

Draft

Proposal for a Transformed Cleanup Program

February 7, 2013

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I. Executive Summary

In compliance with the requirements of Public Act 12-196, *An Act Concerning Economic Development through Streamlined and Improved Brownfield Remediation Programs*, the Department of Energy and Environmental Protection (DEEP) has prepared this report. Contained in this report is a proposal to transform the manner in which Connecticut addresses pollution spills and impacts from historical releases. Currently, cleanup of new and historical releases are completed to different degrees that achieve various levels of regulatory certainty. The transformation proposal will create a clear means to ensure that spills and releases are addressed through the regulatory system. Cleanup standards will be refined to encourage prompt cleanups of new spills and to streamline long-term cleanup requirements while adding flexibility. Together, these changes will ensure that new spills are cleaned to the appropriate degree and that historical releases are addressed as they are identified – not years later by a new property owner or the State. The report outlines the vision for regulatory reform and statutory enhancement. This proposal takes into consideration information submitted to DEEP by external workgroup reports and extensive public feedback provided by hundreds of engaged stakeholders.

This report describes a transformed cleanup program that proposes to:

- provide incentives that drive prompt cleanup of new pollution spills,
- clarify what environmental pollution is regulated and what is not,
- incorporate new, commonsense, cleanup alternatives where risks to public health and the environment are low,
- empower regulated parties and their environmental professionals to self-implement site-specific and alternative cleanup approaches, and
- focus DEEP's resources on the highest risk pollution and on the parties that require the most assistance, while empowering environmental professionals to make more independent decisions.

Without this transformation of the State's cleanup program, opportunities for environmental cleanup will continue to be missed, posing risks to our health, impairing our environment, and causing roadblocks to economic development and job creation. As Connecticut looks to move forward on improving land use in our state, the cleanup of contaminated sites is critical to revitalizing our cities, maximizing investments in existing and future infrastructure, including transit, while protecting our rural settings.

Every year minor changes are made to the cleanup framework; however, a comprehensive restructuring has been postponed for decades. Before effective change can be made, a vision for the transformed program and the goals needed to achieve that vision should be clear. DEEP presented a vision and goals in a December 2011 report on transforming the cleanup program.

DEEP has been working with stakeholders to refine the concepts presented in the December 2011 report and create the details for the cleanup transformation. Significant progress was made on many of the complex components of the transformed cleanup program thanks to the efforts of all involved. Further details on specific components can be found within this report.

VISION FOR A TRANSFORMED CLEANUP PROGRAM

Connecticut's cleanup program should be simple to implement; focus the greatest level-of-effort on the highest risks to public health and the environment; have obligations that are clear to all stakeholders; provide certainty; maximize self-implementing options with appropriate checks and balances; have flexible endpoints that are commensurate with risk; provide for meaningful public participation; create transparency of process and information for all stakeholders; encourage sustainable remediation outcomes; and help unlock the economic value of degraded properties without burdening any segment of the population with a disproportionate share of the risks and consequences of environmental pollution.

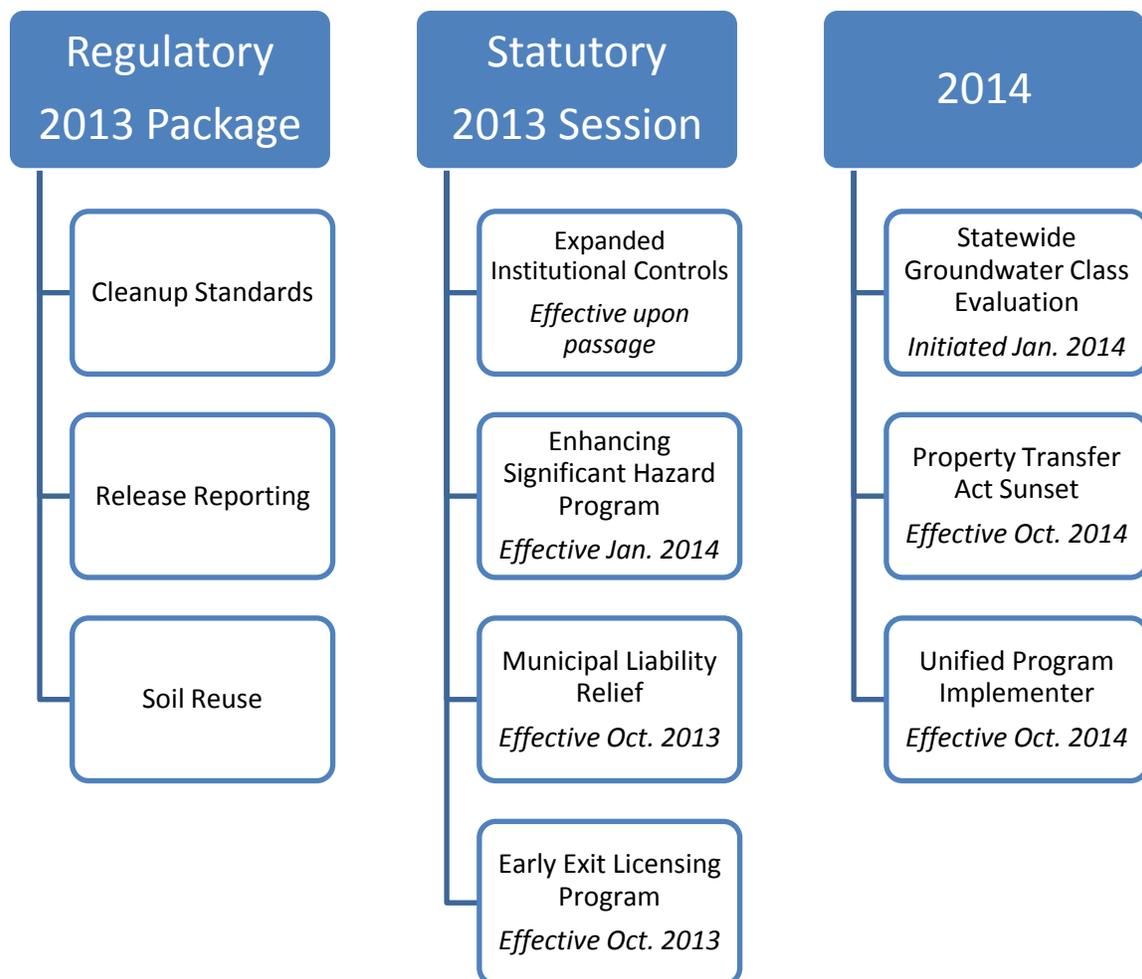


A. Timing and Implementation

Implementation of this proposal will require the creation and revision of statutes and regulations. The processes for adoption of regulations and statutes vary, and this proposal will need to work with both of these processes, regulations generally having longer adoption horizons than statutes.

Based on stakeholder feedback, DEEP will begin pursuing changes to the cleanup standards and other regulatory packages immediately. First, DEEP will begin drafting significant improvements to the cleanup regulations, including the establishment of Early Exits for certain new and historical releases. At the same time, release reporting regulations will be drafted to create clear obligations for new spills and historical releases. Finally, DEEP will develop regulations to enable the reuse of polluted soils, which will greatly reduce uncertainty and over-reliance on soil treatment and disposal for soil impacted with low levels of pollution. Draft regulatory language could be available as early as Spring 2013. These three regulatory packages will be released for public comment and will follow the same public hearing and refinement timeframe.

Certain statutory changes will also be pursued in the 2013 Legislative session. These changes will enable regulatory changes, such as permitting the use of deed restrictions for lower risk pollution issues. In addition, DEEP will be advancing a municipal liability provision meant to create a shield from State action or future owner suit.



B. Regulatory Reform

DEEP will move forward on a package of reforms that will ensure achieving regulatory closures of new spills and historical releases is certain and streamlined. This package will consist of regulations created under multiple statutory authorities that will be interdependent.

1. Release Reporting

General consensus was reached on the need for a system that allows for determination of which new releases do not need to be reported to DEEP. There was also consensus that high-risk historical releases should be addressed in some manner.

