Reuse, 79 Elm Street, 2nd floor, Hartford, Connecticut.

If a reader is viewing said map in hard copy or on the DEEP website, any such area shaded in the color or using a similar designation is an area where a potential alternative groundwater protection area has been identified. If a reader is viewing such map on the eregs system, any area shaded in a cross-hatched pattern is an area where a potential alternative groundwater protection area has been identified.]

The remediation standards for groundwater adopted pursuant to this section 22a-133k of the Connecticut General Statutes shall be those standards adopted at sections 22a-134tt-10 of the Regulations of Connecticut State Agencies, and sections 22a-134tt-App3 to section 22a-134tt-App6, inclusive, of the Regulations of Connecticut State Agencies, and sections 22a-134tt-App8 to App10, inclusive, of the Regulations of Connecticut State Agencies.

Section 3. Section 22a-6b-8(c) of the Regulations of Connecticut State Agencies is amended by adding subdivision (5) as follows:

(NEW) **Sec. 22a-6b-8(c)(5). Release-Based Cleanup Violations**

For each distinct violation of chapter 445b of the Connecticut General Statutes, or of any regulation, order or permit administered or issued thereunder, the gravity-based penalty component shall be determined using Table 5A.

Table 5A Penalty Schedule for Release-Based Cleanup Violations	
Type of Violation	**Penalty**
Failure to report the discovery of an existing release in violation of section 22a-134tt-3 of the Regulations of Connecticut State Agencies	$1,000
Failure to report a significant existing release in the time required by section 22a-134tt-3 of the Regulations of Connecticut State Agencies	$1,000
Failure to perform an immediate action as directed by the commissioner or in the necessary timeframe to protect human health and the environment for emergencies or exigent conditions caused by a release in violation of section 22a-134tt-5(b) of the Regulations of Connecticut State Agencies	$2,000
Failure to begin performing an immediate action within the time frame specified in violation of section 22a-134tt-5(c) of the Regulations of Connecticut State Agencies	$1,000
Failure to submit an immediate action plan in violation of 22a-134tt-5(f) of the Regulations of Connecticut State Agencies	$1,000
Failure to submit an immediate action report in violation of 22a-134tt-5(e) of the Regulations of Connecticut State Agencies	$1,000
Failure to submit a tier assignment not later than one year after discovery of a release in violation of 22a-134tt-6 of the Regulations of Connecticut State Agencies	$2,000
Failure to submit a release remediation closure report in violation of section 22a-134tt-12 of the Regulations of Connecticut State Agencies in the time required by section 22a-134tt-6 of the Regulations of Connecticut State Agencies.	$1,000

Sec. 4. Section 22a-450-1(d) of the Regulations of Connecticut State Agencies is amended by adding subdivision (3) as follows:

(3) Any release required to be reported pursuant to the release reporting regulations shall be considered to have been discovered pursuant to section 22a-134rr of the Connecticut General Statutes and shall be an emergent reportable release subject to the release based cleanup regulations, as such terms are defined at section 22a-134tt-1 of the Regulations of Connecticut

State Agencies, including the requirement to perform immediate action pursuant to section 22a-134tt-5 of the Regulations of Connecticut State Agencies.

Sec. 5. Sections 22a-133q-1 to 22a-133q-9 and sections 22a-1343-App1 and 22a-133-App2 are amended to read as follows:

Sec. 22a-133q-1. Definitions

(a) As used in this section and sections 22a-133q-2 to 22a-133q-9, inclusive, of the Regulations of Connecticut State Agencies:

(1) "Commissioner" means the Commissioner of Energy and Environmental Protection or the commissioner's designee;

(2) "Engineered control" has the same meaning as provided in section **[**22a-133k-1(a)**]** 22a-134tt-1(a) of the Regulations of Connecticut State Agencies;

(3) "Environmental land use restriction" or "ELUR" means a type of environmental use restriction that complies with the requirements of section 22a-133o of the Connecticut General Statutes, the EUR regulations, and the **[**RSRs**]**RBCRs, in which the commissioner acquires an easement on the parcel, or portion thereof, that is subject to such restriction;

(4) "Environmental use restriction" has the same meaning provided in section 22a-133n of the Connecticut General Statutes;

(5) "EUR" means an environmental use restriction;

(6) "EUR factsheet" means a statement that explains the restrictions and affirmative obligations imposed by an EUR, describes each subject area on a parcel, and includes the information necessary to protect the health and safety of those who may be exposed to pollution if work is conducted in each such subject area;

(7) "EUR regulations" means sections 22a-133q-1 to 22a-133q-9, inclusive, of the Regulations of Connecticut State Agencies, including Appendix 22a-133q-app1 and Appendix 22a-133q-app2 of said regulations, and when identified by a specific reference, "EUR regulations" also means any individual section or specific provision of sections 22a-133q-1 to 22a-133q-9, inclusive, of the Regulations of Connecticut State Agencies, including Appendix 22a-133q-app1 and Appendix 22a-133q-app2 of said regulations;

(8) "EUR opinion" means a document that complies with section 22a-133q-5 of the EUR regulations, signed and sealed by an LEP and recorded on the land records as part of an EUR;

(9) "Inaccessible soil" has the same meaning as provided in section **[**22a-133k-1(a)**]** 22a-134tt-1(a) of the Regulations of Connecticut State Agencies;

(10) "Industrial/commercial activity" has the same meaning as provided in section **[**22a-133k-1(a)**]** 22a-134tt-1(a) of the Regulations of Connecticut State Agencies;

(11) "Interest" means all or part of a legal or equitable claim to a right in a parcel, including, but not limited to, an easement, lease, life estate, mortgage, or lien;

(12) "Laboratory reporting limit" has the same meaning as provided in section **[**22a-133k-1(a)**]** 22a-134tt-1(a) of the Regulations of Connecticut State Agencies;

(13) "Licensed environmental professional" or "LEP" has the same meaning as provided in section **[**22a-133k-1(a)**]** 22a-134tt-1(a) of the Regulations of Connecticut State Agencies;

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(14) "Notice of activity and use limitation" or "NAUL" means a type of environmental use restriction that complies with the requirements of section 22a-133o of the Connecticut General Statutes, the EUR regulations, and the [RSRs]RBCRs, which does not create an easement on, nor require transfer to the commissioner of an easement on, the parcel, or portion thereof, that is subject to such restriction;

(15) "Owner" means the person or persons with sufficient right in the whole of a parcel, which is or which will be subject to an EUR, to convey an interest in such parcel to another.

(16) "Parcel" has the same meaning as provided in section [22a-133k-1(a)] 22a-134tt-1(a) of the Regulations of Connecticut State Agencies;

(17) "PCBs" has the same meaning as provided in section [22a-133k-1(a)] 22a-134tt-1(a) of the Regulations of Connecticut State Agencies;

(18) "Permanent release" means an instrument, prescribed by the commissioner and approved by the commissioner pursuant to section 22a-133q-7 of the EUR regulations, that permanently discharges the obligation to comply with the requirements of an ELUR;

(19) "Pollution" has the same meaning as provided in section 22a-423 of the Connecticut General Statutes;

(20) "Polluted soil" has the same meaning as provided in section [22a-133k-1(a)] 22a-134tt-1(a) of the Regulations of Connecticut State Agencies;

(21) "Record" means to commit to the clerk of the municipality in which a parcel is located a document or instrument for placement in the municipal land records, as provided for in section 7-24 of the Connecticut General Statutes;

(22) ["Remediation standard regulations" or "RSRs" has the same meaning as provided in section 22a-133k-1 of the Regulations of Connecticut State Agencies] "Release Based Cleanup Regulations" or "RBCRs" has the same meaning as provided in section 22a-134tt-1(a) of the Regulations of Connecticut State Agencies;

(23) "Residential activity" has the same meaning as provided in section [22a-133k-1(a)] 22a-134tt-1(a) of the Regulations of Connecticut State Agencies;

(24) "Soil" has the same meaning as provided in section [22a-133k-1(a)] of the Regulations of Connecticut State Agencies;

(25) "Substance" has the same meaning as provided in section [22a-133k-1(a)] 22a-134tt-1(a) of the Regulations of Connecticut State Agencies;

(26) "Subject area" has the same meaning as provided in section [22a-133k-1(a)] 22a-134tt-1(a) of the Regulations of Connecticut State Agencies;

(27) "Subordination agreement" means a document, signed by persons holding an existing interest in a parcel, that irrevocably subjects that otherwise senior interest to a lower rank, class, or position in the chain of title than a later recorded ELUR recorded for the same parcel;

(28) "Temporary allowable disturbance" means an activity on, or disturbance to, a subject area that is otherwise prohibited by an EUR, but is specifically authorized by section 22a-133q-6 of the EUR regulations;

(29) "Temporary release" means an instrument recorded on the land records that provides relief from the restrictions imposed by an EUR for the purposes of conducting specific activities within

PROPOSED

a subject area, for a limited time or for recurring activity of a specific duration, as authorized by the commissioner or an LEP, pursuant to section 22a-133q-7 of the EUR regulations;

(30) "Termination" means an instrument, executed pursuant to section 22a-133q-7 of the EUR regulations and recorded on the land records, that permanently discharges a previously recorded instrument, including the obligation to comply with restrictions imposed by, or to exercise the rights provided by, such instrument; and

(31) "Transfer of an interest" means the voluntary disposition of, or involuntary separation from, any interest in a parcel or a portion of a parcel, including direct or indirect and absolute or conditional transfers.

(b) Any term not defined in the EUR regulations, that is defined in the **[**RSRs**]**RBCRs, has the same meaning as provided in section **[**22a-133k-1(a)**]** 22a-134tt-1(a) of the Regulations of Connecticut State Agencies.

Sec. 22a-133q-2. ELURs

(a) **General**

No person shall execute and record an ELUR, pursuant to the **[**RSRs**]**RBCRs and sections 22a-133n to 22a-133s, inclusive, of the Connecticut General Statutes, that does not comply with the requirements of said sections and this section.

(b) **Requesting an ELUR**

The owner of a parcel seeking to execute and record an ELUR shall submit a request to the commissioner. Unless otherwise specified by this section, any such request, including the items identified in each subdivision of this subsection, shall be submitted on a form prescribed by the commissioner and shall include:

(1) A proposed declaration of ELUR as specified in section 22a-133q-app1 of the EUR regulations;

(2) A proposed EUR factsheet;

(3) A draft survey, with a revision date not more than 90 days prior to its submittal, that complies with section 22a-133q-4 of the EUR regulations;

(4) A title search for the parcel on which the proposed ELUR is located, performed no more than 90 days prior to its submittal to the commissioner. This title search shall include a listing and description of all recorded interests in the chain of title;

(5) A report by an attorney with a current and valid license to practice law in any state in the United States. The report shall:

(A) Be signed and certified to as accurate by the attorney undertaking it;

(B) Contain a description, review and evaluation of each recorded interest identified in the title search performed pursuant to subdivision (4) of this subsection and indicate whether each such interest will be:

(i) Subordinated to the ELUR; or

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(ii) The subject of a waiver request, pursuant to section 22a-133o(b)(1) of the Connecticut General Statutes. For interests that will be the subject of such a waiver request, the report shall contain a detailed explanation of why the interest:

(I) Is so minor as to be unaffected by the ELUR; or

(II) When acted upon, is not capable of creating a condition contrary to the purpose of the ELUR.

(6) For each interest to be subordinated to the ELUR, a proposed, unexecuted, irrevocable subordination agreement, and a statement, signed by the holder of each interest to be subordinated, certifying that the holder of each interest agrees to execute the proposed subordination agreement so that it may be recorded at the same time as the ELUR. The proposed subordination agreements do not need to be prepared using a form prescribed by the commissioner;

(7) An affidavit executed by the owner of the parcel that:

(A) Identifies and describes:

(i) All residential activities on the parcel, and any other use of the parcel potentially in conflict with the restrictions proposed by the ELUR;

(ii) All unrecorded leases, licenses or other authorizations or rights regarding the parcel;

(iii) All unrecorded interests in the parcel;

(iv) All claims to the parcel, or to an interest in the parcel, by persons other than the owner; and

(v) Any condominium by-laws or regulations potentially in conflict with the restrictions of a proposed ELUR; and

(B) Attests, based on the owner's personal inquiry of the surveyor who prepared the survey required by subdivision (3) of this subsection, the attorney who prepared the title evaluation required by subdivision (5) of this subsection, and the LEP who prepared the EUR opinion required by subdivision (8) of this subsection, that the proposed ELUR does not conflict with items required to be specified in the affidavit by subparagraph (A) of this subdivision;

(8) A proposed EUR opinion that complies with section 22a-133q-5 of the EUR regulations;

(9) Documents demonstrating compliance with subsection [22a-133k-1(d)]22a-134tt-7(d) of the [RSRs]<u>RBCRs</u> ;

(10) A non-refundable fee of $5,000 dollars, payable in a manner prescribed by the commissioner; and

(11) Any other information specified by the commissioner on such form.

(c) **Commissioner's Review**

(1) The commissioner shall not accept an ELUR, unless and until the commissioner determines that:

(A) All of the information necessary to make a determination of whether or not to accept the ELUR, including, but not limited to, the information required to be prepared and submitted pursuant to subsection (b) of this section, has been submitted to the commissioner on forms prescribed by the commissioner;

PROPOSED

(B) All holders of interests in the parcel have agreed to irrevocably subordinate such interest to the ELUR, and all proposed subordination agreements have been provided to the commissioner, pursuant to subsection (b)(6) of this section, except where, pursuant to section 22a-133o(b)(1) of the Connecticut General Statutes the commissioner has determined to waive this requirement;

(C) The ELUR complies with all applicable legal requirements, including, but not limited to, the EUR regulations and the **[**RSRs**]**RBCRs; and

(D) The ELUR is protective of human health and the environment.

(2) (A) The commissioner shall not review a request to approve an ELUR without the required fee and may, at any time, disapprove a request for an ELUR based on any determination made in accordance with subdivision (1) of this subsection. If the commissioner does not approve the request for an ELUR, the commissioner shall send written notice of such disapproval to the owner of the parcel on which the ELUR would have been placed and state the reasons for such disapproval. If the notice sent by the commissioner indicates that the request for an ELUR was not approved because:

(i) Information required by subsection (b) of this section was not provided, or that the commissioner needs additional information to review the proposed ELUR, the owner requesting the ELUR shall have 90 days from the date of the commissioner's notice to provide the commissioner with the information identified in the notice. The commissioner may grant a single 90 day extension of time to provide any such information; or

(ii) A request to waive the requirement to subordinate an interest in the parcel to the ELUR was rejected by the commissioner, pursuant to subdivision (1)(B) of this subsection, the owner requesting the ELUR shall have 180 days from the date of the commissioner's notice to obtain and submit to the commissioner a proposed subordination agreement and certification of the interest holder as required by subsection (b)(6) of this section.

(B) Any response to the notice sent by the commissioner, submitted pursuant to subparagraphs (A)(i) or (A)(ii) of this subdivision, shall along with the original request for an ELUR, be reviewed pursuant to subdivision (1) of this subsection. If the deadlines in subparagraphs (A)(i) or (A)(ii) of this subdivision are not met, the commissioner's disapproval of the request for an ELUR shall, without the need for any further action by the commissioner, be deemed final and the proposed ELUR shall not be executed or recorded.

(3) An owner whose request for an ELUR has been disapproved pursuant to this subsection may submit a new request for approval of such ELUR. Any such request shall be treated as a new request and shall be resubmitted in its entirety in compliance with the requirements of subsection (b) of this section.

(d) **Changes or Omissions**

If, at any time prior to acceptance of an ELUR by the commissioner, the information submitted pursuant to subsection (b) of this section has materially changed or if a material omission regarding the information submitted is discovered, the owner shall immediately notify the commissioner in writing and include any changed or omitted information.

(e) **Recording an ELUR and Post-Recording Submittals**

(1) If the commissioner determines to accept an ELUR, the commissioner shall send an unsigned copy of the accepted ELUR to the owner.

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(2) Not more than 14 days after receiving the unsigned copy of the ELUR accepted by the commissioner, the owner shall submit to the commissioner:

(A) The accepted ELUR signed by the owner;

(B) A copy of the survey, accepted by the commissioner as it is to be recorded, revised to omit the term "proposed" where it appears, signed and sealed by the surveyor; and

(C) An affidavit, on a form prescribed by the commissioner, signed by the owner, in which the owner attests to the following:

(i) There has been no change to the information provided in the most recent owner's affidavit submitted pursuant to subsection (b)(7) of this section;

(ii) The ELUR signed by the owner is identical in all respects to the ELUR sent to the owner by the commissioner pursuant to subdivision (1) of this subsection; and

(iii) There has been no material change to and no omission in any other information provided to the commissioner pursuant to this section, and that if the commissioner signs the ELUR, within 7 days after receipt of the signed ELUR, the owner shall ensure that no alterations of any kind are made and shall record the ELUR, the survey accepted by the commissioner, and all fully executed subordination agreements, in the form provided to and accepted by the commissioner.

(3) Provided the commissioner finds that the information submitted pursuant to subdivision (2) of this subsection satisfactory, the commissioner shall sign the ELUR and return it to the owner for recording.

(4) Within 7 days after receipt of the ELUR signed by the commissioner the owner shall:

(A) Record the following on the municipal land records in the form provided to and accepted by the commissioner:

(i) The ELUR signed by the commissioner;

(ii) The survey of the parcel on which the ELUR is being placed;

(iii) All fully executed subordination agreements, and any approved waivers of the requirement to subordinate; and

(iv) Any other information sent to the owner by the commissioner for recording; and

(B) Submit to the commissioner, on a form prescribed by the commissioner, a certificate of title regarding the parcel on which the ELUR has been placed, prepared by an attorney with a current and valid license in the state of Connecticut.

(5) (A) Except for the 7 day recording requirements in subparagraph (4)(A) of this subsection, if due to unforeseen circumstances an owner is not able to comply with one or more deadlines specified in this subsection, upon written request from the owner explaining such unforeseen circumstances, the commissioner may, in writing, extend the deadlines. The commissioner shall specify the length of any extension, which in no event shall exceed 30 days, unless the unforeseen circumstances require the attainment of a subordination agreement, in which case any extension shall not exceed 90 days. In connection with any request for such an extension, the commissioner may impose conditions, require that the ELUR be re-executed, or require the submission of additional information, including, but not limited to, information regarding subsections (b)(4), (b)(5), (b)(6) and (b)(7) of this section.

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(B) If due to unforeseen circumstances, an ELUR signed by the commissioner is not recorded within 7 days after receipt by the owner, as required by subparagraph (4)(A) of this subsection, upon written request from the owner explaining such unforeseen circumstances, the commissioner may provide for the ELUR to be re-executed in accordance with subdivisions (3) and (4) of this subsection. In making such determination, the commissioner may impose conditions, or require the submission of additional information, including, but not limited to, information regarding subsections (b)(4), (b)(5), (b)(6) and (b)(7) of this section. If the commissioner determines not to provide for the ELUR to be re-executed, a new request for approval of such ELUR may be submitted pursuant to subdivision (6) of this subsection.

(C) If the ELUR sought by the owner has not yet been recorded, and the owner fails to comply with one or more deadlines specified in this subsection, including, but not limited to, an extended deadline or condition imposed by the commissioner, the ELUR shall be deemed disapproved, despite the commissioner's previous acceptance of the ELUR, and the ELUR shall not be recorded.

(D) If the ELUR sought by the owner has been recorded notwithstanding the failure to comply with any deadlines specified in this subdivision, including, but not limited to, an extended deadline or condition imposed by the commissioner, the ELUR recorded by such owner shall be subject to subsection (g) of this section.

(6) An owner, whose request for an ELUR is deemed disapproved pursuant to subdivision (5) of this subsection, may submit a new request for approval of such ELUR. Any such request shall be treated as a new request and shall be resubmitted in its entirety in compliance with the requirements of this section.

(f) **ELUR on a Parcel Undergoing Voluntary Remediation**

Notwithstanding subsection (c) of this section, the following shall apply only to an ELUR on a parcel undergoing voluntary remediation, pursuant to section 22a-133y of the Connecticut General Statutes.

(1) An ELUR shall not be approved by an LEP nor recorded on such a parcel, unless:

(A) The parcel:

(i) Is designated on a map prepared pursuant to section 22a-426 of the Connecticut General Statutes, as GB or GC for groundwater; and

(ii) Is not the subject of an order issued by the commissioner or a stipulated judgment issued by a court regarding the spill or pollution being remediated;

(B) The LEP who is to sign the ELUR affirmatively determines, in writing, that:

(i) The parcel in question satisfies the requirements of subdivision (1) of this subsection; and

(ii) The proposed ELUR:

(I) Except for waivers approved by the commissioner pursuant to subparagraph (E) of this subdivision, complies with all applicable legal requirements, including, but not limited to, the EUR regulations and the **[**RSRs**]**RBCRs; and

(II) Is protective of human health and the environment;

(C) All materials required by subsection (b) of this section have been prepared and are complete;

(D) An attorney licensed in the state of Connecticut has prepared an opinion stating that:

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(i) No recorded interest in the title search and attorney's report referred to in subsections (b)(4) and (b)(5) of this section and no item identified in the owner's affidavit referred to in subsection (b)(7) of this section allows an activity to be conducted that could or does interfere with the restrictions or obligations of the ELUR; or

(ii) The holder of any recorded interest which allows activity that could or does interfere with the ELUR has agreed to irrevocably subordinate that interest to the ELUR pursuant to subsection (b)(6) of this section; and

(E) If waivers of the requirement to obtain subordination agreements are requested, the materials prepared pursuant to subsections (b)(3), (b)(4), and (b)(5) of this section, along with a fee of $2,500.00, have been submitted to the commissioner. If a waiver request has been submitted to the commissioner, an LEP shall not sign an ELUR, until the commissioner has approved, in writing, all such waiver requests.

(2) If the LEP who is to sign the ELUR affirmatively determines, in writing, that the requirements for an ELUR on a parcel undergoing voluntary remediation have been satisfied, including, but not limited to, the requirements of this subsection, the LEP may sign the EUR opinion and the declaration of ELUR. Any such ELUR shall be recorded pursuant to the procedure set out in subsection (e) of this section, except that the LEP's signature shall substitute for the commissioner's signature whenever mentioned in subsection (e) of this section.

(g) **Determination of Invalidity for Non-Compliance**

(1) If at any time the commissioner determines that any ELUR does not comply with applicable requirements or was not recorded in compliance with the requirements of this section, including, but not limited to, recordation without the commissioner's authorization, the commissioner may record, or may require the owner to record, a release of the ELUR, which release contains a statement that the ELUR was invalidly recorded and is therefore released, and that the obligation to record an ELUR, if such an obligation exists, has not been satisfied. An invalidly recorded ELUR shall not satisfy any requirement of any statute or regulation requiring such ELUR. If the commissioner releases an ELUR pursuant to this subsection, the commissioner shall notify the owner of the parcel.

(2) Any action taken by the commissioner pursuant to this subsection shall be in addition to and shall not affect the authority of the commissioner under any other statute or regulation, including, but not limited to, the authority to seek civil or criminal penalties or issue any order to prevent or abate pollution.

(h) **Application to Pending ELUR Requests**

Requests for ELURs submitted to the commissioner on or before February 16, 2021 shall be subject to the following requirements:

(1) If after February 16, 2021 the commissioner provides notice that:

(A) Additional Information is required to approve the ELUR or that the commissioner needs additional information to review the proposed ELUR, the owner requesting the ELUR shall have until 120 days after receipt of such notice to provide the commissioner with the information identified in the notice. The commissioner may grant a single 60 day extension of time to provide any such information; and

(B) Required subordination agreements have not been submitted, the owner requesting the ELUR shall have until 180 days after receipt of such notice to obtain and submit to the

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commissioner such signed subordination agreements. The commissioner may grant a single 60 day extension of time to submit any such agreements.

(2) If the deadlines in subparagraphs (A) or (B) of subdivision (1) of this subsection are not met, the request for an ELUR shall, without the need for any further action by the commissioner, be deemed disapproved and the proposed ELUR shall not be executed or recorded.

(3) An owner whose request for an ELUR has been disapproved pursuant to this subsection may submit a new request for approval of such ELUR. Any such request shall be treated as a new request and shall be resubmitted in its entirety in compliance with the requirements of subsection (b) of this section.

Sec. 22a-133q-3. NAULs

(a) **General**

No person shall execute and record a NAUL, pursuant to the **[**RSRs**]**RBCRs and sections 22a-133n to 22a- 133s, inclusive, of the Connecticut General Statutes, that does not comply with the requirements of said sections and this section.

(b) **Requesting a NAUL**

The owner of a parcel seeking to execute and record a NAUL shall submit a request to the commissioner or LEP, as applicable. Unless otherwise specified by this section, any such request, including the items identified in each subdivision of this subsection, shall be submitted on a form prescribed by the commissioner and shall include:

(1) A proposed declaration of NAUL as specified in section 22a-133q-app2 of the EUR Regulations;

(2) A proposed EUR factsheet;

(3) A draft survey that complies with section 22a-133q-4 of the EUR regulations with a revision date not more than 90 days prior to the request to the commissioner or LEP, as applicable, for a NAUL;

(4) A title search for the parcel on which the proposed NAUL is located, completed not more than 90 days prior to the request to the commissioner or LEP, as applicable, for a NAUL. This title search shall include a listing and description of all recorded interests in the chain of title;

(5) A report by an attorney with a current and valid license to practice law in any state in the United States. The report shall:

(A) Be signed and certified to as accurate by the attorney undertaking it;

(B) Contain a description, review and evaluation of each recorded interest identified in the title search performed pursuant to subdivision (4) of this subsection and for each such interest indicate whether:

(i) The interest does not allow for conduct of an activity that interferes with the restrictions and affirmative obligations of the NAUL; or

(ii) The owner of such interest that does allow for conduct of an activity that interferes with the restrictions and affirmative obligations of the NAUL has agreed to sign the NAUL, pursuant to section 22a-133o(c)(6) of the Connecticut General Statutes.

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(6) An affidavit executed by the owner of the parcel that:

(A) Identifies and describes:

(i) All residential activities on the parcel, and any other use of the parcel potentially in conflict with the restrictions proposed by the NAUL;

(ii) All unrecorded leases, licenses or other authorizations or rights regarding the parcel;

(iii) All unrecorded interests in the parcel;

(iv) All claims to the parcel, or to an interest in the parcel, by persons other than the owner; and

(v) Any condominium by-laws or regulations potentially in conflict with the restrictions of a proposed NAUL; and

(B) Based on the owner's personal inquiry of the surveyor who prepared the survey required by subdivision (3) of this subsection, the attorney who prepared the title evaluation required by subdivision (5) of this subsection, and the LEP who prepared the EUR opinion required by subdivision (7) of this subsection, affirm that the proposed NAUL does not conflict with items required to be specified in the affidavit by subparagraph (A) of this subdivision;

(7) A proposed EUR opinion that complies with section 22a-133q-5 of the EUR Regulations;

(8) Documents demonstrating:

(A) Compliance with subsection **[**22a-133k-1(d)**]**22a-134tt-7(d) of the **[**RSRs**]**RBCRs; and

(B) That the owner of each interest in the parcel identified in the title search contained in subdivision (4) of this subsection has been notified of the proposed NAUL in compliance with the requirements specified in section 22a-133o(c)(2) of the Connecticut General Statutes;

(9) If the NAUL is to be recorded less than 60 days after providing notice to those who hold an interest in the parcel, written waivers of the 60 day review period signed by the interest holders pursuant to section 22a-133o(c)(2) of the Connecticut General Statutes; and

(10) Any other information specified by the commissioner on such form.

(c) **Review of a NAUL**

A proposed NAUL shall be approved by the commissioner or by an LEP pursuant to this subsection.

(1) Commissioner review of a NAUL

(A) The commissioner shall not accept a NAUL, unless and until the commissioner determines that:

(i) All of the information necessary to make a determination of whether or not to accept the NAUL, including, but not limited to, the information required to be prepared and submitted pursuant to subsection (b) of this section, has been submitted to the commissioner on forms prescribed by the commissioner;

(ii) For all interests in the parcel that allow for conduct of an activity that interferes with the restrictions and affirmative obligations of the NAUL, the owner of such interests has agreed to sign the NAUL pursuant to section 22a-133o(c)(6) of the Connecticut General Statutes;

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(iii) The NAUL complies with all applicable legal requirements, including, but not limited to, the EUR regulations and the **[**RSRs**]**RBCRs;

(iv) The NAUL is protective of human health and the environment; and

(v) A non-refundable fee of $5,000, payable in a manner prescribed by the commissioner has been submitted with the request for the commissioner's approval of the NAUL.

(B) The commissioner shall not review a request to approve a NAUL without the required fee and may, at any time, disapprove a request for a NAUL based on any determination made in accordance with subparagraph (A) of this subdivision. If the commissioner does not approve the request for a NAUL, the commissioner shall send a written notice, to the owner of the parcel on which the NAUL would have been placed and state the reasons for such disapproval. If the notice sent by the commissioner indicates that the request for a NAUL was not approved because:

(i) Information required by subsection (b) of this section was not provided, or that the commissioner needs additional information to review the proposed NAUL, the owner requesting the NAUL shall have 90 days from the date of the commissioner's notice to provide the commissioner with the information identified in the notice. The commissioner may grant a single 90 day extension of time to provide any such information; or

(ii) For all holders of interests in the parcel with an interest that allows the conduct of an activity that interferes with the restrictions or affirmative obligations of the NAUL, if compliance with the requirements of section 22a-133o(c)(6) of the Connecticut General Statutes has not been achieved, the owner requesting the NAUL shall have 180 days from the date of the commissioner's notice to demonstrate compliance with said section.

(C) Any response to the notice sent by the commissioner, submitted pursuant to subparagraphs (B)(i) or (B)(ii) of this subdivision, shall, along with the original request for a NAUL, be reviewed pursuant to this subdivision. If the deadlines in subparagraphs (B)(i) or (B)(ii) of this subdivision are not met, the commissioner's disapproval of a request for a NAUL shall, without the need for any further action by the commissioner, be deemed final and the proposed NAUL shall not be executed or recorded.

(D) An owner whose request for a NAUL has been disapproved pursuant to this subsection may submit a new request for approval of such NAUL. Any such request shall be treated as a new request and shall be resubmitted in its entirety in compliance with the requirements of subsection (b) of this section.

(E) If the commissioner determines to approve the proposed NAUL, the commissioner shall sign the proposed NAUL and the approved NAUL shall be recorded in accordance with the requirements of subsection (e) of this section.

(2) Review of a NAUL by an LEP

(A) In order for an LEP to approve a proposed NAUL, the LEP who will sign and seal the NAUL shall, before such approval, affirmatively determine, in writing, that:

(i) All of the information necessary to make a determination of whether or not to accept the NAUL, including, but not limited to, documents demonstrating compliance with subsection (b) of this section have been prepared;

(ii) An attorney licensed in the state of Connecticut has prepared an opinion stating that each recorded interest in the parcel identified in subdivision (4) of subsection (b) of this section and

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each item identified in the owner's affidavit in subdivision (6) of subsection (b) of this section either:

(I) Allows only activities that do not interfere with the restrictions or affirmative obligations in the proposed NAUL; or

(II) Allows activities that do interfere with the restrictions and affirmative obligations of the proposed NAUL, but the owner of each such interest has agreed to sign the NAUL pursuant to section 22a-133o(c)(6) of the Connecticut General Statutes;

(iii) The proposed NAUL complies with all applicable legal requirements, including, but not limited to, the EUR regulations and the **[**RSRs**]**RBCRs; and

(iv) The proposed NAUL is protective of human health and the environment.

(B) If an LEP makes the affirmative determination required by subparagraph (A) of this subdivision, the LEP may approve and shall sign the NAUL to indicate such approval. The approved NAUL signed by the LEP shall be recorded in accordance with the requirements of subsection (e) of this section.

(C) If an LEP cannot make the affirmative determination required by subparagraph (A) of this subdivision, the LEP shall not approve and shall decline to sign the proposed NAUL.

(d) **Changes or Omissions**

If, at any time before the commissioner or an LEP approves a NAUL, the information prepared pursuant to subsection (b) of this section has materially changed or a material omission regarding the information submitted is discovered, the owner shall immediately notify the commissioner or LEP, as applicable, in writing, and include any changed or omitted information.

(e) **Recording a NAUL and Post-Recording Submittals**

(1) Not more than 7 days after receipt of the NAUL signed by the commissioner the owner shall:

(A) Sign the NAUL approved by the commissioner;

(B) Ensure that a surveyor, licensed in Connecticut, signs and seals the survey prepared pursuant to subsection (b) of this section, for recording, omitting the term "proposed" where it appears; and

(C) Record the NAUL, including the survey, the EUR opinion and other documents, if any, necessary to record the NAUL.

(2) Not more than 30 days after recording the NAUL pursuant to subdivision (1) of this subsection, the owner shall submit the following to the commissioner:

(A) A copy of the recorded NAUL, indicating the volume and page of the land records at which it was recorded;

(B) A copy of the survey recorded with the NAUL;

(C) A title search as required by subsection (b)(4) of this section, updated to include any interest in the parcel listed on the land records at the time the NAUL was recorded; and

(D) A statement by the owner of the parcel on which the NAUL has been placed, on a form prescribed by the commissioner, in which the owner attests that there has been no change to the

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information provided in the most recent owner's affidavit submitted to the commissioner pursuant to subsection (b)(6) of this section.

(3) When a NAUL has been approved by an LEP:

(A) The LEP shall sign the NAUL and send or provide the signed NAUL to the owner of the parcel on which the NAUL will be placed.

(B) Not more than 7 days from the date that the LEP sends or provides the signed NAUL to the owner, the owner shall:

(i) Sign the NAUL approved by the LEP;

(ii) Ensure that a surveyor, licensed in Connecticut, signs and seals the survey prepared pursuant to subsection (b) of this section, for recording, omitting the term "proposed" where it appears; and

(iii) Record the NAUL, including the survey, and the EUR opinion and other documents, if any, necessary to record the NAUL.