PROPOSED REPORTING STRUCTURE

New spills: **Reportable Quantity** = 20 pounds or 3 gallons

Historical releases: **Reportable Concentration** = 2 times cleanup standards

Reporting would be required for all new releases greater than the reportable quantity of twenty (20) pounds or three (3) gallons, with commonsense exceptions and higher limits for food products and sewage. Reporting below reportable quantity will also be required for certain releases that pose an unacceptable risk to public health or the environment due to inherent toxicity.

Reporting of historical releases – to be known as **Historical Environmental Conditions** – would be required for newly discovered conditions. The Reportable Concentration will be two times the default cleanup criteria applicable to the current land use. Important exceptions include discovery of pesticides in soil on agricultural land that are due to proper pesticide application, discovery of historical urban soils that are not present as “background” conditions for an area, and discovery of petroleum and pavement substances attributable to normal automobile use or pavement maintenance. Reporting and cleanup requirements for historical environmental conditions would result in the phase out of the Property Transfer Act.

2. Cleanup Regulations

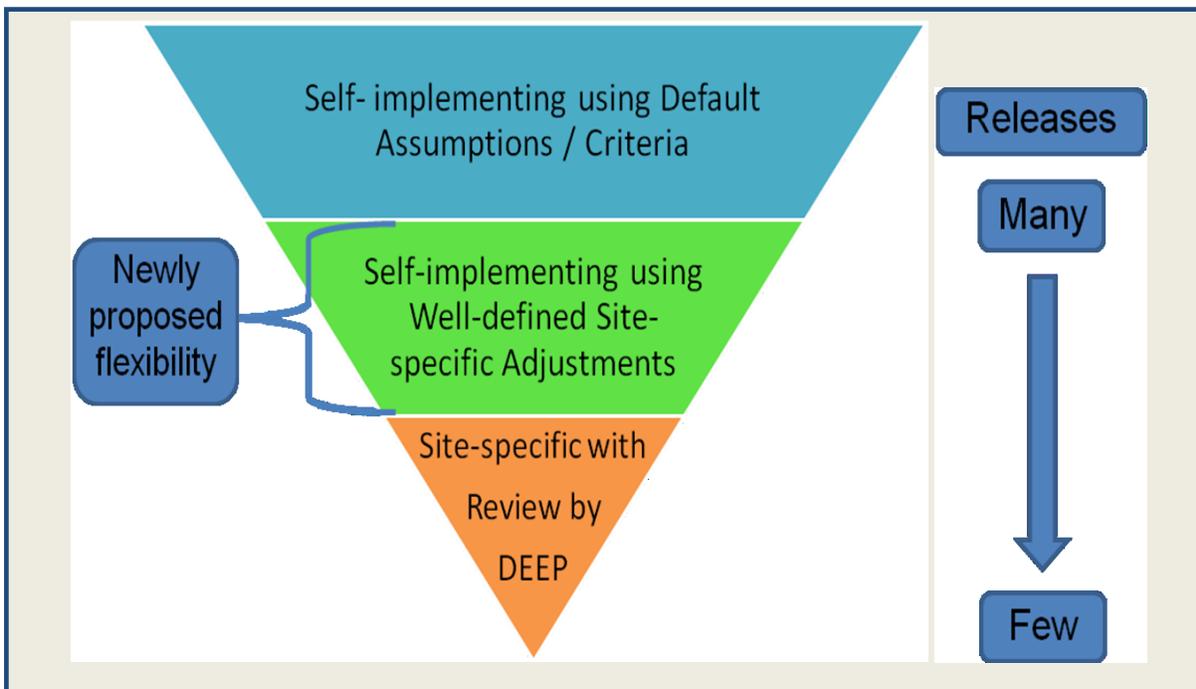
All stakeholders agreed that the cleanup regulations need to be refined and improved.

Changes to these regulations include:

- Providing more clarity,
- Institutionalizing and expanding targeted remedies for Brownfields,
- Introducing site-specific and self-implementing adjustments to the cleanup standards, and
- Creating Early Exits that would be available for releases that are rapidly discontinued, contained, and cleaned up.

Details of the numerous proposed cleanup standard revisions are described within the report.

Revising the cleanup standards is integral to a successful cleanup program. Adding flexibility and new self-implementing options will see benefits for all cleanups – even those with existing cleanup obligations.



New milestones and new tiered exits will also be created through the proposed regulatory reform. These milestones and tiered exits will ensure that parties performing under the new program will be able to achieve regulatory approval and certainty much earlier in the process. The tiered exits will also be available for any party that has a current cleanup obligation. Achieving this earlier regulatory certainty will create opportunities to sell or further invest in properties impacted by releases of pollution.

While it is reasonable to expect that the parties responsible for new spills will act promptly to fully address these impacts, it is important that certainty is provided so parties will not have to revisit these releases in the future. Under the current system of cleanup, new spills are addressed promptly but without regulatory certainty for the efforts expended. The regulatory reform package will outline in what cases an Early Exit can be achieved and the certification process for reaching this end point.

A vast majority of new spills will be able to achieve an Early Exit – ensuring cleanups have regulatory approval that can be relied upon by current and future property owners.

3. Reuse of Polluted Soil

The cleanup of many releases is complicated and burdened by the lack of clarity surrounding the reuse of mildly polluted soil. Due in part to Connecticut's history of development, many areas of the State are impacted by low levels of residual pollution in soil. Without a clear process in place to permit the reuse of this soil, costs for cleanup and redevelopment have increased, as this soil is treated or disposed of in a landfill (usually out-of-state). The regulatory reform package will include regulations that simplify, in a practical and environmentally protective way, reuse options for earthen materials to advance cost-effective materials management solutions for infrastructure and remediation projects. These revisions will create opportunities that encourage development of recycling and treatment facilities for soil and dredged material, as well as opportunities for recycling for other common construction materials such as asphalt, brick, and concrete.

C. Statutory Reform

Certain statutory modifications are needed to implement the regulatory reforms discussed in this report. In addition, DEEP will be advancing liability reforms intended to assist municipalities in moving forward on the redevelopment of many critical Brownfields.

1. Institutional Controls

Less burdensome and cumbersome tools are needed for the long-term management of residual pollution. Currently, only environmental land use restrictions are allowable to permit use of some of the most advantageous types of cleanup approaches. These cleanup approaches may be tied to simple and clear management controls, such as ensuring a property is not used for residential purposes. In such cases where the risks from the pollution are low and the control measures are simple, alternative and more easily-implemented institutional controls should be permitted. This statutory change would allow DEEP to detail such institutional controls in regulations that would be a part of the regulatory reform package.

2. Significant Environmental Hazard Notification

The current definition of a hazard needs to be expanded to include additional situations that would require prompt action because they pose a significant short-term risk to human health or the environment. The levels of pollution that pose a hazard should also be reconsidered. Further, it is critical that parties can take action when a hazard is identified instead of waiting for DEEP to respond to a notification and prescribe each step for compliance. This change would provide clarity for parties in addressing imminent hazards in a timely manner with less regulatory burden and oversight.

3. Municipal Liability Relief

Municipalities are critical to facilitating the redevelopment of many of the most important Brownfields. Many municipalities, however, fail to perform this facilitator function and therefore miss redevelopment opportunities based on fear of liability - that acquisition of a Brownfield will lead to DEEP requiring cleanup action or that future owners may sue for contribution if unforeseen pollution is discovered. DEEP will propose plain language that limits liability for municipalities that acquire Brownfields with the intent of facilitating their cleanup and redevelopment. This liability would protect the municipality from action by DEEP and from suit brought by future owners of the property.

4. Early Exit Certification

Currently no system exists that allows DEEP to ensure that a new spill will not need to be revisited in the future by the current or future property owner. DEEP proposed to create a process by which certain qualified individuals can be licensed to certify that certain new spill and historical releases have achieved the requirements of an Early Exit. These certifications, if accepted by DEEP, would provide administrative closure for such releases. Statutory language will establish the qualifications, authorities, and licensing process for a group of qualified individuals. These licensed professionals will be utilized to meet the multiple goals of cleaning up more releases in a relatively short time-frame, without sacrificing environmental protection.