(C) Not more than 30 days after recording the NAUL pursuant to subparagraph (B) of this subdivision, the owner shall submit the following to the commissioner:

(i) A copy of the NAUL request form prepared pursuant to subsection (b) of this section and submitted to the LEP;

(ii) A copy of the recorded NAUL, indicating the volume and page of the land records at which it was recorded;

(iii) A copy of the survey recorded with the NAUL;

(iv) A title search as required by subsection (b)(4) of this section, updated to include any interest in the parcel listed on the land records at the time the NAUL was recorded;

(v) A copy of the report prepared pursuant to subsection (b)(5) of this section and the attorney's opinion prepared pursuant subsection (c)(2)(A)(ii) of this section;

(vi) An executed owner's affidavit, as required by subsection (b)(6) of this section, along with a statement, on a form prescribed by the commissioner, in which the owner attests that there has been no change to the information provided in the owner's affidavit in the time between its execution and the recording of the NAUL;

(vii) The EUR opinion signed and sealed by the LEP approving the NAUL; and

(viii) The documents required by subsection (b)(8) of this section and if the NAUL is recorded less than 60 days after providing notice to those who hold an interest in the parcel, waivers of the 60 day review period signed by the interest holders, pursuant to subsection (b)(9) of this section; and

(ix) A non-refundable fee of $1,500.00 payable in a manner prescribed by the commissioner.

(f) **Correction of Non-Compliance/Determination of Invalidity**

(1) If at any time the commissioner determines that any NAUL does not comply with applicable requirements or was not recorded or was not recorded in compliance with the requirements of this section, the commissioner may record, or may require the owner to record, a termination of the NAUL, which termination contains a statement that the NAUL was invalidly recorded and is therefore terminated, and that the obligation to record a NAUL, if such an obligation exists, has

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not been satisfied. An invalidly recorded NAUL shall not satisfy any requirement of any statute or regulation requiring such NAUL. If the commissioner terminates a NAUL pursuant to this subsection, the commissioner shall notify the owner of the parcel.

(2) Any action taken by the commissioner pursuant to this subsection shall be in addition to and shall not affect the authority of the commissioner under any other statute or regulation, including, but not limited to, the authority to seek civil or criminal penalties or issue any order to prevent or abate pollution.

Sec. 22a-133q-4. Surveys

(a) **General standards and requirements for surveys**

The survey of a parcel prepared pursuant to this section shall:

(1) Be performed by a surveyor with a current and effective license issued by the Commissioner of Consumer Protection;

(2) For survey maps and plans, comply with map drafting standards in section 20-300b-18 of the Regulations of Connecticut State Agencies;

(3) Include a vicinity map showing the approximate location and configuration of the parcel in reference to nearby highways or major street intersections;

(4) Depict the latitude and longitude of a point on the parcel, plotted and labeled in decimal degrees and referenced to a known datum, with an accuracy within 5 meters;

(5) Include a description of the parcel under the heading "Parcel Description" that shall be a metes and bounds description if the property boundaries are required to be surveyed pursuant to this section or, if portions of the boundary are not required to be surveyed, a metes and bounds description if found on the land records in the chain of title for the parcel;

(6) Depict adjoining properties and annotate with the most recently recorded owners' names (N/F, now or formerly) or by subdivision map and lot numbers;

(7) Depict the boundaries of each proposed subject area by metes and bounds;

(8) Fix each proposed subject area to a parcel boundary to the Horizontal Accuracy Class A-2 or the Global Relative Positional Accuracy Class G-2 standards specified in section 20-300b-11(b) of the Regulations of Connecticut State Agencies;

(9) For each subject area with the characteristics specified in this subdivision, mark or monument such subject area pursuant to sections 20-300b-12 to 20-300b-14, inclusive, of the Regulations of Connecticut State Agencies:

(A) A subject area that does not have at least one contiguous boundary with the boundary of the parcel;

(B) A subject area that does not share a point in common with a structure or feature located on the parcel; or

(C) A subject area that an LEP, surveyor, or the commissioner, deems appropriate to be located pursuant to the method specified in this subdivision;

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(10) Label each subject area as “Proposed ELUR Subject Area” or “Proposed NAUL Subject Area” as applicable, and if there is more than one subject area, identify each subject area alphabetically, e.g., as “Proposed ELUR Subject Area A”, “Proposed ELUR Subject Area B”, “Proposed ELUR Subject Area C”; or “Proposed NAUL Subject Area A”, “Proposed NAUL Subject Area B”, “Proposed NAUL Subject Area C” and indicate by note each restriction imposed by the proposed EUR for each subject area;

(11) For each subject area labeled under subdivision (10) of this subsection, include a metes and bounds description under the heading “Proposed ELUR Subject Area Description” or “Proposed NAUL Subject Area Description;”

(12) Indicate by note all recorded interests, including, but not limited to, easements. For all such interests, specify the volume and page in the municipal land records of the instrument granting the same, and label each as either plottable or non-plottable;

(13) Indicate by note all of the current zoning classifications of the parcel, and the revision date of the zoning regulations in effect at the time of the survey;

(14) Indicate by note the standards to which the survey was prepared. If a resurvey is conducted, identify by note each map referenced;

(15) Include in the title block: “Proposed Declaration of Environmental Land Use Restriction and Grant of Easement, Exhibit C” or “Proposed Notice of Activity and Use Limitation, Exhibit C”, the name of the parcel owner, the parcel address, the type of survey, the scale of the survey, and survey date;

(16) Be signed and sealed in accordance with section 20-300b-20 of the Regulations of Connecticut State Agencies; and

(17) Include a simplified survey prepared in accordance with subsection (e) of this section.

(b) **Specific standards and requirements for surveys for certain EURs when the aggregate size of all subject areas is fifty percent to one hundred percent (50% to 100%) of the parcel**

(1) This subsection shall apply to surveys for a proposed EUR:

(A) That imposes restrictions or affirmative obligations other than or in addition to a residential activity restriction; and

(B) Where the proposed subject areas in aggregate comprise fifty percent or more of the parcel on which an EUR is to be placed.

(2) In addition to the requirements of subsection (a) of this section, a survey subject to this subsection, as specified in subdivision (1), shall:

(A) Comply with the requirements for a Property Survey in section 20-300b-2 of the Regulations of Connecticut State Agencies;

(B) Depict the boundaries of the parcel by metes and bounds;

(C) Depict any conflicts with record deed descriptions and maps affecting the parcel, and indicate by note such conflicts;

(D) Depict the location of encroachments and restrictions affecting the parcel, and indicate by note such encroachments and restrictions;

(E) Depict parcel ingress and egress, both of record and apparent;

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(F) Depict apparent improvements and features on the parcel, including, but not limited to:

(i) Grass, landscaped areas, fields, wooded and other undeveloped areas, structures, roadways, driveways, parking lots, sidewalks, and other bituminous concrete and concrete areas;

(ii) Monitoring wells and remediation equipment or facilities;

(iii) Fences, walls, hedges, watercourses, as defined in section 22a-38(16) of the Connecticut General Statutes; and

(iv) Any other evidence of repeated use of the parcel;

(G) For subject areas where an engineered control has been implemented pursuant to section **[**22a-133k-2(f)(2)**]**22a-134tt-9(f)(2) of the Regulations of Connecticut State Agencies or polluted soil is subject to the conditional exemption for inaccessible soil in accordance with section **[**22a-133k-2(b)(3)**]**22a-134tt-9(b)(3) or section **[**22a-133k-2(b)(4)**]**22a-134tt-9(b)(4) of the Regulations of Connecticut State Agencies, include spot elevations taken at the major corners of each subject area, tied to a known datum. Where an engineered control has been implemented, the spot elevations depicted on the as-built drawings submitted with the Final Engineered Control Completion Statement, prepared pursuant to section **[**22a-133k-2(f)(2)(D)(i)**]**22a-134tt-9(f)(2)(D)(i) of the Regulations of Connecticut State Agencies, shall be included. Where polluted soil is subject to the conditional exemption for inaccessible soil, all spot elevations measured on the parcel shall be included. All spot elevations specified in this subdivision, shall be supplemented with contour lines for the portions of the parcel within each subject area depicted to the T-D standard of survey accuracy in section 20-300b-11(d) of the Regulations of Connecticut State Agencies. The source of the information used to prepare the contour lines shall be indicated by note. When spot elevations are indicated, a benchmark on the same datum as the spot elevations shall be depicted and appropriately noted and described;

(H) Depict the location and width of each plottable, recorded interest and any observed evidence of use. Indicate by note whether each interest as plotted is located inside a subject area and if so, identify the subject area;

(I) Depict any observed evidence of current earth moving work or building construction on the parcel; and

(J) Depict the location of utilities existing on or serving the parcel. At a minimum, this shall be determined by: observations or information indicated on plans obtained from utility companies, or from the owner, user or occupant of the parcel; markings by utility companies; and any other sources. If the information, observations or sources differ, depict all and indicate by note the source of such information.

(c) **Specific standards and requirements for surveys for certain EURs when the subject area size is less than fifty percent (< 50%) of the parcel**

(1) This subsection shall apply to surveys for a proposed EUR:

(A) That imposes restrictions or affirmative obligations other than or in addition to a residential activity restriction; and

(B) Where the proposed subject areas in aggregate comprise less than fifty percent of the parcel on which an EUR is to be placed.

(2) In addition to the requirements of subsection (a) of this section, a survey subject to this subsection, as specified in subdivision (1), shall:

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(A) Comply with the requirements in section 20-300b-2(a) of the Regulations of Connecticut State Agencies for each subject area and for 100 feet beyond such area, or to the boundary of the parcel, whichever is closer;

(B) Depict the limits of the surveyed portion of the parcel, including any parcel boundaries;

(C) Depict any conflicts with record deed descriptions and maps affecting the surveyed portion of the parcel, and indicate by note such conflicts;

(D) Depict the location of encroachments and restrictions affecting the surveyed portion of the parcel, and indicate by note such encroachments and restrictions;

(E) Depict parcel ingress and egress, both of record and apparent. If located on the surveyed portion of the parcel, ingress and egress should be located and depicted to the Horizontal Accuracy Class A-2 standard. If located outside the surveyed portion of the parcel, locate and depict ingress and egress with reasonable accuracy and indicate by note that the location of such ingress and egress has not been located to the Horizontal Accuracy Class A-2 standard;

(F) Depict apparent improvements and features on the surveyed portion of the parcel, including, but not limited to:

(i) Grass, landscaped areas, fields, wooded and other undeveloped areas, structures, roadways, driveways, parking lots, sidewalks, and other bituminous concrete and concrete areas;

(ii) Monitoring wells and remediation equipment or facilities;

(iii) Fences, walls, hedges, and watercourses, as defined in section 22a-38(16) of the Connecticut General Statutes; and

(iv) Any other evidence of repeated use of the parcel;

(G) For subject areas where an engineered control has been implemented pursuant to section **[**22a-133k-2(f)(2)**]**22a-134tt-9(f)(2) of the Regulations of Connecticut State Agencies or polluted soil is subject to the conditional exemption for inaccessible soil in accordance with section **[**22a-133k-2(b)(3)**]**22a-134tt-9(b)(3) or section **[**22a-133k-2(b)(4)**]**22a-134tt-9(b)(4) of the Regulations of Connecticut State Agencies, include spot elevations taken at the major corners of each subject area, tied to a known datum. Where an engineered control has been implemented, the spot elevations depicted on the as-built drawings submitted with the Final Engineered Control Completion Statement, prepared pursuant to section **[**22a-133k-2(f)(2)(D)(i)**]**22a-134tt-9(f)(2)(D)(i)of the Regulations of Connecticut State Agencies, shall be included. Where polluted soil is subject to the conditional exemption for inaccessible soil, all spot elevations measured on the parcel shall be included. All spot elevations specified in this subdivision, shall be supplemented with contour lines for the portions of the parcel within each subject area depicted to the T-D standard of survey accuracy in section 20-300b-11(d) of the Regulations of Connecticut State Agencies. The source of the information used to prepare the contour lines shall be indicated by note. When spot elevations are indicated, a benchmark on the same datum as the spot elevations shall be depicted and appropriately noted and described;

(H) Depict the location and width of each plottable, recorded interest and any observed evidence of use in the surveyed portion of the parcel. Indicate by note whether each interest as plotted is located inside a subject area, and if so, identify the subject area;

(I) Depict any observed evidence of current earth moving work or building construction within the surveyed portion of the parcel;

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(J) Depict, for the surveyed portion of the parcel, the location of utilities existing on or serving the parcel. At a minimum, this shall be determined by: observations or information indicated on plans obtained from utility companies, or from the owner, user or occupant of the parcel; markings by utility companies; and any other sources. If the information, observations or sources differ, depict all and indicate by note the source of such information; and

(K) Depict any boundaries of the parcel not surveyed based on deed or other available information in the format of a General Location Survey or Compilation Plan pursuant to sections 20-300b-6 and 20-300b-8, respectively, of the Regulations of Connecticut State Agencies.

(d) **Specific standards and requirements for surveys when residential activity is the sole restriction**

This subsection shall apply to surveys for a proposed EUR that imposes only a residential activity restriction or affirmative obligation. In addition to the requirements of subsection (a) of this section, a survey subject to this subsection shall:

(1) Comply with the requirements in section 20-300b-2(a) of the Regulations of Connecticut State Agencies for each subject area and 100 feet beyond such area, or to the boundary of the parcel, whichever is closer;

(2) Depict the limits of the surveyed portion of the parcel, including any parcel boundaries;

(3) Depict any conflicts with record deed descriptions and maps affecting the surveyed portion of the parcel, and indicate by note such conflicts;

(4) Depict the location of encroachments and restrictions affecting the surveyed portion of the parcel, and indicate by note such encroachments and restrictions;

(5) Depict parcel ingress and egress, both of record and apparent. If located on the surveyed portion of the parcel, ingress and egress should be located and depicted to the Horizontal Accuracy Class A-2 standard. If located outside the surveyed portion of the parcel, locate and depict ingress and egress with reasonable accuracy and indicate by note that the location of such ingress and egress has not been located to the Horizontal Accuracy Class A-2 standard;

(6) Depict prominent improvements and features on the surveyed portion of the parcel for informational and orientation purposes, including buildings, structures, roadways, parking lots, watercourses, as defined in section 22a-38(16) of the Connecticut General Statutes, and any other evidence of residential activity on the surveyed portion of the parcel; and

(7) Depict any boundaries of the parcel not surveyed based on deed or other available information in the format of a General Location Survey or Compilation Plan pursuant to sections 20-300b-6 and 20-300b-8, respectively, of the Regulations of Connecticut State Agencies.

(e) **Simplified Survey**

A simplified survey shall be prepared with each survey required to be prepared by sections 22a-133q-2 and 22a-133q-3 of the EUR regulations. A simplified survey is a summary or overview map. The information compiled and mapped pursuant to subsection (a) of this section and subsections (b), (c), and (d) of this section, as applicable, shall be used to prepare the simplified survey. A simplified survey shall:

(1) Be performed by a surveyor with a current and effective license issued by the Commissioner of Consumer Protection;

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(2) For survey maps and plans, comply with the map drafting standards in section 20-300b-18 of the Regulations of Connecticut State Agencies;

(3) For a boundary or feature required to be located or depicted under this subsection:

(A) If such boundary or feature is also required to be located or depicted in accordance with subsection (a) of this section, locate such boundary or feature on the simplified survey to the standard identified therein; and

(B) Determine whether the EUR proposed on the parcel requires a survey subject to the requirements of subsection (b), (c), or (d) of this section. If such boundary or feature is also required to be located or depicted by subsection (b), (c), or (d) of this section, as applicable, locate such boundary or feature on the simplified survey to the standard identified therein;

(4) Depict, by metes and bounds, the portions of the boundary of the parcel required to be surveyed by this section. Depict any boundaries of the parcel not required to be surveyed by this section based on deed or other available information in the format of a General Location Survey or Compilation Plan, pursuant to sections 20-330b-6 and 20-300b-8, respectively, of the Regulations of Connecticut State Agencies;

(5) If less than the entire parcel was required to be surveyed pursuant to this section, depict the limits of the portion of the parcel that was surveyed;

(6) Depict apparent improvements and features on the parcel or surveyed portion of the parcel required to be surveyed by subsection (b)(2)(F), (c)(2)(F) or (d)(6) of this section;

(7) Depict parcel ingress and egress, both of record and apparent;

(8) Depict the boundaries of each proposed subject area by metes and bounds;

(9) Fix each proposed subject area to a parcel boundary to the Horizontal Accuracy Class A-2 or the Global Relative Positional Accuracy Class G-2 standards specified in section 20-300b-11(b) of the Regulations of Connecticut State Agencies;

(10) For each subject area with the characteristics specified in this subdivision, mark and monument such subject area pursuant to sections 20-300b-12 to 20-300b-14, inclusive, of the Regulations of Connecticut State Agencies:

(A) A subject area that does not have at least one contiguous boundary with the boundary of the parcel;

(B) A subject area that does not share a point in common with a structure or feature located on the parcel; or

(C) A subject area that an LEP, surveyor, or the commissioner deems appropriate to be located pursuant to the method specified in this subdivision;

(11) Label each subject area as “Proposed ELUR Subject Area” or “Proposed NAUL Subject Area” as applicable, and if there is more than one subject area, identify each subject area alphabetically, e.g., as “Proposed ELUR Subject Area A”, “Proposed ELUR Subject Area B”, “Proposed ELUR Subject Area C”; or “Proposed NAUL Subject Area A”, “Proposed NAUL Subject Area B”, “Proposed NAUL Subject Area C” and indicate by note each restriction imposed by the proposed EUR for each subject area;

(12) When restrictions other than a prohibition on residential activity are proposed, include spot elevations taken at the major corners of each subject area; tied to a known datum. Where an

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engineered control has been implemented pursuant to section [22a-133k-2(f)(2)]22a-134tt-9(f)(2) of the Regulations of Connecticut State Agencies, the spot elevations depicted on the as-built drawings submitted with the Final Engineered Control Completion Statement, prepared pursuant to section [22a-133k-2(f)(2)(D)(i)]22a-134tt-9(f)(2)(D)(i) of the Regulations of Connecticut State Agencies, shall be included. Where polluted soil is subject to the conditional exemption for inaccessible soil, in accordance with section [22a-133k-2(b)(3)]22a-134tt-9(b)(3) or section [22a-133k-2(b)(4)]22a-134tt-9(b)(4) of the Regulations of Connecticut State Agencies, all spot elevations measured on the parcel shall be included. When spot elevations are indicated, a benchmark on the same datum as the spot elevations shall be depicted and appropriately noted and described;

(13) Indicate by note the standards to which the survey was prepared. If a resurvey is conducted, identify by note each map referenced;

(14) Include in the title block: "Simplified Survey - Proposed Declaration of Environmental Land Use Restriction and Grant of Easement, Exhibit C" or "Simplified Survey - Proposed Notice of Activity and Use Limitation, Exhibit C", the name of the parcel owner, the parcel address, the type of survey, the scale of the survey, and survey date; and

(15) Be signed and sealed in accordance with section 20-300b-20 of the Regulations of Connecticut State Agencies.