D. Transition to the New Program

DEEP proposes further statutory reform that will follow in 2014. This reform will be aimed at finalizing a unified cleanup program. Significant changes will include the sun-setting the Property Transfer Act when a suitable cleanup obligation is created. Some programs will be modified and others will be replaced or eliminated.

Regardless of the obligation, all parties will be able be subject to the enhanced cleanup standards. Further, DEEP will be working with our federal partners to determine how the new program and cleanup standards can be applicable to federal obligations.

Many significant liability relief tools and programs have been instituted to expedite cleanup and redevelopment of pollution releases. These programs are primarily applicable to properties and include the Brownfield Remediation and Revitalization program (“Section 17”), the Abandoned Brownfield Cleanup program, the Targeted Brownfield Remedy, and the Covenant Not To Sue program. DEEP proposes to maintain these valuable tools. Further, DEEP is evaluating creating an alternative site-wide cleanup pathway for parties that would like to address pollution releases on a site-wide basis under these liability relief programs.

In addition, DEEP agrees to initiate a state-wide re-evaluation of groundwater classifications. DEEP believes that there may be many areas of the State classified as GA that could be reclassified to GB. There may also be some areas where GA is the more appropriate classification. Although individual site reclassifications have taken place under the Water Quality Standards, a full-scale evaluation of groundwater classifications has not been conducted in many years due to lack of available detailed data and limited staffing. DEEP will undertake such a re-evaluation using existing reclassification procedures, and with the assistance and agreement from the municipalities and local officials.

II. Introduction

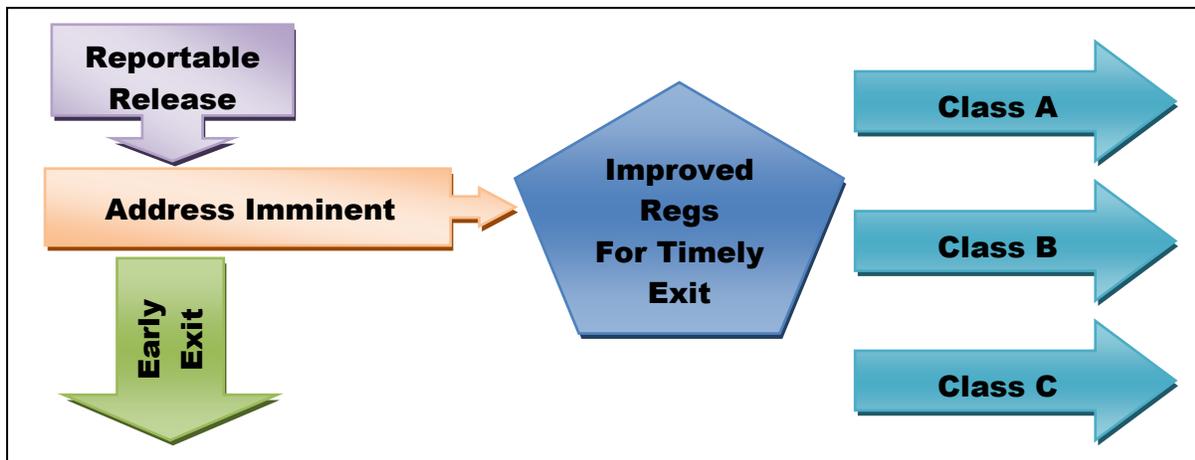
The Department of Energy and Environmental Protection (DEEP) proposes to modify the current approach to the cleanup of pollution in Connecticut to achieve remediation of more pollution in Connecticut. This proposal is based on a stakeholder process that has been on-going since January 2011 and is intended to align degree of effort with the likely risk to public health and the environment.

In Connecticut, the cleanup authority primarily consists of statutes located within Title 22a of the Connecticut General Statutes (CGS), and associated regulations. The current obligations require reporting releases and addressing the resulting pollution through various authorities. There are also additional requirements, independent of reported releases, that relate to certain properties and any release or releases that may exist on such land (e.g., the Property Transfer Act). DEEP acknowledges that the current system – with some pollution being addressed on a release basis and some on a property-wide basis – creates confusion and is not efficient. More importantly, DEEP acknowledges that if the State is to move to a true release-based cleanup system, the regulations that govern cleanup (the Remediation Standard Regulations or RSRs) must be practical and achievable. The basic goal of the transformed cleanup program is to address more releases under a more-attainable standard of investigation and remediation while continuing to protect human health and the environment.

The program will be described in statute, with certain provisions detailed by regulation. Responsible parties will be required to abate actual or likely high-risk exposures and reach the early program exit, or in the event that an Early Exit is not feasible, the responsible party will be required to conduct remediation sufficient to achieve a Class A, B or C exit, as presented in Figure 1 and as discussed herein.

These recommendations rely on the significant efforts, expertise, and knowledge from a diverse group of stakeholders that have assisted DEEP in developing these concepts. There have been significant opportunities for stakeholders to help shape this transformation effort by submitting verbal and written comments, participating in meetings that ranged from visioning sessions to detailed concept discussion, and participating as members of multiple workgroups that submitted details and ideas to DEEP. These recommendations also incorporate the thoughts and analysis of each DEEP division involved in this Transformation – Remediation, Emergency Spill Response and Prevention, and Water Planning and Standards.

Figure 1. Generalized Entry and Exit for the Transformed Cleanup Program



III. Release Reporting

A central goal of the Cleanup Transformation is to unify Connecticut's various cleanup laws. One unifying feature is a single entrance into the cleanup program. To achieve this, DEEP proposes a release reporting framework that addresses discovered releases, with consideration given to the challenges posed by newly-discovered historical releases. Release reporting would be based on the discovery or knowledge of a release or a threatened release. In addition, reporting triggers would be based on quantities of a substance released, type of a substance released, and discovery of pollution above certain thresholds in soil, sediment, water or air. Certain releases would not be reportable but would require a response to ensure the release will not pose a risk to public health or the environment.



A. Release Background

In this document, DEEP defines a **“release”** as any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing of, or the uncontrolled loss, seepage, or filtration of, a reportable material from its primary container, vessel, or tank, including any ancillary equipment associated with such primary container, vessel or tank system, whether by accident, negligence, or otherwise.

“Reportable material” means any chemical liquid or solid, liquid, or gaseous products, including but not limited to, hazardous substances, hazardous waste, waste oil, used oil, petroleum constituents, asbestos, radioactive material, pesticide, prohibited pesticide, restricted use pesticide, or polychlorinated biphenyls.

It is important to note that not all reportable materials will be hazardous substances or hazardous wastes. Other substances can pose significant risks to public health or the environment, if released in certain quantities, concentrations, or locations. The response to such released materials is discussed in later sections.

DEEP proposes to adopt regulations that will specify which releases are required to be reported to DEEP and which are not reportable. Regardless of whether a release is required to be reported, parties that cause a release or parties that own land upon which the release is located would have an obligation to remediate such release so that it does not pose a risk to public health or the environment.

Reportable releases would fall into one of three categories: contemporaneous releases, historical releases, or threatened releases. Contemporaneous releases would include “spills” or “new releases;” they may be sudden, intermittent, or continuous in nature. Historical releases would consist of the remnants of historical spills that have been discovered. Threatened releases would be situations with the potential to create contemporaneous releases that may pose an unacceptable risk to public health or the environment.

With this transformation, DEEP wants to ensure that contemporaneous releases are remediated promptly and that high-risk historical releases are remediated to consistent standards that eliminate unacceptable risk to public health or the environment. This remediation should be conducted by the party responsible for the release, but may be conducted by the property owner, if no causal party exists. There are cases where DEEP believes that some historical releases are the result of societal decisions and impacts, and thus, release reporting and response would be limited to addressing imminent hazards to public health and the environment.

While it is often clear which party is responsible for a contemporaneous release, the party that caused a historical release or that owned the property at the time of a release may no longer exist. As land is acquired, the buyer of a property receives all of its benefits and liabilities, including the liability posed by historical releases. Connecticut law for decades has identified both the creator of pollution and the party that maintains a source of pollution on his/her property, regardless of relationship to the creator of the pollution, as the parties responsible for addressing such pollution. These joint and several liabilities would continue in the new cleanup program.

B. Reporting Exceptions

Certain widespread conditions would be exempt from release reporting by definition. DEEP considered feedback from stakeholders regarding the most common releases that are widespread, related to societal decisions, and not isolated to material handling decisions by commercial or industrial operations. While these exceptions may pose a risk to public health and the environment and should be managed by the property owner with due care, reporting to DEEP would not be required. The following conditions would consist of exceptions to Release Reporting Requirements:

- The presence or application of pesticides in accordance with manufacturers instruction, provided that the release area continues to be used for agricultural purposes, does not pose and unacceptable risk to water quality, and is not used for residential activities, and
- The presence of historical urban soils that are geographically extensive and do not pose a risk to water quality.

Any releases of reportable materials to areas where these widespread conditions exist ARE considered reportable releases and would be required to be remediated under the new cleanup program.

C. Reporting of Contemporaneous Releases

All contemporaneous releases should be remediated. However, not all contemporaneous releases would need to be reported to DEEP. Given DEEP's charge to protect public health and the environment, parties would need to inform DEEP about releases that can pose unacceptable risks. Therefore, DEEP proposes that a reportable "**contemporaneous release**" be defined as a release that has been witnessed to occur or that is likely to have occurred within ninety (90) days of its discovery.

In setting a release trigger for contemporaneous releases, DEEP has considered stakeholder feedback and public health and environmental protection goals. Release reporting should be simple and not open to interpretation.

Contemporaneous release reporting would be required when:

- (1) The total amount of material released, whether sudden, continuous, or intermittent, is equal to or greater than the lesser of twenty (20) pounds or three (3) gallons (the “**Reportable Quantity**”); or
- (2) The quantity of release is unknown.

The Reportable Quantity for Contemporaneous Releases is proposed to be the lesser of 20 pounds or 3 gallons.

In addition, regardless of the quantity released, if any of the following high-risk release circumstances are met, a release of a reportable material would be reported to DEEP.

High-Risk Release Circumstances

- (1) The release poses a fire hazard or a potential for explosion;
- (2) The release poses an acute public safety risk that requires the evacuation of a room, floor, or building or requires the use of personal protection equipment to address the release or reduce the public safety risk;
- (3) The release is to or has impacted a watercourse, wetland, public water supply watershed land, source water area or aquifer protection area, or has impacted groundwater in excess of applicable cleanup standards;
- (4) The released material contains any Special Concern Reportable Material (to be identified by DEEP with input from stakeholders);
- (5) The release is determined by the observation of free phase product in a drinking water supply well, a monitoring well, a tank grave or on the water table in an excavation or the evaluation of the analytical results of a sample or samples of well water which demonstrates the presence of free phase product;
- (6) The nature of the material released is unknown; and
- (7) It is likely that the release may impact or has impacted property owned by an innocent third party.

Multiple opportunities are proposed for exiting a contemporaneous release from the cleanup program once reported. These exits are discussed in following sections.

D. Reporting of Historical Environmental Conditions

Historic waste handling procedures and poor management practices and unforeseen consequences of well-intentioned actions have resulted in the presence of pollution in soil, water, and air at levels that are not acceptable given our current understanding of risk. Further, if these past pollution releases go unaddressed, the pollution can continue to spread over time and create risks to public health and the environment on the property upon which the release occurred and on other nearby properties.

While these historical pollution problems differ from new releases, in that the actual party that created the pollution may be unknown, the risks may be greater due to the extent of impact and lack of information about exposure pathways. Accordingly, DEEP believes it is sensible and in the public interest for parties that caused or discovered such historical releases to report higher-risk historical releases to DEEP. Under the transformed cleanup program and in the release reporting regulations, such historical releases will be known as **“historical environmental conditions.”** Historical environmental conditions are determined to exist through the discovery or knowledge of substances in soil, water, or air in excess of the Reportable Concentration.

Some historical environmental conditions are currently addressed pursuant to the existing Property Transfer Act, one of the two Voluntary Remediation Programs, or are addressed without the knowledge of DEEP. This creates an unbalanced economic system, where some gain financial benefit from not reporting or not remediating such releases or both. It also creates an unbalanced system of protection of public health and the environment, where some people – occupants, visitors, neighbors – are exposed to heightened risks, and/or released pollution may migrate to neighboring properties, while releases at other properties are remediated.

However, DEEP thinks that reporting historical environmental conditions should be balanced, as some of these releases occurred when the consequences of such actions and risks to public health and the environment were not well understood. Accordingly, not every historical environmental condition should be reported to DEEP. While there will be opportunities to reach an Early Exit for certain historical environmental conditions (one year timeframe being proposed) and the ability to gather data that will show the pollution is not in fact reportable, DEEP is proposing that historical environmental conditions present in excess of two (2) times the cleanup criteria applicable to the current site use and groundwater classification be reported to DEEP. This reporting threshold shall be known as the **“Reportable Concentration.”**

Historical Environmental Conditions are reportable when substances are detected at or in excess of the Reportable Concentration – set at 2 times the applicable cleanup criteria.

DEEP is interested to work with stakeholders to address concerns relative to property transactions and due diligence periods by prospective purchasers of properties with potential historical environmental conditions.

Regardless of whether a historical release is reportable, the property owner retains the obligation to remediate low-risk releases to a degree that such release does not pose a risk to public health or the environment. Multiple opportunities are proposed for exiting a historical environmental condition from the cleanup system once reported. These exits are discussed in following sections.

E. Reporting – Threatened Releases

DEEP proposes that a reportable “**threatened release**” be defined as a release that is likely to occur and has the potential to create a release that may pose an unacceptable risk to human health or the environment. A responsible party or the party that discovers a threatened release would need to report such situations. Reporting threatened releases will be tracked separately than contemporaneous releases or historical environmental conditions. Threatened releases can be closed when a release to the environment is prevented. Situations that may result in a threatened release would include but not be limited to the following:

- (1) Evidence of a suspected Releases from UST systems;
- (2) Discovery of abandoned containers or vessels that may contain a reportable material; and
- (3) Discovery of damaged containers or vessels that contain a reportable material.

F. Release Reporting and Timing

A release is reportable to DEEP if any of the following conditions exist:

- (1) A reportable material was released in excess of the Reportable Quantity;
- (2) The quantity of release is unknown;
- (3) The Reportable Concentration is unknown, but other evidence would suggest a release has caused a Historical Environmental Condition;
- (4) The release creates an Imminent Hazard (refer to Section VI);
- (5) The presence of a reportable material or its component substances have been discovered in soil, sediment, water or air in excess of any Reportable Concentration; or
- (6) A situation that would be considered a Threatened Release.

A release would need to be reported, whether contemporaneous, historical, or threatened within the timeframes listed in the table below.

Timing of Release Reporting to DEEP	
Contemporaneous Releases	Report Immediately
Threatened Releases	Report Immediately
Historical Environmental Conditions	Report within 90 days of Discovery

For release reporting, DEEP would define “**immediately**” to mean as soon as possible after the discovery of, or knowledge of, a release; however, not later than one (1) hour after such discovery or knowledge of a release or not later than one (1) hour after being provided with the knowledge of a release.

1. Immediate Reporting

All contemporaneous and threatened releases shall immediately be reported to DEEP initially by telephone to DEEP’s 24-hour Emergency Response Unit at telephone number (860) 424-3338, or toll free number at 1-866-337-7745. If, for any reason, the report cannot be made using either telephone number, such person shall make a report to DEEP’s Emergency Dispatch Center at (860) 424-3333.

2. Written Reporting

The party that reported a contemporaneous or threatened release to DEEP shall also be required to submit a written release report to DEEP within thirty (30) days of the initial telephone report. This written report shall be submitted on the form prescribed by DEEP. In addition to providing more detailed and up-to-date information to DEEP, this form may also be used to notify DEEP of a imminent hazard scenario, report mitigation or abatement of an imminent hazard, and/or support an Early Exit Certification of Closure (refer to Sections VI and VII).