Sec. 22a-133q-5. EUR Opinion

(a) **Preparation of the EUR Opinion**

For purposes of the EUR regulations, an EUR opinion shall be prepared using a form prescribed by the commissioner and shall:

(1) Identify historic industrial/commercial activity on the parcel and include a brief narrative summarizing the type and location of pollutants in the soil, groundwater, sediments, or soil vapor at concentrations greater than the applicable criteria set forth in or approved pursuant to the [RSRs]RBCRs and identified during the investigation and characterization of the parcel;

(2) Include a table, that lists:

(A) Each proposed ELUR or NAUL subject area identified on a survey that complies with section 22a-133q-4 of the EUR regulations;

(B) The pollutants present in soil, sediments, groundwater or soil vapor on or underlying that subject area that are present in concentrations greater than the criteria set forth in, or approved pursuant to, the [RSRs]RBCRs, their concentration, and horizontal and vertical extent; and

(C) The restrictions or affirmative obligations to be imposed by the EUR;

(3) Describe each restriction or affirmative obligation to be imposed by the EUR and all requirements to implement such EUR;

(4) For each restriction or affirmative obligation, as applicable, to be imposed by the EUR, indicate:

(A) Why the restriction or affirmative obligation was chosen for the conditions present at the subject area;

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(B) That the current condition of the subject area is in compliance with the restriction proposed;

(C) That the current condition of the subject area allows for compliance with all affirmative obligations; and

(D) How compliance with each restriction and affirmative obligation, as proposed, will ensure compliance with sections 22a-134tt-9 or 22a-134tt-10 the **[**RSRs**]**RBCRs;

(5) For parcels subject to a NAUL only, describe any activities and uses permitted and inconsistent with maintaining compliance with such NAUL;

(6) Include the signature and seal of an LEP, or, when the parcel upon which the EUR will be placed is in the custody and control of the department, the signature of either the commissioner or an LEP, certifying that:

(A) The contents of the EUR opinion are accurate and complete; and,

(B) Each restriction and affirmative obligation to be imposed by the EUR is consistent with the **[**RSRs**]**RBCRs and is protective of human health and the environment; and

(7) Include any other information specified by the commissioner on such form.

(b) **Compliance with Notice of Activity and Use Limitation Decision Document**

An EUR opinion completed in accordance with subsection (a) of this section shall satisfy the requirement to prepare a Notice of Activity and Use Limitation Decision Document specified in section 22a-133o(c)(5)(B) of the Connecticut General Statutes.

Sec. 22a-133q-6. Allowable Disturbances

Notwithstanding the restrictions in an EUR regarding digging, excavating, disturbing or exposing soil, a person may temporarily conduct activities otherwise prohibited by such restrictions, provided such person complies with the requirements of this section.

(a) **Temporary Allowable Disturbances**

A temporary allowable disturbance authorized under this section shall:

(1) Comprise a discrete singular project, minimized to the greatest extent practicable and not be one phase of a multi-phased project or a continuous or on-going project;

(2) Be supervised by an LEP. If the subject area is on property under the custody and control of the department, either an LEP or the commissioner may supervise such activities;

(3) Not exceed 90 days, and no new allowable disturbance in the same subject area may commence until 90 days has passed since the completion of activities performed pursuant to a previous allowable disturbance;

(4) Not result in the excavation of more than 250 cubic yards of soil, other excavated material or debris;

(5) Not exceed 1000 square feet of disturbance at any one time;

(6) Not result in the disturbance of any subject area containing PCBs;

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(7) Be conducted in compliance with any restrictions or affirmative obligations of the EUR other than restrictions regarding digging, excavating, disturbing or exposing soil; and

(8) Be conducted in compliance with all other requirements of the EUR regulations.

(b) **Temporary Allowable Disturbance Plan and Initial Notification**

Prior to commencing any activities authorized under subsection (a) of this section, any person seeking to conduct such activities shall ensure that:

(1) A plan is prepared using a form prescribed by the commissioner and signed and sealed by an LEP, that describes the activities associated with the proposed allowable disturbance, the conditions expected to be encountered during the work performed, and how such activities will be completed in accordance with this section; and

(2) Not less than 14 days prior to commencing any allowable disturbance pursuant to this subsection, a notice is sent of the proposed allowable disturbance to the commissioner on a form prescribed by the commissioner.

(c) **Unexpected Conditions or Pollutants Notification**

In the event that during implementation of allowable disturbance activities, conditions or pollutants other than those identified or described in the EUR are encountered, the person authorized to conduct activities under this subsection shall notify the commissioner of such unexpected conditions or pollutants, in writing, on a form prescribed by the commissioner, within 72 hours of discovering such conditions or pollutants. The person authorized to conduct activities pursuant to this section shall comply with any comments or conditions from the commissioner regarding any notification submitted under this subsection, including, but limited to, any action to take in response to unexpected conditions or pollutants.

(d) **Excavated soils and stockpiles**

Soils, other excavated material, or debris excavated as part of an allowable disturbance shall be managed in accordance with the following:

(1) Stockpiles of soil, other excavated material, or debris shall be either located on polyethylene or similar sheeting material, stored in drums or roll-off containers or stored on concrete or bituminous concrete. Where such soil, other excavated material, or debris has been placed in drums or roll-off containers, such drums or containers shall be in good condition (i.e, not rusting, no apparent structural defects or not incapable of holding the stored materials) that shall always remain closed, except when soil, other excavated material, or debris is being added or removed. Soil, other excavated material, or debris stored on polyethylene or similar sheeting material, or on concrete or bituminous concrete, shall be covered, at all times other than when soil, other excavated materials, or debris is being added or removed from such storage, using a cover of a nature and material sufficient to prevent the infiltration of water and displacement of soil, other excavated material, or debris through erosion.

(2) All soil, other excavated material, or debris stored shall be compatible with anything stored with such soil, other excavated material, or debris so as to not produce any the following effects: heat or pressure; fire or explosion; violent chemical reactions; toxic dusts, mists, fumes or gases; or flammable fumes or gases;

(3) Soil, other excavated material, or debris subject to section **[**22a-133k-2(b)(3)**]**22a-134tt-9(b)(3), section **[**22a-133k-2(b)(4)**]**22a-134tt-9(b)(4) or section **[**22a-133k-2(f)(2)**]**22a-134tt-

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9(f)(2) of the Regulations of Connecticut State Agencies shall be sorted, separated, and stockpiled in isolation from all other soil, other excavated material, and debris;

(4) Polluted soils, other excavated materials, or debris shall be separated from soil, excavated material or debris that is not polluted. Any stockpiles of soil, other excavated material, or debris that is polluted shall be managed in a stockpile storage area that:

(A) Prevents access by the general public through fencing or other similar means; and

(B) Is identified by a sign that is visible from a distance of at least 25 feet, posted at each stockpile storage area entrance, identifying, at a minimum, the name of the person authorized to conduct activities under this subsection, a contact name and phone number, the hours of operation, including the phrase "Keep Out" and, in text visible for a distance of 5 feet, including the phrase "Polluted Soil;"

(5) Dust controls shall be implemented and maintained according to best practices. Wind erosion and dust transport from the stockpiles and the travel areas of the staging, transfer and temporary storage area shall be minimized. Anti-tracking measures, including, but not limited to, vehicle skid pads, shall be implemented to prevent tracking outside of the parcel; and

(6) Soil, other excavated material, or debris that is or contains hazardous waste, as defined by section 22a-448 of the Connecticut General Statutes, shall be sorted, separated, and stockpiled in isolation from all other soil, other excavated material, and debris and shall be managed in compliance with the requirements of sections 22a-449(c)-100 to 22a-449(c)-119, inclusive, of the Regulations of Connecticut State Agencies.

(7) For the purposes of this subsection, soil, other excavated material, or debris is considered to be stockpiled when such soil, excavated material, or debris has been accumulated, consolidated for storage, and will have to be removed from the stockpile for replacement or disposal.

(e) **Restoration**

Restoration of impacts from allowable disturbance activities, including, but not limited to, restoration of the area where allowable disturbance activities were conducted, shall be conducted in accordance with the following requirements:

(1) The area where allowable disturbance activities were conducted shall be restored to the condition described in the EUR;

(2) Any soils, other excavated materials, or debris, excavated as part of an allowable disturbance:

(A) Provided it is returned to the location and depth from which it was excavated, may be returned without the need for analytical testing;

(B) Not returned to the location and depth from which it was excavated shall be tested to determine the concentration of pollutants in such soil, other excavated materials, or debris. The analytical results of testing, shall be taken into account and such soil, other excavated material, or debris shall be either reused in compliance with section [22a-133k-2(h))]22a-134tt-9(h) of the Regulations of Connecticut State Agencies, or disposed of at a facility authorized to accept such soil, other excavated material, or debris; or

(C) That constitutes or contains a hazardous waste, as defined by section 22a-448 of the Connecticut General Statutes, shall, in addition to subparagraphs (A) and (B) of this subdivision,

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be managed in compliance with the requirements of sections 22a-449(c)-100 to 22a-449(c)-119, inclusive, of the Regulations of Connecticut State Agencies;

(3) If soil, other excavated material, or debris is stockpiled on concrete or bituminous concrete, following the removal of the stockpile, the area below the stockpile shall be swept to remove any remaining stockpiled soil, excavated material or debris;

(4) (A) Soil sampling shall be conducted in the area below and in the vicinity of where soil, other excavated material, or debris was stored whenever:

(i) Soil, other excavated material, or debris is removed from polyethylene or similar sheeting material; or

(ii) The commissioner or an LEP determines that soil, other excavated material, or debris was not managed pursuant to the requirements of this subsection following the removal of such soil, other excavated material, or debris;

(B) An LEP shall oversee the collection of soil samples required by this subdivision. Such samples shall be analyzed for each of the pollutants known or reasonably expected to be present in the excavated soil, other excavated material, or debris and all pollutants identified in the EUR. All laboratory analysis shall be performed by a laboratory certified by the Department of Public Health for the chemical testing performed. When such analytical results are greater than the applicable **[**RSRs**]**RBCRs criteria, the soil, other excavated material, or debris below and in the vicinity of the soil stockpile shall be subject to the requirements of the **[**RSRs**]**RBCRs; and

(5) Any pollution resulting from a temporary allowable disturbance shall be remediated to the satisfaction of the commissioner.

(f) **Record of Activities**

The person authorized to conduct activities under this subsection shall maintain an up-to-date record of operating activities on the parcel, as they are occurring, for the duration of the allowable disturbance activities. At a minimum, such record shall include:

(1) A summary of the contaminants of concern;

(2) The depth and location from which soil, excavated materials, or debris were excavated;

(3) For each stockpile storage area:

(A) The date soil, excavated materials, or debris were received at such area(s);

(B) Each date soil, excavated materials, or debris were transported from the area, and the date of final disposition of such soil, excavated materials, or debris; and

(C) An accounting of the total volume of soil, excavated material and debris managed at such area;

(4) The total volume of soil, excavated material, or debris that were returned to the location where it was originally excavated;

(5) Each receiving site where excavated soil, excavated materials, or debris were reused or disposed of, including the facility name, location, and address and the amount of soil, excavated material, or debris brought to such facility, with copies of the accompanying bills of lading or waste manifests; and

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(6) If soil samples were collected and analyzed, all laboratory analytical results and results tables, with a map showing where the samples were collected.

(g) **Completion report**

Not more than 60 days after the completion of allowable disturbance activities authorized pursuant to this section, a completion report, on a form prescribed by the commissioner, shall be prepared and submitted to the commissioner. The completion report shall include:

(1) A summary of the work performed, including the dates activities were initiated and completed;

(2) Time dated photographs of the activities conducted under this section while in progress and after completion, unless the taking of such photographs is prohibited by law;

(3) Records or waste manifests documenting the final disposition of excavated soils, materials and debris;

(4) Where there has been disturbance of inaccessible soils or an engineered control, records documenting, as applicable, how post-restoration polluted soils meet the requirements for inaccessible soils, or how an engineered control and warning layers, if any, were repaired or replaced;

(5) The results of any laboratory analysis conducted, and an explanation of the need for such analysis, as well as a laboratory data quality assessment and usability evaluation that complies with the requirements in section **[**22a- 133k-1(h)(1)**]**22a-134tt-1(d) of the Regulations of Connecticut State Agencies;

(6) An explanation of how, after completion of the allowable disturbance, the subject area meets the requirements of the EUR as recorded;

(7) An as-built map, prepared using the survey or simplified survey required by section 22a-133q-4 of the EUR regulations as a base map, documenting conditions in the subject area after completion of the work authorized by the allowable disturbance;

(8) A statement signed and sealed by the LEP supervising the allowable disturbance indicating that the area upon which the work was performed is in compliance with the EUR and the **[**RSRs**]**RBCRs, or that additional work is necessary for the area upon which the work was performed to comply with the EUR and the **[**RSRs**]**RBCRs, in which case the statement shall include a detailed description of the work to be performed, an explanation of why such additional work is needed and a schedule to perform such activities. The commissioner's receipt of any such report noting that additional work is necessary shall not excuse any non-compliance with this section and shall not prevent the commissioner from taking any other action regarding such non-compliance;

(9) A statement, signed and sealed by an LEP, certifying that the completion report is true and accurate; and

(10) Any other information specified by the commissioner on such form.

(h) **Requirement to Provide Owner with Records**

If the person authorized to conduct activities under this section is not the owner of the parcel, not more than 60 days after the completion of allowable disturbance activities, such person shall provide the owner with a copy of all documents, records or reports, required under this section.

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(i) **Correction of Non-Compliance**

(1) If at any time the commissioner determines that temporary allowable disturbance activities were conducted in manner that does not comply with the requirements of this section, including, but not limited to, activities not authorized by this section, or that the area where work was performed is in violation of the EUR and the **[**RSRs**]**RBCRs, the commissioner may require that the parcel be restored to the conditions described by the EUR by a date certain, or may take any other action regarding such non-compliance.

(2) Nothing in this section shall affect the authority of the commissioner under any other statute or regulation, including, but not limited to, the authority to seek civil or criminal penalties or issue any order to prevent or abate pollution.

Sec. 22a-133q-7. Releases and Terminations

The restrictions and affirmative obligations in an EUR shall only be temporarily or permanently released, or the restrictions and affirmative obligations in a NAUL terminated, in compliance with the requirements of this section. No person shall execute and record a temporary or permanent release of an EUR or termination of a NAUL that does not comply with the requirements of this section.

(a) **Temporary Releases**

(1) A temporary release approved under this section shall be recorded using a format prescribed by the commissioner and shall specify the termination date for such release.

(2) The extent and duration of a temporary release approved under this section shall be limited to the minimum that is reasonably necessary to conduct the proposed activities, as determined by the Commissioner or the LEP who approves such release at the time such release is approved.

(3) The activities undertaken pursuant to any temporary release approved under this section shall:

(A) Be supervised by an LEP, unless the subject area is on property under the custody and control the department, in which case either an LEP or the commissioner may supervise such activities;

(B) Be conducted in compliance with any restrictions or affirmative obligations of the EUR that are not in direct conflict with the activities conducted pursuant to the temporary release; and

(C) Be conducted in compliance with all other requirements of the EUR regulations.