While, immediate telephone reporting will not be required for historical environmental conditions, a written release report shall be submitted to DEEP within ninety (90) days of the discovery of the release on the form prescribed by DEEP.

G. Complaints

If DEEP receives a complaint of a release from a party not associated with the release (i.e., not the subject property owner, operator of equipment, operator of a facility, or other responsible party), DEEP may investigate the reported release. However, such report would not necessarily create an obligation for any other party to act. If DEEP confirms such release and determines that the release was a reportable release, DEEP will record the release and will attempt to determine the party responsible for reporting such release. If the responsible party is identified, DEEP will inform them of their responsibilities to report such release and take appropriate action.

H. Non-reportable Releases

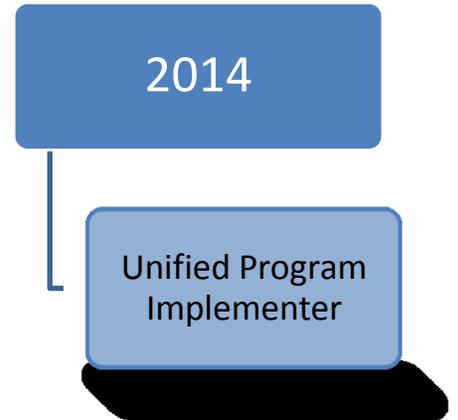
Releases not required to be reported under the new cleanup program, including exceptions to the reporting requirements, would still need to be addressed by a properly trained environmental

professional. Such releases, whether contemporaneous or historical, would need to be addressed such that the release does not pose a risk to public health or the environment.

The status of some non-reportable releases may change. If at any time the responsible party or DEEP determines that the non-reportable release should have been reported as a release, such release shall immediately be reported to DEEP. If it is determined by the responsible party or DEEP that a release that had not been subject to the reporting requirements, including exceptions to the reporting requirements, has or is likely to have migrated from the subject property in excess of the applicable cleanup standards, such release would need to be immediately be reported to DEEP.

IV. Release Response

Under the new cleanup program, responsible parties would be required to immediately undertake actions warranted to report, investigate, abate, and remediate releases and submit required documentation to DEEP. Unless DEEP directs the release response, responsible parties must utilize appropriately qualified, licensed, and accountable personnel, as the case may require, to direct release reporting, investigation, abatement, and remediation. If a responsible party fails to initiate an appropriate release response, DEEP may conduct the response and may seek cost recovery for such response, in accordance with Connecticut General Statutes section 22a-451.



Upon reporting any release to DEEP, the party that is responsible for the release would act immediately to stop the release, followed by actions to contain and remove or mitigate the effects of such release to the satisfaction of DEEP, including determination of and elimination of imminent hazards or any other high risks to receptors. The new cleanup program would provide several exit pathways, dependent on the characteristics of the release and the response. Many threatened, contemporaneous and historical releases would be able to reach an Early Exit and responsible parties would not be obligated to conduct longer-term cleanup for these releases. In some cases, further investigation or cleanup would be needed under a Tiered Exit.

A. Oversight

Once a release has been reported to DEEP, DEEP staff may choose at any time to inspect the release area to determine the accuracy of the release reporting, collect samples for laboratory analysis, or direct on-going action by the responsible party. Absent direct DEEP direction, each responsible party shall ensure that releases are reported, investigated, abated, and remediated promptly by personnel with appropriate experience, training, and expertise for the given release.

1. Release Response by DEEP

DEEP staff may choose to direct the release response or inspect the response for any release. There is a greatly likelihood of DEEP involvement when one or more of the following scenarios exists:

- (1) the release poses a high risk to public health, sensitive land uses, or sensitive environments;
- (2) the party reporting the release has not shown through their action that they are addressing the release appropriately or in a timely manner; or
- (3) DEEP believes that additional assistance can expedite the release response and reduce costs for certain parties (e.g., homeowners, small businesses, or small municipalities). In this third case, DEEP assistance would be based on available resources, risks posed by the release, and magnitude of the release.

In any case where DEEP directs the release response, any action taken by or approved by DEEP will be certified by DEEP to satisfy the requirements of law. While the responsible party would always be

obligated to submit a Release Response Report that summarizes the work completed and provides the status of the release, DEEP may complete such report, if it deems appropriate.

2. Oversight by Environmental Professionals

In the instances where oversight is not conducted by DEEP, the responsible party would be required to utilize personnel with the appropriate experience, training, and expertise for the given release. Professionals licensed to respond to releases or perform environmental investigations and oversee cleanups will need to be utilized to address larger releases, risks that pose risks to sensitive land uses or sensitive environments, releases of certain materials or substances, or historical releases where little may be known about a release. Depending on these various factors, either a Environmental Release Professional (ERP) or a Licensed Environmental Professional (LEP) may certify or verify, as the case may be, that a release complies with the new cleanup regulations and has been satisfactorily addressed under the Early Exit or Tired Exits Class A, B, or C. (More information is provided in later sections regarding the duties and responsibilities of such environmental professionals.)

“Environmental Releases Professional” (ERP) means an individual that has specific education, training, and experience necessary and is deemed qualified by licensure to exercise sound professional judgment to develop conclusions regarding conditions indicative of a release or potential release.

“Licensed Environmental Professional” (LEP) means an individual that has been licensed by the Commissioner of Energy and Environmental Protection to engage in activities associated with the investigation and remediation of pollution and sources of pollution pursuant to Connecticut General Statutes section 22a-133v. The definition of LEP would remain unaltered in the new cleanup program.

B. Goals of Release Response

The goals of responding to any release, whether contemporaneous, historical, or threatened are to:

- (1) Protect public health and the environment;
- (2) Cease all on-going or intermittent releases;
- (3) Contain and limit migration of any release;
- (4) Investigate the extent of the release, as needed, to obtain an understanding of the extent of the release; and
- (5) Clean up the release to ensure it does not pose an unacceptable risk to public health or the environment.

C. Immediately Required Response Actions

In the course of responding to a release, the responsible party and the party responsible for responding to such release would immediately perform the following actions, as conditions may warrant:

- Report any fire or explosion hazard or serious injury to 911;

- Report any release of extremely hazardous substance as defined by and in accordance with Connecticut General Statutes section 22a-609;
- Cease and contain an on-going release or threatened release;
- Mitigate and remove airborne hazards caused by the release;
- Recover free product released to secondary containment;
- Mitigate and secure any compromised containers or vessels; and
- Initiate recovery of free product released to the environment.

During release response, if any of the following situations arise or become apparent, the responsible party is required to report by telephone to DEEP’s 24-hour Emergency Response Unit at telephone number (860) 424-3338, or toll free number at 1-866-337-7745. If, for any reason, the report cannot be made using either telephone number, such person shall make a report to DEEP’s Emergency Dispatch Center at (860) 424-3333.

- Any on-going release cannot be ceased within two hours of initially becoming aware of the release or notifying DEEP of the release
- Any contemporaneous release cannot be contained within 48 hours of initially becoming aware of the release or notifying DEEP of the release
- Any contemporaneous or historical release has been found to have impacted property not owned by the party responsible for the release

D. Documentation – Release Response Report

A Release Response Report (RRR) would be required for all reportable releases. The RRR would serve the following purposes, based on release type:

Release Type	Purpose of Report
Contemporaneous Release	Provides written documentation of the release after initial telephone notification and provides more detailed and accurate information about the release and release response
Threatened Release	Provides written documentation of the threatened release after initial telephone notification and provides more detailed and accurate information about the threatened release and response
Historical Environmental Condition	Provides the first notification of the release and provides details on the release and release response

The Release Response Report would contain relevant release and release response information and would be submitted to DEEP on a form prescribed by DEEP. If not completed by DEEP staff, the report would be signed and certified by the responsible party and either a ERP or LEP, as applicable. This report would contain the following information:

- Party responsible for the release and contact information;
- Party reporting the release and contact information;
- Documentation of when the release occurred or when and how the responsible party became aware of a threatened release or an historical release;
- Location and aerial extent of the release;
- Sketch of the release area with relevant nearby features;
- Quantity of the substance(s) released;
- Concentrations of the substance(s) released to soil, sediment, groundwater, surface water, and air (including soil vapor);
- Potential sensitive receptors within 500 feet of the release;
- Summary of investigation efforts to date;
- Listing of any imminent hazard conditions and actions taken to abate such hazard conditions;
- Summary of cleanup actions and results of such actions, as applicable;
- Recommended further actions based on the above information, which may include a decision of no further action, the need for abatement of imminent hazards to receptors, entry into an Early Exit pathway, or entry into a Class A, B or C cleanup;
- Signature, certification, and contact information of ERP or LEP or signature of DEEP staff; and
- Signature, certification, and contact information of the responsible party.