(b) **Documents Required for Approval of a Temporary Release**

No temporary release under this section shall be approved, and no activities proposed under any such release shall be conducted, until the documents required by this subsection have been prepared. The following documents shall be prepared on a form prescribed by the commissioner:

(1) A summary of the proposed activities to be conducted pursuant to the temporary release; and

(2) A temporary release work plan which shall:

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(A) Describe the activities to be performed and how the extent and duration of such activities is limited, in the opinion of the LEP who will sign and seal the workplan, to the minimum that is reasonably necessary to conduct the proposed activities;

(B) Identify by name and license number the LEP who will supervise the activities to be conducted during the proposed release or indicate that the LEP who will supervise the activities will be identified by name and license number on a notice filed each time proposed recurring activities are to be conducted;

(C) Include a schedule for the completion of the proposed specific activities;

(D) Depict, to scale, the location of the proposed activities and the location of any planned stockpiling of soil, excavated material or debris, on a copy of the most recent survey and simplified survey prepared pursuant to section 22a-133q-4 of the EUR regulations depicting the approved EUR subject area(s);

(E) Indicate where inaccessible soils or engineered controls are to be disturbed;

(F) Include provisions to notify the commissioner of unexpected conditions or pollutants during implementation of temporary release activities in accordance with subsection (c) of section 22a-133q-6 of the EUR regulations.

(G) When the activities involve the disturbance of soil, include a soil management plan containing provisions to manage soils, excavated materials or debris generated during the proposed activities and the restoration of the area which plan shall, at a minimum, satisfy the requirements set out in subsections (d) and (e) of section 22a-133q-6 of the EUR regulations. Provided, if the activities to be authorized by the temporary release are intended to result in a different means of complying with the **[**RSRs**]**RBCRs, the soil management plan may explain any deviation from the requirement of subsection (e)(1) of section 22a-133q-6 of the EUR regulations;

(H) Include provisions to document work progress and completion in a manner that meets the requirements of subsection (f) of section 22a-133q-6 of the EUR regulations;

(I) Include the signature of the owner of, or holder of an interest in, the parcel for which a temporary release is being sought and be signed and sealed by an LEP; and

(J) Include any other information specified by the commissioner on such form.

(c) **Review and Approval of a Temporary Release from an EUR by the Commissioner**

(1) The commissioner shall not approve a temporary release from the restrictions and affirmative obligations of an EUR unless and until the commissioner determines that:

(A) All of the information necessary to make a determination of whether or not to approve a temporary release, including, but not limited to, the documents required by subsection (b) of this section, has been submitted and contains the information necessary for the commissioner to determine whether or not to grant the requested temporary release;

(B) A non-refundable fee of $1,000.00, payable in the manner prescribed by the commissioner, has been submitted to the commissioner; and

(C) The temporary release work plan required by subsection (b) of this section demonstrates that the proposed activities, if conducted in accordance with such plan will:

(i) Be protective of human health and the environment; and

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(ii) Comply with all applicable legal requirements, including, but not limited to, the EUR regulations and the **[**RSRs**]**RBCRs.

(2) (A) The commissioner shall not review a request for a temporary release of an EUR without the required fee and may, at any time, disapprove of any such request based on any determination made in accordance with subdivision (1) of this subsection. If the commissioner does not approve the request for a temporary release, the commissioner shall send written notice of such disapproval to the person requesting the release and state the reasons for such disapproval. If the notice sent by the commissioner indicates that the request was not approved because information required by subsection (b) of this section was not provided, or that the commissioner needs additional information to review the request, the person requesting the temporary release shall have 30 days from the date of the commissioner's notice to provide the commissioner with the information identified in the notice. The commissioner may grant a single 60 day extension of time to provide any such information.

(B) Any response to the notice sent by the commissioner, submitted pursuant to subparagraph (A) of this subdivision, shall along with the original request for a temporary release, be reviewed pursuant to subdivision (1) of this subsection. If the deadlines in subparagraph (A) of this subdivision are not met, the commissioner's disapproval of the request for a temporary release shall, without the need for any further action by the commissioner, be deemed final and the proposed temporary release shall not be executed or recorded.

(3) A person whose request for a temporary release has been disapproved pursuant to this subsection may submit a new request for approval of such temporary release. Any such request shall be treated as a new request and shall be resubmitted in its entirety in compliance with the requirements of this section.

(4) If the commissioner approves a temporary release, the commissioner shall indicate such approval by signing and returning the temporary release to the person who requested such release. In connection with any approval the commissioner may impose any conditions the commissioner deems necessary, including, but not limited to, the posting of financial assurance to assure compliance with this section. Not more than 7 days after receipt of the temporary release signed by the commissioner, the person who requested such temporary release shall ensure that no alterations of any kind are made and that the temporary release is recorded in the land records of the municipality where the EUR is recorded and that the town clerk returns the original temporary release to the commissioner after recording.

(5) Any temporary release approved by the commissioner regarding recurring activities shall require that:

(A) Fourteen days before each recurring activity identified in the temporary release work plan is conducted, notice, on a form prescribed by the commissioner, shall be submitted to the commissioner; and

(B) Not more than 30 days after each time a recurring activity is completed, a completion report, containing the information required by subsection (e) of this section, shall be submitted to the commissioner.

(d) **Review and approval of a Temporary Release from a NAUL by an LEP**

(1) An LEP shall not and is not authorized to approve a temporary release from the restrictions and affirmative obligations of a NAUL unless:

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(A) Not more than 180 days after the temporary release is recorded, any subject area disturbed by the activities authorized by the temporary release is returned to the condition described in the NAUL or if a new EUR is going to be placed on the subject area, to a condition that complies with the **[**RSRs**]**RBCRs; and

(B) An LEP has not approved a temporary release authorizing activities within the same subject area within the previous 2 calendar years.

(2)

(2) (A) No LEP shall approve a temporary release under this subsection unless, not less than 14 days prior to any such approval, an LEP submits to the commissioner:

(i) Notice, on a form prescribed by the commissioner, that approval of a temporary release is proposed. Such release shall be prepared using a form prescribed by the commissioner; and

(ii) A statement signed by an LEP certifying that:

(I) The documents required under subsection (b) of this section have been prepared, are complete and satisfy the requirements of subsection (b) of this section; and

(II) The proposed temporary release is eligible for LEP approval pursuant to subdivision (1) of this subsection.

(B) After receipt of the information submitted pursuant to subparagraph (A) of this subdivision, the commissioner may request in writing that the temporary release work plan be provided to the commissioner for review. If the commissioner requests the temporary release work plan for review, a temporary release may not be approved until the commissioner's review is complete.

(C) The commissioner may determine that the proposed temporary release shall be approved by the commissioner pursuant to subsection (c) of this section and not by an LEP. If the commissioner makes this determination, the commissioner shall notify, in writing, the LEP, who made the submission pursuant to subparagraph (A) of this subdivision, of this determination, stating the reasons for the decision in which case the temporary release shall not be approved by an LEP.

(3) An LEP shall not sign a temporary release from the restrictions and affirmative obligations of a NAUL, indicating approval of such release, unless and until such LEP determines that:

(A)

(A) (i) The commissioner has indicated, in writing, that approval by an LEP can proceed; or

(ii) More than 14 days have passed since the information specified in subdivision (2)(A) of this subsection was submitted to the commissioner and the commissioner has not requested that the temporary release work plan be submitted to the commissioner pursuant to subdivision (2)(B) of this subsection; and

(B) The requirements of this subsection have been satisfied, including, but not limited to, a determination that the temporary release proposed is eligible for LEP approval pursuant to subdivision (1) of this subsection; and

(C) The temporary release work plan required by subsection (b) of this section demonstrates that the proposed activities, if conducted in accordance with such plan will:

(i) Be protective of human health and the environment; and

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(ii) Comply with all applicable legal requirements, including, but not limited to, the EUR regulations and the **[**RSRs**]**RBCRs.

(4) If an LEP approves a temporary release pursuant to this subsection, the LEP shall indicate approval by signing and returning such release to the person who requested such release. Not more than 7 days after receipt of the temporary release signed by an LEP, the person who requested such release shall ensure that no alterations of any kind are made to such release and that the release is recorded in the land records of the municipality where the NAUL is recorded and that the town clerk returns the original temporary release to the commissioner after recording.

(e) **Termination of a Temporary Release**

(1) Not later than 60 days after activities specified in a temporary release work plan are completed or recurring activities described in a temporary release work plan are completed for the last time, a completion report shall be prepared and submitted to the commissioner. The completion report shall include:

(A) A summary of the work performed, including the dates activities were initiated and completed;

(B) Time-dated photographs of the activities conducted on site while in progress and after completion, unless the taking of such photographs is prohibited by law;

(C) Records or waste manifests documenting the final disposition of excavated soils, materials and debris;

(D) Where there has been disturbance of inaccessible soils or an engineered control, records documenting, as applicable, how post-restoration polluted soils meet the requirements for inaccessible soils, or how an engineered control and warning layers, if any, were repaired or replaced;

(E) The results of any laboratory analysis conducted, and an explanation of the need for such analysis, as well as a laboratory data quality assessment and usability evaluation that complies with the requirements in section **[**22a-133k-1(h)(1)**]**22a-134tt-1(d) of the Regulations of Connecticut State Agencies;

(F) An explanation of how, after completion of activities authorized by the temporary release, the subject area meets the requirements of the EUR as recorded or, alternatively if the EUR is going to be replaced, or permanently released or terminated, the **[**RSRs**]**RBCRs;

(G) An as-built plan, prepared using the survey or simplified survey required by section 22a-133q-4 of the EUR regulations as a base map, documenting site conditions after completion of the activities authorized by the temporary release; and

(H) A statement signed and sealed by the LEP supervising the activities conducted under the temporary release indicating that the area upon which the work was performed is in compliance with the EUR and the **[**RSRs**]**RBCRs, or that additional work is necessary for the area upon which the work was performed to comply with the EUR and the **[**RSRs**]**RBCRs, in which case the statement shall include a detailed description of the work to be performed, an explanation of why such additional work is needed and a schedule to perform such activities. The commissioner's receipt of any such report noting that additional work is necessary shall not excuse any non-compliance with this section and shall not prevent the commissioner from taking any other action regarding such non- compliance;

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(I) A statement, signed and sealed by an LEP, certifying that the completion report is true and accurate; and

(2) If a temporary release approved by the commissioner authorizes recurring activities and the activities authorized by such release have been conducted for the last time, following the receipt of a completion report as required by subdivision (1) of this subsection, the commissioner may prepare a termination of such temporary release. Not more than 7 days after receipt of such termination signed by the commissioner, the owner shall ensure that no alterations of any kind are made and that the termination of temporary release is recorded in the land records of the municipality where the EUR is recorded and that the town clerk returns the original termination to the commissioner after recording.

(f) **Requirement to Provide Owner with Records**

If the person conducting activities pursuant to a temporary release approved under this section is not the owner of the parcel, not more than 60 days after the completion of activities conducted under a temporary release, including completion reports for each recurring activity, such person shall provide the owner with a copy of all documents, records or reports, required under this section.

(g) **Permanent Release of an ELUR and Termination of a NAUL**

(1) An ELUR may be permanently released and a NAUL may be terminated only after the commissioner determines that the parcel has achieved compliance with the relevant standards imposed by the **[**RSRs**]**RBCRs in such a manner that the restrictions imposed by the ELUR to be permanently released or the NAUL to be terminated, as applicable, are no longer required. No person shall record a permanent release of an ELUR or termination of a NAUL, unless such recording is authorized by the commissioner in compliance with the requirements of this subsection.

(2) An owner seeking permanent release from an ELUR or termination of a NAUL shall, on forms prescribed by the commissioner, prepare and submit to the commissioner a request and a Permanent Release/Termination Documentation Report. The Permanent Release/Termination Documentation Report shall:

(A) Include any documentation regarding the investigation, characterization, and remediation of releases necessary to demonstrate that the subject area is in compliance with the applicable provisions of the **[**RSRs**]**RBCRs, including, but not limited to, maps and laboratory analytical results;

(B) Include a proposed permanent release or termination, as applicable, on forms prescribed by the commissioner;

(C) Be signed and sealed by an LEP; and

(D) Include any other information specified by the commissioner on such form.

(3)

(3) (A) If the commissioner determines that the parcel complies with the **[**RSRs**]**RBCRs without need for the restrictions imposed by the EUR, the commissioner shall sign such release or termination, as applicable, and return it to the owner for recording. Not more than 7 days after receipt of such release or termination signed by the commissioner, the owner shall record such release or termination and not more than 14 days after such recording shall send a copy of the

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permanent release or termination, bearing the volume and page at which it was recorded, to the commissioner.

(B) If the commissioner determines that the requirements of this subsection have not been satisfied, the commissioner shall notify the owner in writing stating the reasons that the request for a permanent release of an ELUR or termination of a NAUL, as applicable, has not been approved.

(4) If in connection with a permanent release of an ELUR or termination of a NAUL a new EUR is to be placed on a parcel, the new EUR shall:

(A) Comply with all applicable requirements of the EUR regulations, including, but not limited to, any recording requirements; and

(B) Be recorded simultaneously with any permanent release or termination.

(h) **Determination of Invalidity for Non-Compliance**

(1) If at anytime the commissioner determines that work or activities conducted do not comply with the requirements of this section, including, but not limited to, the conduct of activities not authorized by a temporary release, the commissioner shall consider any such work or activity unauthorized and may immediately terminate any such release, require that the parcel be restored to the conditions described by the EUR by a date certain, and take any other action regarding such non-compliance.

(2) If at anytime the commissioner determines that a temporary or permanent release of an EUR or termination of a NAUL was not recorded or was not recorded in compliance with the requirements of this section, the commissioner may record, or may require the owner to record, a termination of any temporary release or another temporary or permanent release of an EUR or termination of a NAUL, including a statement that any previously recorded release or termination was invalidly recorded and that the obligation to record any such release or termination has not been satisfied. An invalidly recorded temporary or permanent release of an EUR, or termination of a NAUL shall not satisfy any requirement of any statute or regulation requiring such release or termination. If the commissioner records a termination of a temporary release or a statement pursuant to this subsection, the commissioner shall notify the owner of the parcel.

(3) Nothing in this section shall affect the authority of the commissioner under any other statute or regulation, including, but not limited to, the authority to seek civil or criminal penalties or issue any order to prevent or abate pollution.

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Sec. 22a-133q-8. Post-recordation Inspections and Corrective Actions

This section shall apply to all EURs, regardless of whether such EUR was recorded before, on, or after February 16, 2021:

(a) **Inspections**

The owner shall comply with the following inspection requirements;

(1) Annual Inspection

Between April 1st and July 31st of each year, an annual inspection that complies with the requirements of this section, shall be conducted. Within 30 days of any such inspection, a report of such inspection, using a form prescribed by the commissioner, shall be completed and shall be

signed by the owner of the parcel. An annual inspection is not required in the year when a five-year comprehensive inspection is conducted pursuant to subdivision (2) of this subsection.

(2) Five-Year Comprehensive Inspections

Beginning in the year 2025, the owner of a parcel on which an EUR has been recorded shall ensure that an LEP is retained to conduct a comprehensive inspection that complies with the requirements of this section. The LEP shall conduct such inspection between April 1st and September 30th. Within 30 days of any such inspection, a report of such inspection, using a form prescribed by the commissioner, shall be completed by the LEP conducting the inspection and shall be signed and sealed by such LEP and signed by the owner.

(3) Commissioner Required Inspection

In addition to any inspections required by this subsection, at any time, the commissioner may require, in writing, that a comprehensive inspection that complies with the requirements of subdivision (2) of this subsection be conducted within a time period specified by the commissioner. If the commissioner fails to specify a time period, an inspection shall be conducted within 30 days of the commissioner notice that an inspection is required. Within 30 days of any such inspection, or such time specified by the commissioner, a report of such inspection, using a form prescribed by the commissioner, shall be completed by the LEP conducting the inspection and shall be signed and sealed by such LEP and signed by the owner.

(4) Inspection Requirements

Any inspection required by this subsection shall include:

(A) A physical inspection of the EUR subject areas to determine compliance with the restrictions and affirmative obligations of the EUR;

(B) A review of records, including analytical data, to verify compliance with the restrictions and affirmative obligations of an EUR, including, but not limited to, compliance with recordkeeping requirements and any monitoring required by the EUR;

(C) A review of the EUR factsheet to determine if, for each subject area, the EUR factsheet contains the restrictions and affirmative obligations and the conditions regarding such subject area. If the information contained on the EUR factsheet does not reflect the restrictions and affirmative obligations or is otherwise incorrect, or incomplete, a revised EUR factsheet shall be prepared, included in the inspection report, and the new factsheet shall replace the former factsheet for any purpose for which an EUR factsheet is required by the EUR regulations; and

(D) Any other information specified on the annual or five-year comprehensive inspection forms prescribed by the commissioner.