This form report and necessary documentation would be submitted to DEEP within 30 days of the initial release or discovery of the threatened release, contemporaneous, or historical environmental condition. The RRR may also support an Early Exit Certification of Closure, include notification of an Imminent Hazard, and/or serve as an entry point into Tiered Exit Classes, as applicable.

V. Investigation Requirements

Responsible parties would have an obligation to investigate pollution resulting from releases under the new cleanup program. The extent of investigation required would ultimately depend on the level of information known about the release mechanism, characteristics and quantity of the released substance(s), impacted media, transport mechanisms, and location of potential sensitive human and environmental receptors. Investigations would be conducted in accordance with prevailing standards and guidelines. For sites subject to federal requirements for investigation of contamination, the responsible party would also need to ensure that all applicable federal requirements are met.

Among the existing prevailing standards and guidelines is the Site Characterization Guidance Document (SCGD). The SCGD discusses investigation in terms of Areas of Concern. This discussion will obviously need to be modified, as the Transformed Cleanup Program is based on reportable releases. It will be necessary to clarify when a release has been adequately characterized for the purposes of achieving closure through Early Exit or Tiered Cleanup Exits. Several concepts from the SCGD will carry through the Transformation, such as the essence of Conceptual Site Modeling which encourages environmental professionals to draw from their vast experience and expertise to make decisions based on their findings.

The current SCGD will evolve to adapt to the new release-based approach. Phase I investigations would continue to be applicable in situations where the cause of a release is unknown as in the case of certain historical environment conditions. Conversely, in the case of Threatened or Contemporaneous Releases, the cause of the release would be known, and a Phase I would not be necessary. Phase II investigations would only apply where it is necessary to determine if a release has affected environmental media. Phase III investigations would be most applicable to the Transformed Cleanup Program in that a release would need to be delineated to the extent that it must be evaluated for imminent hazards to receptors and remediated to achieve an exit.

In certain situations, the current SCGD would still be applicable. These situations would include sites transitioning from existing programs, such as Property Transfer, and sites in the Voluntary Remediation Program and RCRA Corrective Action.

DEEP would need to provide guidance on expectations for investigation of contemporaneous releases to supplement DEEP's Site Characterization Guidance Document.

VI. Significant Environmental Hazards

Significant Environmental Hazards are situations where pollution creates a risk or potential risk to public health or the environment due to the toxicity of certain types of pollution and/or a variety of scenarios in which there is a complete exposure pathway or a high potential for a complete exposure pathway to exist. These situations all pose imminent hazards to public health and the environment. If certain levels of contamination to soil, sediments, groundwater, surface water, soil vapor or indoor air is detected as a result of a release, the DEEP, ERP or LEP, as applicable and on behalf of the responsible party, would immediately make a determination of potential risk to receptors by evaluating if a reported release has caused or contributed to, or has likely caused or contributed to, any of the following imminent hazard scenarios:



- (1) Pollution to water at any concentration in a public or private drinking water well;
- (2) Pollution to groundwater at concentrations exceeding the GWPC within 500 feet of a public or private drinking water well;
- (3) Pollution to groundwater at concentrations exceeding ten (10) times the volatilization criteria applicable to the current land use that is within thirty (30) feet of a building or beneath a building at any depth and that contains substances that may pose a risk to indoor air quality;
- (4) Pollution to groundwater, including free phase product, that discharges to a surface water body in excess of ten (10) times the Freshwater or Saltwater, as applicable, Acute Aquatic Life Criteria listed in Appendix D of the Water Quality Standards or, in absence of such criteria, in excess of ten (10) times the Human Health Criteria listed in said Appendix D;
- (5) Pollution to soil within two feet of the surface, or deeper if data is not available for shallow soils, that is at or above ten (10) times the direct exposure criteria as specified in the RSRs that is applicable to the current land use of the property (exemptions for certain pollutants with very low likelihood of exposure is being considered – e.g., polycyclic aromatic hydrocarbons beneath intact asphalt);
- (6) Pollution to soil above the water table from a release area (defined by the presence of a substance above background conditions) that is at or above one hundred (100) times the PMC applicable to the site and is not below an intact building or other permanent structure;
- (7) Presence of free phase product in soil or groundwater; and
- (8) Pollution that poses a risk of explosion.

In order to make this determination, it may be necessary to conduct a water supply well receptor survey, other types of sensitive receptor surveys, confirmation sampling of wells in question or additional testing of environmental media. If pollution is present at levels below the trigger criteria

further evaluation may be necessary to verify the concentration present is representative of the impact of the release.

DEEP would need to provide guidance and/ or a checklist to assist environmental professionals in making this determination. Such guidance would create uniformity and consistency in determining, addressing, and reporting these imminent hazard situations.

A. Addressing Imminent Hazards

If any imminent hazard scenario is determined to exist, the responsible party would be required to immediately take action to abate such hazard. Abatement can be accomplished through remediation of the release to a degree that it no longer poses a threat to the potential receptor (eliminating the imminent hazard) and/or by permanently eliminating the pathway to the receptor.

Eliminating imminent hazards would be accomplished in each type of scenario by the following actions:

- (1) Providing an alternative long-term supply of potable water, such as connection to a public water supply line;
- (2) Hydrogeologic and groundwater investigation and/or water supply well receptor survey;
- (3) Soil gas sampling to demonstrate that contaminants do not migrate into soils beneath a building slab in excess of the RSR criteria applicable to the current land use;
- (4) Risk assessment of contaminants to surface water through dilution calculation and/or direct sampling of surface water;
- (5) Removal or permanent capping of soils, and/or an evaluation of the 95 percent upper confidence limit of sample results of the same pollutant in the same release area is less than the direct exposure criteria as specified in the RSRs that is applicable to the current land use of the property;
- (6) Removal or permanent capping of soils and evaluation to determine no imminent hazard groundwater conditions continue to exist;
- (7) Removal of free phase product and evaluation to determine no imminent hazard groundwater conditions are present; and
- (8) Elimination of the source causing the explosion or fire hazard or implementation of an on-going engineering solution with appropriate monitoring and maintenance that ensures the hazard condition will no longer occur.

The above actions would be required to be completed and the imminent hazards would be required to be eliminated within ninety (90) days of the date of the release or discovery of the historical environmental condition or the responsible party may obtain approval of an alternative timeframe by which the imminent hazards are abated.

In such cases where these scenarios cannot be permanently eliminated within this ninety (90) day timeframe, management and control of the exposure pathway to the receptor would be necessary until

complete abatement of the imminent hazard is obtained. This can be accomplished by implementing interim control measures that typically require continuing monitoring or maintenance until the hazard is eliminated. Examples of such measures are as follows:

- (1) Provision of bottled water and/or installation and maintenance of a treatment system, and/or continued monitoring of sentinel wells and/or drinking water wells that are at risk;
- (2) Continued monitoring of sentinel wells and/or drinking water wells, with provision of bottled water and/or installation of treatment system as determined necessary;
- (3) Continued monitoring of groundwater and/or soil gas quality, ventilation of indoor areas, and/or installation of pass or active sub-slab systems to mitigate exposure with continued testing;
- (4) Risk assessment of contaminants to surface water through dilution calculation and/or continued direct sampling of surface water;
- (5) Installation and maintenance of fencing, warning signs and notifications to persons who may come into contact with soils;
- (6) Monitoring of exposure pathways for highly contaminated, leachable soils;
- (7) Installation and operation of product recovery systems, and monitoring groundwater conditions; and
- (8) Actions as required by DEEP or public safety officials for explosion conditions.