(b) **Corrective Action**

(1) If the owner knows, or reasonably should have known, of conditions which do not comply with any restriction or affirmative obligations of an EUR, or when the results of the inspection required by subsection (a) of this section indicate non-compliance with the restrictions or affirmative obligations of an EUR, the owner shall:

(A) Correct any non-compliance as soon as practicable, but no later than 90 days from the date the owner knew or reasonably should have known of such non-compliance; or

(B) Submit to the commissioner, on a form prescribed by the commissioner, a plan and a schedule for correction of any non-compliance, not more than 30 days after discovery of non-

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compliance, if the owner determines that or reasonably should have determined that correction of the non- compliance cannot be completed within 90 days. The owner shall comply with any comments or conditions from the commissioner regarding any plan or schedule submitted pursuant to this subdivision.

(2) The commissioner's receipt of any plan or schedule under this subsection shall not excuse any non-compliance and shall not prevent the commissioner from taking any other action regarding such non-compliance.

(3) Nothing in this section shall affect the authority of the commissioner under any other statute or regulation, including, but not limited to, the authority to seek civil or criminal penalties or issue any order to prevent or abate pollution.

(c) **LEP Notification**

If an LEP knows, or reasonably should know, of non-compliance with any requirement regarding an EUR, including, but not limited to, as a result of an inspection conducted pursuant to this subsection, the LEP shall immediately notify the owner in writing and, upon such notification, the owner shall comply with subsection (b) of this section. If requested by the commissioner, in writing, an LEP shall provide documentation of compliance with this requirement.

Sec. 22a-133q-9. Miscellaneous Requirements

The owner of the parcel on which an EUR has been placed shall comply with the following requirements:

(a) **EUR Factsheet**

If the parcel on which an EUR has been placed is occupied by persons, even temporarily, the owner of such parcel shall ensure that a copy of the EUR factsheet is posted in a conspicuous location where such factsheet can be seen by the general public or is in the possession of the person responsible for maintenance or operation of the parcel. Any such factsheet shall be posted or kept at the parcel until the EUR is permanently released or terminated in whole. While this subsection shall apply to all EURs, regardless of when recorded, for EURs recorded before February 16, 2021, this subsection shall not take effect until April 17, 2021.

(b) **Health and Safety Notification**

Except on a parcel on which the only restriction is a residential activity restriction, effective February 16, 2021, if work is being done on a parcel subject to an EUR, regardless of when the EUR was recorded, prior to any work being performed in or on a subject area which is subject to a restriction or obligation other than, or in addition to, a residential activity restriction, a copy of the EUR and EUR factsheet shall be provided to the person responsible for overseeing the health and safety of workers who may be exposed to pollution from such work. Notice under this section shall be provided any time excavation is to occur on a parcel subject to an EUR, unless the only restriction imposed by such EUR is a restriction on residential activity.

(c) **Document Retention**

The current owner shall have and retain a copy of all records, documents and reports whose preparation is required by the EUR regulations. In addition, for an EUR recorded before February 16, 2021, the current owner shall have and retain a copy of all records, documents and reports in such owner's possession as of February 16, 2021 regarding an EUR, including, but not limited to,

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any record, document or report that was required to be maintained by sections 22a-133o to 22a-133r, inclusive, of the Connecticut General Statutes, and any regulations in effect pursuant thereto when the EUR was recorded. Any record, document, or report specified in this subsection may be reviewed by and shall be provided to the commissioner upon request, within the time specified in any such request and if no timeframe is specified, not more than 30 days after the receipt of a written request.

(d) **Transfer of an interest in a parcel subject to an EUR**

This section shall apply to the transfer of any interest in a parcel subject to an EUR after February 16, 2021, regardless of when any such EUR was recorded.

(1)

(1) (A) At least 30 days prior to the transfer of an interest in a parcel subject to an EUR by the owner, which is less than an ownership interest in the whole or part of a parcel, the owner shall provide to each person to whom an interest will be transferred a copy of the EUR and the EUR factsheet. Any such transferee shall retain a copy of all such documents in accordance with subsection (c) of this section.

(B) At least 30 days prior to the transfer of ownership of a parcel, or a portion of parcel subject to an EUR, the owner shall provide to the transferee a copy of all documents whose preparation is required by the EUR regulations, including, but not limited to, a copy of the EUR, the EUR factsheet, and all annual and five-year inspection reports. Any such transferee shall retain a copy of all such documents in accordance with subsection (c) of this section.

(C) If the nature or terms of a transfer make compliance with the 30-day deadline to provide documents in subparagraphs (A) and (B) of this subdivision impractical, the owner shall ensure that such documents are provided to the transferee prior to the transfer of an interest or ownership.

(D) Any transferee provided documents pursuant to this subdivision shall retain, in accordance with subsection (c) of this section, all such documents.

(2) Notwithstanding the requirements of subdivision (1) of this subsection, if ownership of a parcel, or part of a parcel, subject to an EUR is transferred by condemnation or foreclosure,

(A) The condemning or foreclosing entity shall use reasonable efforts, documented in writing, to obtain all documents whose preparation is required by the EUR regulations, including, but not limited to, a copy of the EUR, the EUR factsheet, and all annual and five-year inspection reports; and,

(B) Each time ownership of such parcel, or part of a parcel, is subsequently transferred, all documents obtained pursuant to subparagraph (A) of this subdivision, and all other documents whose preparation is required by the EUR regulations in the time after the foreclosure or condemnation, including, but not limited to, all annual and five-year inspection reports, shall be provided to the transferee pursuant to the process and deadlines in subdivision (1) of this subsection.

(3) Not later than 30 days after the transfer of ownership of a parcel, or a portion of a parcel, subject to an EUR, the transferee shall provide written notice of such transfer to the commissioner on a form prescribed by the commissioner.

(4) Upon the transfer of an interest in, including, but not limited to, ownership of a parcel, subject to a NAUL, the transferor shall incorporate such NAUL, in full or by reference, into the instrument of transfer.

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(e) **Review or Inspection of Records by Commissioner**

This section shall apply to all EURs, regardless of whether such EUR was recorded before, on, or after February 16, 2021:

(1) The commissioner may, at any time, request or review any record, document or report regarding an EUR, regardless of when such EUR was recorded. This includes, but is not limited to, a proposed or recorded EUR, any temporary or permanent release, termination, or any record, document or report related to a temporary allowable disturbance. The owner shall provide any such record, document or report to the commissioner upon request, within the time specified in any such request and if no timeframe is specified not more than 30 days after the receipt of a written request.

(2) The commissioner may inspect an EUR for compliance with the **[**RSRs**]**RBCRs and this section and may also observe on-site any activities associated with a temporary release or a temporary allowable disturbance.

(3) Nothing in this section shall affect the authority of the commissioner under any other statute or regulation, including, but not limited to, the authority to request records or information, or conduct an inspection.

(f) **Temporary Reduction of Fees and Exemption From Fees**

(1) For the period commencing on February 16, 2021 and ending two years after February 16, 2021, any fee required by the EUR regulations shall be one-half the amount specified in such regulations. On and after such period, any fee required by the EUR Regulations shall be the amount specified in such regulations.

(2) Notwithstanding any provisions of the EUR regulations, the following entities are exempt from payment of any fee required by the EUR regulations:

(A) The state or any political subdivision of the state;

(B) Any nonprofit organizations recognized under section 501(c)(3) of the Internal Revenue Code;

(C) Any municipal economic development agency or entity created or operating under chapter 130 or 132 of the Connecticut General Statutes; or

(D) Any person receiving federal, state, or municipal brownfields funding for investigation or remediation.

(g) **Court Ruling Regarding an EUR**

In the event that a court of competent jurisdiction rules that any portion of a recorded EUR is void or without effect, for any reason, no later than 45 days after any such ruling the owner of the subject parcel shall submit a copy of such restriction and such ruling to the commissioner. In this event, the owner shall comply with any schedule prescribed by the commissioner pursuant to section 22a-133r of the Connecticut General Statutes. "Ruling" for purposes of this section includes a ruling by a court, even if such ruling is the subject of an appeal.

Sec. 22a-133q-app1. Appendix 1

Appendix 1 to

Section 22a-133q-1 to Section 22a-133q-9 of the Regulations of Connecticut State Agencies

PROPOSED

Application Form of Environmental Land Use Restriction (ELUR) for Commissioner Approval
or

Licensed Environmental Professional's (LEP'S) Approval

Instructions: Any ELUR pursuant to the Environmental Use Restriction Regulations ("EUR regulations") shall be in the following form. This form shall be used for any ELUR approved by the Commissioner or a LEP pursuant to the EUR regulations. The appropriate information shall be inserted into the parentheses "{}". Instructions which are included in {parenthesis} and non-applicable options shall be deleted prior to signature.

<u>After Recording Return to:</u>

{Instructions - use current contact information -

Connecticut Department of Energy and Environmental Protection

Environmental Use Restriction Coordinator

Bureau of Water Protection and Land Reuse

Remediation Division

79 Elm Street

Hartford, Connecticut 06106-5127}

Re: {Remediation Division Identification Number}}

DECLARATION OF ENVIRONMENTAL LAND USE RESTRICTION AND GRANT OF EASEMENT

This Declaration of Environmental Land Use Restriction ("ELUR") and Grant of Easement is made this {day} day of {month}, {year}, between {Grantor's legal name} (the "Grantor") and the Commissioner of the Department of Energy and Environmental Protection of the State of Connecticut (the "Grantee").

W I T N E S S E T H:

WHEREAS, Grantor is the Owner in fee simple of certain real property (the "Property") described below:

Street address: {Street address of property}
City/Town: {City or Town of property}
State: Connecticut
Assessor's Map: {map designation or not applicable} And/or Assessors' Account Number {Assessors' Account Number or not applicable}

PROPOSED

Volume and Page of Deed: {Volume and Page of Deed}

A description of the Property is attached hereto as Exhibit A, which is made a part hereof; and

WHEREAS, this Declaration of Environmental Land Use Restriction and Grant of Easement ("ELUR") and associated exhibits identified herein, collectively represent the ELUR for the subject property, and

WHEREAS, the Grantee has the authority to enter into this ELUR pursuant to sections 22a-5, 22a-6, and 22a-133o et seq. of the Connecticut General Statutes and Section 22a-133q-1 to 22a-133q-9, inclusive, of the Regulations of Connecticut State Agencies ("EUR regulations"); and

{Instructions: Select the language for Commissioner approval or for LEP approval, if eligible pursuant to section 22a-133y of the Connecticut General Statutes and 22a-133q-2(f) of the Regulations of Connecticut State Agencies, and delete the non-applicable option.}

{Language for Commissioner approval}

WHEREAS, the Grantee has determined that the ELUR set forth below is consistent with regulations adopted pursuant to section **[**22a-133k**]**22a-134tt of the Connecticut General Statutes; and

WHEREAS, the Grantee has determined that this ELUR will effectively protect human health and the environment from the hazards of pollution on the property; and

WHEREAS, the Grantee's written acceptance of this ELUR is evidenced by the signature of the Commissioner or Commissioner's designee below.

{Language for LEP approval pursuant to section 22a-133y of the Connecticut General Statutes and 22a-133q-2(f) of the Regulations of Connecticut State Agencies}

WHEREAS, section 22a-133y of the Connecticut General Statutes includes provisions for the approval of an ELUR by a LEP;

WHEREAS, the LEP whose signature appears below has determined that the ELUR set forth below is consistent with the EUR regulations, section 22a-133q-1 to 22a-133q-9, inclusive, of the Regulations of Connecticut State Agencies, adopted pursuant to section **[**22a-133k**]**22a-134tt and section 22a-133o of the Connecticut General Statutes; and

WHEREAS, the Grantee's written approval of this ELUR is evidenced by the signature and seal of the LEP below; and

WHEREAS, the LEP whose signature and seal appears below and in the EUR opinion attached hereto as Exhibit B has determined that this ELUR will effectively protect human health and the environment from the hazards of pollution.

WHEREAS, the EUR opinion attached hereto as Exhibit B which is made a part hereof, includes the information required by section 22a-133q-5 of the Regulations of Connecticut State Agencies.

WHEREAS, the Property or portion thereof that is subject to this ELUR (the "Subject Area") and identified in the survey attached hereto as Exhibit C which is made a part hereof, contains pollutants; and

PROPOSED

WHEREAS, to prevent exposure to, or migration of, such pollutants and to abate hazards to human health and the environment, and in accordance with the EUR opinion, the Grantor desires to impose certain restrictions upon the use, occupancy, and activities of and at the Subject Area, and to grant this ELUR to the Grantee on the terms and conditions set forth below; and

WHEREAS, Grantor intends that such restrictions shall run with the land and be binding upon and enforceable against Grantor and Grantor's successors and assigns;

NOW, THEREFORE, Grantor agrees as follows:

1. Purpose. In accordance with the EUR opinion, the purpose of this ELUR is to assure that the use and activity at the Property and the Subject Area is restricted, obligations are carried out, and conditions maintained in accordance with the requirements of the EUR opinion, attached hereto as Exhibit B.

2. Restrictions and Obligations Applicable to the Subject Area. In furtherance of the purposes of this ELUR, Grantor shall assure that use, occupancy, and activity of and at the Subject Area are conducted in accordance with the EUR opinion attached hereto as Exhibit B. The Grantor shall fulfill the obligations and maintain the conditions necessary to meet the objectives of the ELUR in accordance with the requirements of the EUR opinion attached hereto as Exhibit B. Such restrictions shall remain in effect unless and until a release is obtained under paragraph 5 below.

3. Except as provided in paragraphs 4 and 5 below, no action shall be taken, allowed, suffered, or omitted if such action or omission is reasonably likely to:

i. Create a risk of migration of pollutants or a potential hazard to human health or the environment; or

ii. Result in a disturbance of the integrity of any engineered controls or remedies designed or utilized at the Subject Area to contain pollutants or limit human exposure to pollutants.

4. Emergencies. In the event of an unforeseen combination of circumstances or the resulting state that calls for immediate action to prevent a significant risk to human health or the environment, the destruction of property, or the disruption of public utility service, the application of paragraphs 2 and 3 above may be suspended, provided such risk cannot be abated without suspending said paragraphs and the Grantor:

i. Immediately notifies the Grantee of the emergency;

ii. Limits both the extent and duration of the suspension to the minimum reasonably necessary to adequately respond to the emergency;

iii. Implements all measures necessary to limit actual and potential present and future risk to human health and the environment resulting from such suspension; and

iv. After the emergency is abated, implements a plan approved in writing by the Grantee, on a schedule approved by the Grantee, to ensure that the Subject Area is remediated in accordance with sections **[**22a-133k**]**22a-134tt-7 to **[**22a-133k**]**22a-134tt-10, inclusive, of the Regulations of Connecticut State Agencies and restored to the condition described in the ELUR.

5. Release of ELUR; Temporary Allowable Disturbance. Except as provided in paragraph 4, the Grantor shall not make, or allow or suffer to be made, any alteration of any kind in, to, or about any portion of any Subject Area inconsistent with this ELUR unless and until, either:

i. A Temporary Allowable Disturbance is implemented in accordance with section 22a-133q-6 of the Regulations of Connecticut State Agencies, or

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ii. A release has been approved by the Grantee in accordance with section 22a-133q-7 of the Regulations of Connecticut State Agencies.

6. Grant of Easement to the Grantee. Grantor hereby grants and conveys to the Grantee, the Grantee's agents, contractors, and employees, and to any person performing pollution remediation activities under the direction thereof, a non-exclusive easement (the "Easement") over the Subject Area and over such other parts of the Property as are necessary for access to the Subject Area or for carrying out any actions to abate a threat to human health or the environment associated with the Subject Area. Pursuant to this Easement, the Grantee, the Grantee's agents, contractors, and employees, and any person performing pollution remediation activities under the direction thereof, may enter upon and inspect the Property and perform such investigations and actions as the Grantee deems necessary for any one or more of the following purposes:

i. Ensuring that use, occupancy, and activities of and at the Property are consistent with this ELUR;

ii. Ensuring that any remediation implemented complies with sections **[**22a-133k**]**22a-134tt-7 to **[**22a-133k**]**22a-134tt-10, inclusive, of the Regulations of Connecticut State Agencies;

iii. Performing any additional investigations or remediation necessary to protect human health and the environment;

iv. Ensuring that the Grantor is fulfilling the obligations of the ELUR and maintaining the conditions necessary to meet the purposes of the ELUR; and

v . Ensuring the structural integrity of any engineered controls described in Exhibit B and their continuing effectiveness in containing pollutants and limiting human exposure to pollutants.

7. Notice and Time of Entry onto Property. Entry onto the Property by the Grantee pursuant to this Easement shall be upon reasonable notice and at reasonable times, provided that entry shall not be subject to these limitations if the Grantee determines that immediate entry is necessary to protect human health or the environment.

8. Notice to Lessees and Other Holders of Interests in the Property. Grantor, or any future holder of any interest in the property, shall cause any lease, grant, or other transfer of any interest in the Property to include a provision expressly requiring the lessee, grantee, or transferee to comply with this ELUR. The failure to include such provision shall not affect the enforceability, validity or applicability to the Property of this ELUR.

9. At least 30 days prior to transferring an interest in the property, the Grantor shall submit to the potential purchaser a complete copy of the EUR and copies of all documents required to be retained by the Owner pursuant to section 22a-133q-9 of the Regulations of Connecticut State Agencies.