B. Reporting Imminent Hazards and Closure Milestone

These imminent hazard situations would be required to be addressed immediately or as expeditiously as possible, in order to protect public health and the environment from releases that create these situations. Responsible parties would be required to report these situations and submit documentation to certify that appropriate actions have been taken to protect public health and the environment these situations. There will likely be other reporting requirements for contemporaneous releases or historical environmental conditions that also cause an imminent hazard.

1. Reporting of Imminent Hazard Scenarios

Notification of imminent hazards would be submitted on a form prescribed by DEEP no later than thirty (30) days from the date of a contemporaneous release or the discovery of a historical environmental condition. The notification will provide documentation on the imminent hazard risks identified, steps taken to abate them, and the status of the elimination of imminent hazard conditions. Notifications would be signed and certified by the responsible party and LEP. This reporting would only be required if it is determined that an imminent hazard scenario exists. If a previously reported and mitigated or abated imminent hazard is determined to exist again at any time after mitigation or abatement, the responsible party shall provide written notification of such risk scenarios within seven (7) days of its discovery. DEEP would report the status of imminent hazard risks on its website and to state, local, and health officials.

2. Closure Reporting for Imminent Hazard Scenarios

Upon discovery of imminent hazard scenario, the responsible parties would be required to immediately take actions to address the imminent hazard. Such action would continue until such time that the imminent hazard has been eliminated. Documentation of this successful effort would be required.

Reporting on the status of the imminent hazard would be submitted within ninety (90) days of the date of the release or discovery of the historical environmental condition. This reporting would conclude whether or not further action is necessary to protect receptors or eliminate imminent hazards. If further action will be necessary to mitigate or eliminate imminent hazards, a request for extension of time, including reasonable justification, would accompany the reporting. This reporting would include all supporting information documentation necessary to explain the imminent hazard scenarios and a summary of all actions take to mitigate and/or eliminate such hazards. The requirements of this report can be achieved with the information and documentation submitted with an Early Exit Certification of Closure (if such risk can be permanently eliminated within the 90 days) or in and on a form prescribed by DEEP. If an imminent hazard is not addressed in a timely manner by the responsible party by the self-implementing means described above, DEEP may direct the party to take action, compel the necessary actions, or act to eliminate such scenarios and/or abate any such hazards.

Early Exit Closure Certification or final verification of cleanup would not be able to be made prior to resolution of imminent hazard scenarios. After abatement of the imminent hazard and mitigation of any high migration-potential conditions, there may still be contamination associated with a release that must be addressed. Therefore, resolution of imminent hazard scenarios does not necessarily indicate compliance with the cleanup regulations or the conclusion of cleanup activity associated with a release. Abatement of imminent hazards may be an interim measure, a milestone step, in achieving Early Exit Closure or Tiered Cleanup Exits closure, but may be concluded within the Early Exit ninety (90) day timeframe. In other cases, the milestone step may be achieved with a non-permanent interim control measure that would require implementation of a continuing care and monitoring program, while a release is being remediated, to ensure that an imminent hazard scenario does not recur.

Table 1. Identifying and Addressing Imminent Hazards

Imminent Hazard Scenarios	Interim Control Measures	Permanent Abatement
Pollution in public or private drinking water well	Provision of a short term drinking water supply and/or continued monitoring of at-risk supply wells	Provision of an alternative long-term supply of potable water
Pollution to groundwater exceeding the GWPC, within 500 feet of a drinking water well	Continued monitoring of surrounding wells, and provision of a short-term drinking water supply as necessary	Hydrogeologic and groundwater investigation and water supply well receptor survey to demonstrate no wells at risk
Pollution to groundwater exceeding ten (10) times the volatilization criteria within fifteen (15) feet or beneath a building	Continued monitoring, and installation of venting mitigation system as necessary	Soil gas sampling to demonstrate no exposure pathway
Pollution to groundwater that discharges to a surface water body in excess of ten (10) times the Freshwater, Saltwater or Human Health Criteria	Continued monitoring of groundwater and direct sampling of surface water; installation and operation of groundwater control measures as necessary to protect surface water	Risk assessment calculation incorporating dilution and direct sampling of surface water to determine no imminent hazard exists
Pollution to soil greater than ten (10) times DEC	Access restriction by fencing and signage	Removal or permanent capping of soils
Pollution to soil above the water table above one hundred (100) times the PMC	Monitoring of exposure pathways	Removal or permanent capping of soils and determination no imminent hazard groundwater conditions continue to exist
Presence of free phase product in soil or groundwater	Control of migration of free phase product and monitoring of environmental media	Removal of free phase product and documentation of no imminent hazard conditions exist in environmental media
Pollution that poses a risk of explosion	Actions as required by DEEP responders for explosion conditions	Evaluation of threat of explosion by DEEP response staff, ERP or LEP determines no explosion risk exists

VII. Early Program Exits

Under an Early Exit pathway, new spills and certain other releases, which are cleaned up expediently and have not impacted sensitive receptors, may receive formal administrative closure without further, longer-term cleanup obligations. The promptness of remedial actions and the elimination of risk to potential receptors are the drivers for closure of releases using an Early Exit strategy. An Early Exit would provide responsible parties with the opportunity to close releases quickly and provides certainty in written closure certification. The benefits of achieving an Early Exits include avoiding higher costs associated with longer-term obligations, minimizing the risk to human and ecological receptors, and obtaining prompt regulatory closure and certainty. Importantly, it is anticipated that many to most new spills will be able to reach an early exit and therefore, fewer open cases will remain.



DEEP would provide details in the new cleanup regulations regarding eligibility for Early Exit for each type of release - contained releases, contemporaneous releases, and historical releases. In addition, DEEP would develop guidance and a checklist that can be used by environmental professionals in the field to guide the decision-making process. These checklists would describe parameters such as the type, volume, and concentration of contaminants released; the mobility of contaminants in context of the geologic setting; the level of containment and cleanup of the release; and the potential for risk to human and ecological receptors.

Eligibility for Early Exit of contained and contemporaneous releases would extend to ninety (90) days; while, historical releases that qualify for Early Exit would be constrained to a one year exit timeframe. DEEP may authorize alternative timeframes, if appropriate. These timeframes would begin on the date of the release occurrence or the release discovery, as applicable. Additionally, if impacts from the release threaten certain sensitive receptors or human health and such imminent hazard cannot be resolved within the 90-day timeframe, the Early Exit would not be available.

In general, Early Exits would only apply to releases which have been remediated in full compliance with the default cleanup standards. The presence of residual contamination would only be allowable if concentrations are below the applicable cleanup criteria. Use of institutional controls is not favored in the case of Early Exits, except for parcels where an Environmental Land Use Restriction or other institutional controls are already in place. For the most complex release situations, an Early Exit strategy would likely not be appropriate.

The cause of any release must be immediately discontinued.

A. Contained Release Early Exit

Certain releases will not reach the environment (i.e., no substance from the release is present in soil, sediment, water or air in excess of background concentrations as determined by appropriate analytical testing with appropriate laboratory detection limits). For releases to the materials of buildings or outdoor structures (e.g., concrete slabs, asphalt, wooden decking), such materials must be cleaned to applicable standards if standards exist or if no standard exists, cleaned of all recoverable substance(s) to the extent that the impacted building is safe for reoccupation. The cause of the release must be stopped immediately. These releases would be required to be abated in accordance with prevailing standards and guidelines and would be deemed to have reached an Early Exit upon achieving the appropriate abatement.

These releases may achieve full administrative closure without further cleanup obligations with DEEP sign-off, ERP or LEP certification on a form prescribed by the Commissioner. Such a report would be submitted within ninety (90) days to qualify for Early Exit closure, unless otherwise authorized by DEEP.