10. Persons Entitled to Enforce Restrictions. The restrictions in this ELUR on use, occupancy, and activity of and at the Property shall be enforceable in accordance with section 22a-133p of the Connecticut General Statutes.

11. Severability and Termination. If any court of competent jurisdiction determines that any provision of this ELUR is invalid or unenforceable, such provision shall be deemed to have been modified automatically to conform to the requirements for validity and enforceability as determined by such court. In the event that the provision invalidated is of such nature that it cannot be so modified, the provision shall be deemed deleted from this instrument as though it had never been included herein. In either case, the remaining provisions of this instrument shall remain in

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full force and effect. Further, in either case, the Grantor shall submit a copy of this restriction and of the Judgment of the Court to the Grantee.

12. Binding Effect. All of the terms, covenants and conditions of this ELUR shall run with the land and shall be binding on the Grantor, the Grantor's successors and assigns, and any other party entitled to possession or use of the Property during such period of ownership or possession.

13. Terms Used Herein. The definitions of terms used herein shall be the same as the definitions contained in sections **[**22a-133k-1**]**22a-134tt-1 and 22a-133q-1 of the Regulations of Connecticut State Agencies as said sections existed on the date of execution of this ELUR.

14. Burden of Proof. With respect to any claim or cause of action asserted by the Grantee against the Grantor under this ELUR, the Grantor shall bear the burden of proving that any activities at the subject area do not or will not violate the restrictions imposed by this ELUR, that the obligations of the ELUR have been carried out, and that conditions at the Subject Area have been maintained in accordance with the requirements of the EUR opinion. The Grantor, or its successors in interest, shall be responsible for demonstrating that use on the property is in conformity with the ELUR.

15. Inspections. The Grantor or its successors and assigns shall perform or cause to be performed the inspections required by section 22a-133q-8 of the Regulations of Connecticut State Agencies. If the required inspection indicates non-compliance with the ELUR, the Grantor or its successors and assigns shall take the action required by section 22a-133q-8 of the Regulations of Connecticut State Agencies.

16. Non-Waiver. No failure on the part of the Grantee at any time to require performance of any term of this ELUR shall be taken or held to be a waiver of such term or in any way affect the Grantee's rights to enforce such term.

17. Nothing in this ELUR shall affect the Grantee's authority to institute any proceeding, or take any action to prevent or abate pollution, to recover costs and natural resource damages, and to impose penalties for violations of law or violations of this ELUR. If at any time the Grantee determines that the ELUR does not protect human health and the environment from the hazards of pollution, the Grantee may institute any proceeding, or take any action to require further investigation or further action to prevent or abate pollution. The approval of this ELUR relates only to pollution or contamination identified in the EUR opinion attached hereto as Exhibit B of this ELUR.

18. The Grantor shall retain copies of all documents related to this ELUR as required by section 22a-133q-9 of the Regulations of Connecticut State Agencies.

19. DEEP Contact Information. Any document required to be submitted to DEEP pursuant to this ELUR shall, unless otherwise specified in writing by DEEP, be directed to:

{Instructions- Use Current Contact Information}

{Connecticut Department of Energy and Environmental Protection

Environmental Use Restriction Coordinator

Bureau of Water Protection and Land Reuse

Remediation Division

79 Elm Street

PROPOSED

Hartford, Connecticut 06106-5127

Re: {Remediation Division Identification Number}}

Signature Page Follows

By signing below the undersigned certifies that:

i. He or she is fully authorized to sign this ELUR.

ii. The Grantor has the power and authority to enter into this ELUR, to grant the restrictions, fulfill the obligations, and maintain the conditions necessary to meet the objectives of the ELUR in accordance with the requirements of the EUR opinion attached hereto and made a part hereof as Exhibit B.

In witness whereof, the undersigned has/have executed this ELUR this {Day} day of {Month}, {Year}.

{Select Applicable Signature Block, and delete the non-applicable signature blocks}

If for an individual:

Witnessed by:	
{Signature of witness 1}	{Signature of Grantor}
{Printed or typed name of witness 1}	{Printed or typed name of Grantor}
{Signature of witness 2}	
{Printed or typed name of witness 2}	

If for an entity:

Witnessed by:	{Grantor's Name}
{Signature of witness 1}	By:_____
{Printed or typed name of witness 1}	{Printed or typed name of the authorized signatory for the entity}
	Its duly authorized {Title of the authorized signatory for the entity}
{Signature of witness 2}	
{Printed or typed name of witness 2}	

Mailing Address:

Street Address: {Street Address}

PROPOSED

City/Town: {City or Town}

State and Zip Code: {State and Zip Code}

{Notarization Language for Grantor Acknowledgement - select appropriate notarization language from one of the choices below and delete the non-applicable notarization language.}

If the Grantor is an individual:

State of {_____}

County of {_____}

On this {date} day of {month}, {year} before me, {name of notary or Commissioner of the Superior Court} the undersigned officer, personally appeared {name of individual or individuals}, known to me (or satisfactorily proven) to be the person(s) whose name(s) {choose is or are} subscribed to the within instrument and acknowledged that {he/she/they} executed the same for the purposes therein contained.

In witness whereof I hereunto set my hand.

{Choose Notary Public or Commissioner of the Superior Court} Date Commission Expires {date}

OR

If the Grantor is a Corporation:

State of {_____}

County of {_____}

On this {date} day of {month}, {year} before me, {name of notary or Commissioner of the Superior Court}, the undersigned officer, personally appeared {name of officer}, who acknowledged himself /herself to be the {title of officer} of {name of corporation}, a corporation, and that he/she, as such {title of officer}, being authorized to do so, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by himself/herself as {title of officer}.

In witness whereof I hereunto set my hand.

{Choose Notary Public or Commissioner of the Superior Court} Date Commission Expires {date}

OR

If the Grantor is a Limited Liability Company:

State of {_____}

County of {_____}

On this {date}day of {month}, {year} before me, {name of notary or Commissioner of the Superior Court}, the undersigned officer, personally appeared {name of officer}, who acknowledged himself/herself to be the {title of officer} of {name of limited liability company}, a (member managed or manager managed) limited liability company, and that he/she, as such {title of officer}, being authorized to do so, executed the foregoing instrument for the purposes therein

PROPOSED

contained, by signing the name of the limited liability company by himself/herself as {title of officer}.

In witness whereof I hereunto set my hand.

{Choose Notary Public or Commissioner of the Superior Court} Date Commission Expires {date}

OR

If the Grantor is any other type of entity, provide appropriate language for the Grantor Entity below:

{insert appropriate certification language for an Acknowledgement as specified in Section 1- 34 of the Connecticut General Statutes}

{Grantee Signature Block - select one of the two choices below, as applicable and delete the non- applicable option.}

{This choice is used for all ELURs except those approved pursuant to section 22a-133y of the Connecticut General Statutes.}

Grantee: The Grantee, the Commissioner of Energy and Environmental Protection or by the Commissioner's designee, {name and title.}
By:{signature of the Commissioner or the Commissioner's designee}
Date: {date of signature}
Name: {printed or typed name of Commissioner or Commissioner's designee}
Its Duly Authorized: {title of Commissioner or Commissioner's designee}
Mailing Address {use current contact information}:
{Connecticut Department of Energy and Environmental Protection
Environmental Use Restriction Coordinator
Bureau of Water Protection and Land Reuse
Remediation Division
79 Elm Street
Hartford, Connecticut 06106-5127
Re: {Remediation Division Identification Number}}

{This choice is used solely for ELUR approved pursuant to section 22a-133y of the Connecticut General Statutes}

Grantee: The Grantee, the Commissioner of Energy and Environmental Protection, by the undersigned LEP as authorized pursuant to section 22a-133y of the Connecticut General Statutes. LEP, duly authorized, for Grantee, the Commissioner of Energy and Environmental Protection:
By:{Signature of the LEP}
Date: {Date of signature}
Name: {Printed or typed name of LEP}

PROPOSED

LEP, duly authorized, pursuant to section 22a-133y of the Connecticut General Statutes

Grantee Mailing Address {use current contact information}:
{Connecticut Department of Energy and Environmental Protection
Environmental Use Restriction Coordinator
Bureau of Water Protection and Land Reuse
Remediation Division
79 Elm Street
Hartford, Connecticut 06106-5127
Re: {Remediation Division Identification Number}}
Information for LEP, duly authorized:
Name: {name of LEP}
License Number: {License Number}
Title, if applicable: {Title}
Company, if applicable: {Name of Company}
Mailing Address:
Street Address, City/Town, State, Zip Code: {Street Address, City/Town, State, and Zip Code}
Witnesses:
{Signature }
Signature
{Printed/typed name }
Printed/typed name
{Signature }
Signature
{Printed/typed name }
Printed/typed name

Instructions Notarization Language for LEP, duly authorized:
State of {_____}
County of {_____}
On this {date} day of {month}, {year} before me, {name of notary or Commissioner of the Superior Court} the undersigned officer, personally appeared {name of individual or individuals}, known to me (or satisfactorily proven) to be the person(s) whose name(s) {choose is or are} subscribed to the within instrument and acknowledged that {he/she/they} executed the same for the purposes therein contained.
In witness whereof I hereunto set my hand.
{Choose Notary Public or Commissioner of the Superior Court}
Date Commission Expires {date}

PROPOSED

Sec. 22a-133q-app2. Appendix 2

Appendix 2 to

Section 22a-133q-1 to Section 22a-133q-9 of the Regulations of Connecticut State Agencies

Application Form of Notice of Activity and Land Use Restriction (NAUL)

For Commissioner's or Licensed Environmental Professional's (LEP's) Approval

Instructions: Any NAUL pursuant to Environmental Use Restriction Regulations ("EUR regulations") shall be in the following application form. This form shall be used for any NAUL approved by the Commissioner or a LEP pursuant to the EUR regulations. The appropriate information shall be inserted into the parentheses "{}". Instructions which are included in {parenthesis} and non-applicable options shall be deleted prior to signature.

After Recording Return to:

{Instructions- use current contact information -

Connecticut Department of Energy and Environmental Protection

Environmental Use Restriction Coordinator

Bureau of Water Protection and Land Reuse

Remediation Division

79 Elm Street

Hartford, Connecticut 06106-5127

Re: {Remediation Division Identification Number}}

DECLARATION OF NOTICE OF ACTIVITY AND USE LIMITATION

This Declaration of Notice of Activity and Use Limitation ("NAUL") is made this {day} day of {month}, {year}, by {Owner's legal name} (the "Owner").

W I T N E S S E T H:

WHEREAS, {Name of property Owner(s)}, is/are the Owner(s) in fee simple of certain real property (the "Property") described below:

Street address: {Street address of property}
City/Town: {City or Town of property}
State: Connecticut
Assessor's Map: {Map Designation or Not Applicable}

PROPOSED

And/or Assessors' Account Number {Assessors' Account Number or Not Applicable}
Volume and Page of Deed: {Volume and Page of Deed}

A description of the Property is attached hereto as Exhibit A, and which is made a part hereof; and

WHEREAS, the NAUL and associated exhibits identified herein, collectively represent the NAUL for the Property, and

WHEREAS, the LEP has the authority to sign and seal this NAUL pursuant to section 22a-133o of the Connecticut General Statutes and section 22a-133q-3 of the Regulations of Connecticut State Agencies; and the Commissioner of Energy and Environmental Protection ("Commissioner") has the authority to sign this NAUL pursuant to sections 22a-5, 22a-6, and 22a-133o of the Connecticut General Statutes; and

WHEREAS, remediation of the Property has been conducted in accordance with section **[**22a-133k**]**22a-134tt of the Connecticut General Statutes; and

{Instructions: select the language for Commissioner approval or for LEP, as applicable and delete the non-applicable option}

{Language for Commissioner approval} WHEREAS, the Commissioner has determined that the NAUL set forth below is consistent with regulations adopted pursuant to section **[**22a-133k**]**22a-134tt of the Connecticut General Statutes; and WHEREAS, the Commissioner has determined that this NAUL will effectively protect human health and the environment from the hazards of pollution on the property; and

WHEREAS, the Commissioner's written approval of this NAUL is evidenced by the signature of the Commissioner or the Commissioner's designee below.

{Language for LEP approval} WHEREAS, the LEP whose signature appears below has determined that the NAUL set forth below is consistent with the EUR regulations, sections 22a-133**[**a**]**q-1 to 22a-133q-9, inclusive, of the Regulations of Connecticut State Agencies adopted pursuant to section **[**22a-133k**]**22a-134tt and section 22a-133o of the Connecticut General Statutes; and WHEREAS, the written approval of this NAUL is evidenced by the signature and seal of the LEP below; and WHEREAS, the LEP whose signature and seal appears below and in the EUR opinion attached hereto as Exhibit B has determined that this NAUL will effectively protect human health and the environment from the hazards of pollution.

PROPOSED

WHEREAS, the EUR opinion attached hereto as Exhibit B which is made a part hereof, includes the information required by section 22a-133q-5 of the Regulations of Connecticut State Agencies.

WHEREAS, the Property or portion thereof that is subject to this NAUL ("the Subject Area") and identified in the survey attached hereto as Exhibit C which is made a part hereof, contains pollutants; and

WHEREAS, to prevent exposure to, or migration of, such pollutants and to abate hazards to human health and the environment, and in accordance with the EUR opinion, the Owner desires to implement a NAUL to provide notice of the presence of pollution at the Subject Areas; and

WHEREAS, as required by section 22a-133o of the Connecticut General Statutes, the Owner and subsequent Owners of interests in the property or those Owners of interests who have signed the NAUL, such Owners' successors and assigns, and any person who has a license to use such Property or to conduct remediation on any portion of such Property shall adhere to the NAUL; and

NOW, THEREFORE, the Owner desires to implement this NAUL as follows:

1. Purpose. The provisions of this NAUL are set forth in the EUR opinion, attached hereto as Exhibit B.

2. Restrictions and Obligations Applicable to the Subject Area. In furtherance of the purposes of this NAUL, the Owner shall assure that use, occupancy, and activity of and at the Subject Area are conducted in accordance with the requirements of the EUR opinion, attached hereto as Exhibit B. The Owner shall fulfill the obligations and maintain the conditions necessary to meet the objectives of the NAUL in accordance with the requirements of the EUR opinion, attached hereto as Exhibit B. Such restrictions shall remain in effect unless and until a release is obtained under paragraph 5 below.

3. Except as provided in paragraphs 4 and 5 below, no action shall be taken, allowed, suffered, or omitted if such action or omission is reasonably likely to:

i. Create a risk of migration of pollutants or potential hazard to human health or the environment; or

ii. Result in a disturbance of the integrity of any engineered controls or remedies designed or utilized at the Subject Area to contain pollutants or limit human exposure to pollutants.

4. Emergencies. In the event of an unforeseen combination of circumstances or the resulting state that calls for immediate action to prevent a significant risk to human health or the environment, the destruction of property, or the disruption of public utility service, the application of paragraphs 2 and 3 above may be suspended, provided such risk cannot be abated without suspending said paragraphs and the Owner:

i. Immediately notifies the Department of Energy and Environmental Protection ("DEEP") of the emergency;

ii. Limits both the extent and duration of the suspension to the minimum reasonably necessary to adequately respond to the emergency;

iii. Implements all measures necessary to limit actual and potential present and future risk to human health and the environment resulting from such suspension; and

PROPOSED

iv. After the emergency is abated, implements a plan approved in writing by a LEP or the Commissioner, on a schedule approved by the LEP or the Commissioner, to ensure that the Subject Area is remediated in accordance with sections [22a-133k-1]22a-134tt-7 to [22a-133k-3]22a-134tt-10, inclusive, of the Regulations of Connecticut State Agencies and restored to the condition described in the NAUL.

5. Release of NAUL; Temporary Allowable Disturbance. Except as provided in paragraph 4, the Owner shall not make, or allow or suffer to be made, any alteration of any kind in, to, or about any portion of any Subject Area inconsistent with this NAUL unless and until, either:

i. A temporary allowable disturbance is implemented in accordance with section 22a-133q-6 of the Regulations of Connecticut State Agencies, or

ii. A release has been approved in accordance with section 22a-133q-7 of the Regulations of Connecticut State Agencies.

6. Commissioner's Right of Access. The Owner shall grant access to the property to the Commissioner as required by section 22a-133q-9(e) of the Regulations of Connecticut State Agencies.

7. Notice and Time of Entry onto Property. Entry onto the Property by the Commissioner shall be upon reasonable notice and at reasonable times, provided that entry shall not be subject to these limitations if the Commissioner determines that immediate entry is necessary to protect human health or the environment.

8. Incorporation of NAUL in Other Documents. As required by section 22a-133o of the Connecticut General Statutes, upon transfer of any interest in or a right to use property, or a portion of property that is subject to a NAUL, the Owner of such land, any lessee of such land and any person who has the right to subdivide or sublease such property, shall incorporate such notice in full or by reference into all future deeds, easements, mortgages, leases, licenses, occupancy agreements and any other instrument of transfer provided the failure to incorporate such notice shall not affect the enforceability, validity or applicability of any such NAUL. Within 30 days of transfer of any interest in, or right to use the Property, or portion of property subject to a NAUL, the Owner shall submit notice to the Commissioner on a form prescribed by the Commissioner.

9. At least 30 days prior to transferring an interest in the property, the Owner shall submit to the potential purchaser a complete copy of the EUR and copies of all documents required to be retained by the Owner pursuant to section 22a-133q-9 of the Regulations of Connecticut State Agencies.

10. Persons Entitled to Enforce Restrictions. The restrictions in this NAUL on use, occupancy, and activity of and at the Property shall be enforceable in accordance with section 22a-133p of the Connecticut General Statutes.

11. Severability and Termination. If any court of competent jurisdiction determines that any provision of this NAUL is invalid or unenforceable, the provisions of section 22a-133q-3 of the Regulations of Connecticut State Agencies and section 22a-133r of the Connecticut General Statutes shall apply.

12. Binding Effect. All of the terms, covenants and conditions of this NAUL shall be binding on those who are bound by the operation of section 22a-133o of the Connecticut General Statutes.

PROPOSED

13. Terms Used Herein. The definitions of terms used herein shall be the same as the definitions contained in sections [22a-133k-1]22a-134tt-1 and 22a-133q-1 of the Regulations of Connecticut State Agencies as such sections existed on the date of execution of this NAUL.

14. Burden of Proof. With respect to any claim or cause of action asserted by the Commissioner against the Owner under this NAUL, the Owner shall bear the burden of proving that any activities at the Subject Area do not or will not violate the restrictions imposed by this NAUL, that the obligations of the NAUL have been carried out, and that conditions at the Subject Area have been maintained in accordance with the requirements of the EUR opinion. The Owner, or its successors in interest, shall be responsible for demonstrating that use on the Property is in conformity with the NAUL.

15. Inspections. The Owner or its successors and assigns shall perform or cause to be performed the inspections required by section 22a-133q-8 of the Regulations of Connecticut State Agencies. If the required inspection indicates non-compliance with the NAUL, the Owner or his successors and assigns shall take the action required by section 22a-133q-8 of the Regulations of Connecticut State Agencies.

16. Non-Waiver. No failure on the part of the Commissioner at any time to require performance of any term of this NAUL shall be taken or held to be a waiver of such term or in any way affect the Commissioner's rights to enforce such term.

17. Foreclosure of a Mortgage, Lien, or other Encumbrance. If a NAUL is extinguished by foreclosure of a mortgage, lien or other encumbrance, the requirement of section 22a-133o(c)(8) of the Connecticut General Statutes shall apply.

18. Nothing in this NAUL shall affect the Commissioner's authority to institute any proceeding, or take any action to prevent or abate pollution, to recover costs and natural resource damages, and to impose penalties for violations of law or violations of this NAUL. If at any time the Commissioner determines that the NAUL does not protect human health and the environment from the hazards of pollution, the Commissioner may institute any proceeding, or take any action to require further investigation or further action to prevent or abate pollution. The approval of this NAUL relates only to pollution or contamination identified in the EUR opinion attached hereto as Exhibit B of this NAUL.

19. The Owner shall retain copies of all documents required by section 22a-133q-9 of the Regulations of Connecticut State Agencies.

20. DEEP Contact Information: Any document required to be submitted to DEEP pursuant to this NAUL shall, unless otherwise specified in writing by DEEP, be directed to:

{Instructions- use current contact information}

{Connecticut Department of Energy and Environmental Protection

Environmental Use Restriction Coordinator

Bureau of Water Protection and Land Reuse

Remediation Division

79 Elm Street

Hartford, Connecticut 06106-5127

Re: {Remediation Division Identification Number}}

PROPOSED

By signing below, the undersigned certifies that:

a. He or she is fully authorized to sign this NAUL;

b. The Owner has the power and authority to enter into this NAUL to grant the restrictions, fulfill the obligations, and maintain the conditions necessary to meet the objectives of the NAUL in accordance with the requirements of the EUR opinion attached hereto and made a part as Exhibit B;

c. The Owner has identified all other parties that hold any interest (e.g., encumbrance) in the Property and notified such parties of the Owner's intention to enter into this NAUL in accordance with section 22a-133o of the Connecticut General Statutes;

In witness whereof, I/we, {Owner's name}, have hereunto set my/our hands this {day} day of {month}, {year}.

{Select Applicable Signature Block, and delete the non-applicable signature blocks}

If for an individual:

Witnessed by:	
{Signature of Witness 1}	{Signature of Owner}
{Printed or Typed Name of Witness 1}	{Printed or Typed Name of Owner}
{Signature of Witness 2}	
{Printed or Typed Name of Witness 2}	

If for an entity:

Witnessed by:	{Owner's Name}
	By:_____
{Signature of Witness 1}	{Printed or Typed Name of the Authorized Signatory for the Entity}
{Printed or Typed Name of Witness 1}	Its duly authorized {Title of the Authorized Signatory for the Entity}
{Signature of Witness 2}	
{Printed or Typed Name of Witness 2}	

PROPOSED

Mailing Address:

Street Address: {Street Address}

City/Town: {City or Town}

State and Zip Code {State and Zip Code}

{Notarization Language for Owner Acknowledgement - select appropriate notarization language from one of the choices below and delete the non-applicable notarization language.}

If the Owner is an individual:

State of {_____}

County of {_____}

On this {date} day of {month}, {year} before me, {name of notary or Commissioner of the Superior Court} the undersigned officer, personally appeared {name of individual or individuals}, known to me (or satisfactorily proven) to be the person(s) whose name(s) {choose is or are} subscribed to the within instrument and acknowledged that {he/she/they} executed the same for the purposes therein contained.

In witness whereof I hereunto set my hand.

{Choose Notary Public or Commissioner of the Superior Court} Date Commission Expires {date}

OR

If the Owner is a Corporation:

State of {_____}

County of {_____}

On this {date} day of {month}, {year} before me, {name of notary or Commissioner of the Superior Court}, the undersigned officer, personally appeared {name of officer}, who acknowledged himself /herself to be the {title of officer} of {name of corporation}, a corporation, and that he/she, as such {title of officer}, being authorized to do so, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by himself/herself as {title of officer}.

In witness whereof I hereunto set my hand.

{Choose Notary Public or Commissioner of the Superior Court} Date Commission Expires {date}

OR

If the Owner is a Limited Liability Company:

State of {_____}

County of {_____}

On this {date}day of {month}, {year} before me, {name of notary or Commissioner of the Superior Court}, the undersigned officer, personally appeared {name of officer}, who

PROPOSED

acknowledged himself/herself to be the {title of officer} of {name of limited liability company}, a (member managed or manager managed) limited liability company, and that he/she, as such {title of officer}, being authorized to do so, executed the foregoing instrument for the purposes therein contained, by signing the name of the limited liability company by himself/herself as {title of officer}.

In witness whereof I hereunto set my hand.

{Choose Notary Public or Commissioner of the Superior Court} Date Commission Expires {date}

OR

{If the Owner is any other type of entity, provide appropriate language for the Owner Entity below}

{insert appropriate certification language for an Acknowledgement as specified in Section 1-34 of the Connecticut General Statutes}

{Instructions – DEEP Signature Block - Select one of the two choices below, as applicable and delete the non-applicable option.}

{This choice is used for NAULs approved by the Commissioner}

DEEP: The Commissioner of Energy and Environmental Protection or by the Commissioner's designee
By: {signature of the Commissioner or Commissioner's designee}
Date: {date of signature}
Name: {printed or typed name of Commissioner or Commissioner's designee}
Its Duly Authorized: {title of Commissioner or Commissioner's designee}
Mailing Address {use current contact information}:
{Connecticut Department of Energy and Environmental Protection
Environmental Use Restriction Coordinator
Bureau of Water Protection and Land Reuse
Remediation Division
79 Elm Street
Hartford, Connecticut 06106-5127
Re: {Remediation Division Identification Number}}

{**This choice is used solely for NAULs approved by a LEP** pursuant to section 22a-133o(c)(5)(B) of the Connecticut General Statutes and 22a-133q-3 of the Regulations of Connecticut State Agencies.**}**

DEEP: The Commissioner of Energy and Environmental Protection, by the undersigned LEP pursuant to section 22a-133o(c)(5)(B) of the Connecticut General Statutes and 22a-133q-3 of the Regulations of Connecticut State Agencies.
LEP, duly authorized, for the Commissioner of Energy and Environmental Protection: By: {signature of the LEP}

PROPOSED

Date: {date of signature} Name: {printed or typed name of LEP} LEP, duly authorized, pursuant to section 22a-133o(c)(5)(B) of the Connecticut General Statutes and 22a-133q-3 of the Regulations of Connecticut State Agencies.
DEEP Mailing Address: {Connecticut Department of Energy and Environmental Protection Environmental Use Restriction Coordinator Bureau of Water Protection and Land Reuse Remediation Division 79 Elm Street Hartford, Connecticut 06106-5127 Re: {Remediation Division Identification Number}} Information for LEP, duly authorized: Name: {name of LEP} License Number: {License Number} Title, if applicable: {title} Company, if applicable: {name of Company} Mailing Address: Street Address, City/Town, State, Zip Code: {Street Address, City/Town, State, and Zip Code} Witnesses: {Signature } Signature {Printed/typed name } Printed/typed name {Signature } Signature {Printed/typed name } Printed/typed name

Instructions Notarization Language for LEP, duly authorized: State of {_____} County of {_____} On this {date} day of {month}, {year} before me, {name of notary or Commissioner of the Superior Court} the undersigned officer, personally appeared {name of individual or individuals}, known to me (or satisfactorily proven) to be the person(s) whose name(s) {choose is or are} subscribed to the within instrument and acknowledged that {he/she/they} executed the same for the purposes therein contained. In witness whereof I hereunto set my hand. {Choose Notary Public or Commissioner of the Superior Court} Date Commission Expires {insert date}

Owner of an Interest:

PROPOSED

{Select the following signature block when an Owner of an interest signs a NAUL pursuant to section 22a-133o of the Connecticut General Statutes and section 22a-133q-3 of the Regulations of Connecticut State Agencies and delete the non-applicable signature blocks.}

{Name of Owner} is the Owner of an interest which conflicts with the conditions or purposes of this notice, executed on {date} and recorded at {volume and page} of the {name of municipality} land records. By signing this NAUL, {Name of Owner} hereby agrees to subject such interest to the conditions or purposes described herein, pursuant to Conn. Gen. Stat. § 22a-133o(6).

By signing below, the undersigned certifies that he or she is fully authorized to sign this NAUL.

If for an individual:

Witnessed by:	
{Signature of Witness 1}	{Signature of Owner}
{Printed or Typed Name of Witness 1}	{Printed or Typed Name of Owner}
{Signature of Witness 2}	
{Printed or Typed Name of Witness 2}	

OR

If for an entity:

Witnessed by:	{Owner's Name}
{Signature of Witness 1}	By:
{Printed or Typed Name of Witness 1}	{Printed or Typed name of the Authorized Signatory for the Entity}
	Its Duly Authorized {Title of the Authorized Signatory for the Entity}
{Signature of Witness 2}	
{Printed or Typed Name of Witness 2}	

Mailing Address:

Street Address: {Street Address}

City/Town: {City or Town}

PROPOSED

State and Zip Code: {State and Zip Code}

{Notarization Language for Owner Acknowledgement - select appropriate notarization language from one of the choices below and delete the non-applicable notarization language.}

If the Owner is an individual:

State of {_____}

County of {_____}

On this {date} day of {month}, {year} before me, {name of notary or Commissioner of the Superior Court} the undersigned officer, personally appeared {name of individual or individuals}, known to me (or satisfactorily proven) to be the person(s) whose name(s) {choose is or are} subscribed to the within instrument and acknowledged that {he/she/they} executed the same for the purposes therein contained.

In witness whereof I hereunto set my hand.

{Choose Notary Public or Commissioner of the Superior Court} Date Commission Expires {date}

OR

If the Owner is a Corporation:

State of {_____}

County of {_____}

On this {date} day of {month}, {year} before me, {name of notary or Commissioner of the Superior Court}, the undersigned officer, personally appeared {name of officer}, who acknowledged himself /herself to be the {title of officer} of {name of corporation}, a corporation, and that he/she, as such {title of officer}, being authorized to do so, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by himself/herself as {title of officer}.

In witness whereof I hereunto set my hand.

{Choose Notary Public or Commissioner of the Superior Court}

Date Commission Expires {date}

OR

If the Owner is a Limited Liability Company:

State of {_____}

County of {_____}

On this {date}day of {month}, {year} before me, {name of notary or Commissioner of the Superior Court}, the undersigned officer, personally appeared {name of officer}, who acknowledged himself/herself to be the {title of officer} of {name of limited liability company}, a (member managed or manager managed) limited liability company, and that he/she, as such {title of officer}, being authorized to do so, executed the foregoing instrument for the purposes therein contained, by signing the name of the limited liability company by himself/herself as {title of officer}.

PROPOSED

In witness whereof I hereunto set my hand.

{Choose Notary Public or Commissioner of the Superior Court} Date Commission Expires {date}

OR

{If the Owner is any other type of entity, provide appropriate language for the Owner Entity below:

{insert appropriate certification language for an Acknowledgement as specified in Section 1- 34 of the Connecticut General Statutes}

PROPOSED

Statement of Purpose:

The proposed regulations establish new Release Based Cleanup Regulations or "RBCRs", sections 22a-134tt-1 through 22a-134tt-13, and sections 22a-134tt-App-1 to 22a-134tt-App12, inclusive, of the Regulations of Connecticut State Agencies. The proposed regulations are guided by the requirements in Public Act 20-9 (codified at chapter 445b of the Connecticut General Statutes), which set forth the process to transition the state from a transfer-based approach to property remediation to a release-based cleanup approach. The purpose of the proposed regulations is to aid cleanup and redevelopment without compromising the protection of human health and the environment by requiring a person who created or maintains a release to the lands and waters of the state to report and remediate the release upon discovery.

In 1985, Connecticut adopted the Transfer Act, which requires parcel-wide investigation of all areas that might have had releases. The Transfer Act applies only to parcels designated as "establishments" based on their historical or current land use, and only at the time a parcel or a business operating thereon is transferred. As a result, not all polluted parcels are treated equally. Further, experience reveals that those properties in the Transfer Act program can languish and take years, if not decades, to be cleaned up. Over the decades of implementing the Transfer Act, it is clear the current regime is stagnating progress in developing properties and cleaning up the environment and is an impediment to economic development in communities across the state. Under a release-based cleanup program, cleanup is separated from the conveyance of property, and investigation is market-drive, decreasing the burden at the time of property transfer for both private entities and for the municipality and state, who may need to fund the cost of unaddressed releases of pollution. And all parcels are held to the same standard – to remediate known pollution to the state's cleanup standards.

Pursuant to Public Act 20-9, the RBCRs streamline the site remediation process by providing creative new tools and opportunities, addressing concerns expressed by the regulated community and allowing for the use of new, risk-based approaches to cleanup. The RBCRs incorporate existing technical standards for the remediation of environmental pollution known as the Remediation Standard Regulations or "RSRs", currently at sections 22a-133k-1 through 22a-133k-3, inclusive, of the RCSA and add important new provisions that will make cleanups more efficient, while protecting human health and the environment. Other amendments are proposed to various regulations administered by the Department to conform with the RBCRs, and a new administrative civil penalties schedule is being added to RCSA section 22a-6b-8.

In accordance with CGS § 22a-134tt, the proposed regulations include reporting requirements for any releases required to be reported and procedures and deadlines for remediation, including public participation. Sites that are not cleaned up within the first year of discovery are required to be tiered based on the risk the release poses to human health and the environment. Through this tiering process, there is a clear understanding of what is expected from a responsible party and associated fees to encourage timely cleanup. The RBCRs also increase the number of compliance exits that allow opportunities for more release-specific remedies. Other concepts in the RBCRs include:

- Addressing all releases discovered by the creator or a person maintaining the release

PROPOSED

- Ensuring releases achieve a unified cleanup standard
- Creating new, more flexible options for completing remediation
- Creating consistent documentation of remediation for all releases
- Relieving small business owners from "proving the negative" through a mandated investigation approach for finding all releases – even low-risk releases – or paying to determine applicability of Transfer Act
- Providing an efficient path for homeowners to address releases of home heating fuel, the most common release on residential properties
- Allowing for additional permitted professionals to be involved in closing the cleanup of less complex releases
- Setting forth an audit process with goals for Department review
- Adding new "exposure scenarios" to create new numerical criteria as end points for certain types of land uses
- Establishing permits by rule to manage historically impacted material in place and polluted material under roadways, parking lots and buildings

Through the adoption of a release-based program, Connecticut will align itself with the cleanup approach used by 48 other states.

The proposed regulations will affect the technical standards for remediation and will facilitate cleanup of spills and redevelopment of properties without compromising protection of human health and the environment. The proposed amendments will streamline the cleanup regulations by incorporating the RSRs and will also sunset the requirements of the Transfer Act for releases that are not already subject to those requirements. Additionally, the proposed regulations will supplant the significant environmental hazard program for releases being addressed under the RBCRs, as those requirements are integrated into the proposed regulations.

PROPOSED