B. Contemporaneous Release Early Exit

If a release occurs and the release has reached the environment, the responsible party would be required to immediately stop the release and remediate the release; or if the reportable material released is not a hazardous substance or a hazardous waste, it would be required to be cleaned up in accordance with appropriate standards and guidelines.

Many contemporaneous releases could meet these requirements by utilizing an early exit strategy. If the responsible party is able to meet an early exit for a particular release, they would have no further obligations to address this release unless audit by DEEP determines that the information submitted is not sufficient to demonstrate that the actions performed by the responsible party to clean up the release do not satisfy the early exit requirements.

Under the Early Exit strategy, laboratory analytical confirmation must exhibit that soil remediation is in compliance with the cleanup standards with unrestricted use of the release area; that impacts to surface water and sediments meet background levels; and that the release has not impacted groundwater. Determination of this status will be made by an environmental professional qualified to determine the degree and extent of releases to environmental media (i.e., LEP, ERP, or DEEP).

Once the release has been remediated, the responsible party and LEP/ERP would certify, on a form prescribed by DEEP, that the release no longer creates any condition that would pose a risk to the environment or human health. A release to an impervious surface that is subject to precipitation and/or runoff with no secondary containment/curb would be required to be cleaned up before the first significant precipitation event or require evaluation of the area by a ERP or LEP. To qualify for this Early Exit, cleanup will be completed and the Contemporaneous Release Certification of Closure will be completed on the form prescribed by DEEP within ninety (90) days of the date of the release, unless otherwise authorized by DEEP.

C. Historical Release Early Exit

Certain historical environmental conditions that are discovered through site investigation or by other means could be evaluated for Early Exit eligibility. The eligibility of historical environmental conditions for Early Exit will can only be made by a LEP and must be based on the following information:

- documentation of release discovery date;
- analytical data from investigation of soil, groundwater, sediment, surface water, soil vapor, etc.;
- facility operations and chemicals used;
- property development history;
- previous emergency response actions;
- groundwater classification and/or current groundwater use;
- previous land use restrictions recorded for parcel; and
- Sensitive receptor evaluation.

In the cases where there is sufficient information available to make a determination that a historical environmental condition is eligible for Early Exit, cleanup would be required within one year of discovery (reporting). For historical environmental conditions, the Early Exit checklist will lead the LEP through the eligibility process to determine if the Early Exit strategy is appropriate.

In this Early Exit scenario, there must be confirmation that there is no on-going release or exposures to human and ecological receptors, with any further cleanup occurring within the one year timeframe. Historical environmental conditions would demonstrate compliance with the cleanup standards through laboratory confirmation that soil remediation is in compliance with the cleanup standards (residential direct exposure criteria and the applicable pollutant mobility criteria); that impacts to surface water and sediments meet background levels; and that the release has not impacted groundwater. DEEP is considering permitting situations where the groundwater is impacted with certain low-risk pollution that is below all applicable cleanup standards at the time that such early exit certification is filed.

Once the release has been remediated, the responsible party and LEP would certify on a form prescribed by DEEP, that the release no longer creates any condition that would pose a risk to the environment or human health. Historical environmental conditions may achieve full administrative closure without further cleanup obligations with LEP certification on a form prescribed by DEEP, unless audit by DEEP determines that the information submitted is not sufficient to demonstrate that the action performed by the responsible party to clean up the release do not satisfy these requirements.

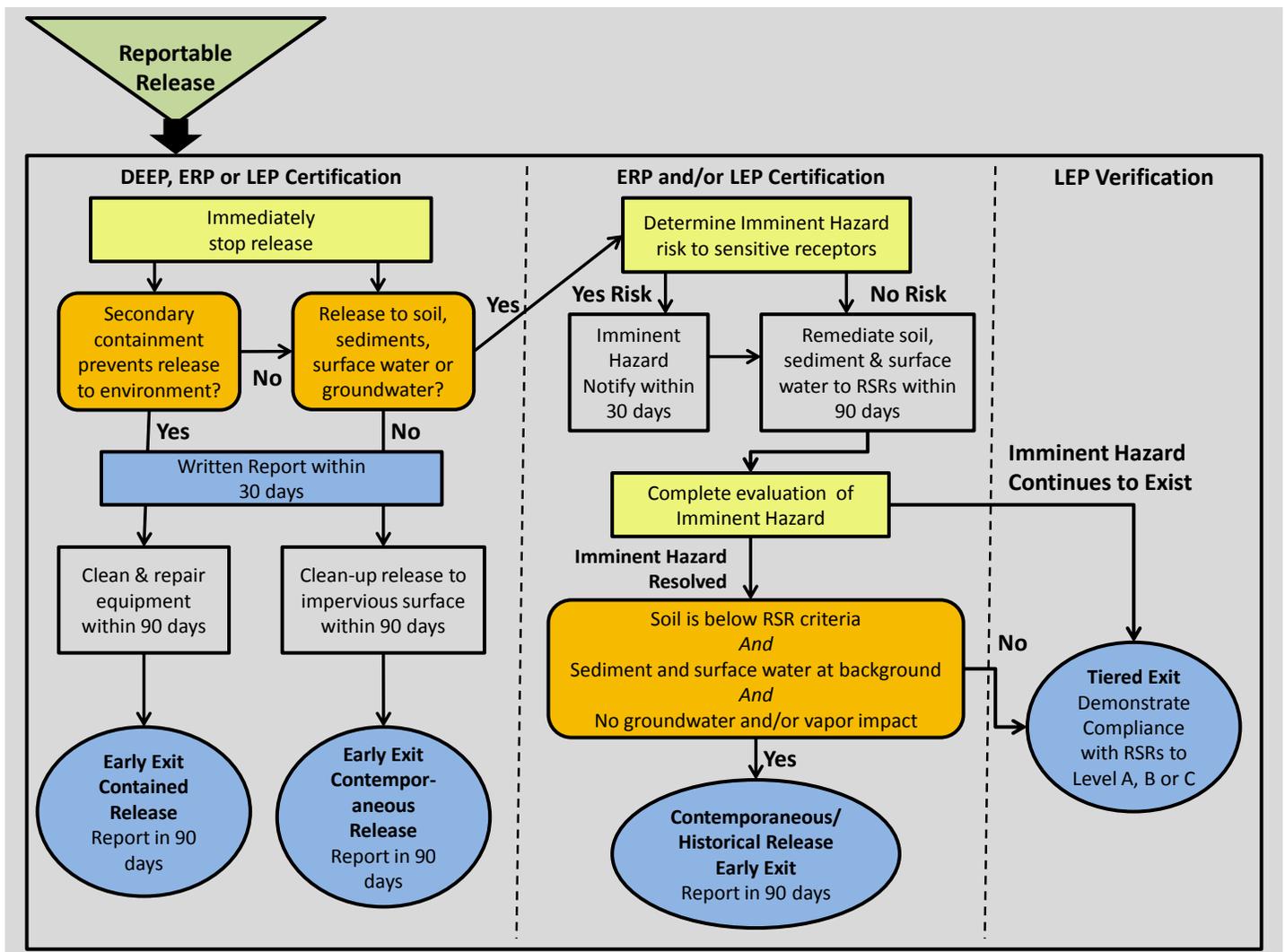
D. Early Exit Certification of Closure

Early Exit Certification of Closure (EECCs) would be submitted on a form prescribed by the DEEP. DEEP would have the authority to conduct audits of EECCs. For Contained and Contemporaneous Release Early Exits, this form would be submitted within ninety (90) days of the release to be eligible for Early Exit consideration, unless otherwise authorized by DEEP. For Historical Release Early Exit, this form

would be submitted within one year of the release discovery for Early Exit consideration, unless otherwise authorized by DEEP. Any report submitted outside of that timeframe would cause the release to be ineligible for Early Exit, unless an extension is obtained in writing from the Commissioner prior to the end of the stipulated timeframe. These extensions would be used sparingly to protect the incentive that an Early Exit strategy provides. The parameters for extension approval would be developed by DEEP.

A flow chart (figure 2) is provided to demonstrate Early Exit evaluation and closure. This flow chart would direct DEEP and environmental professionals in a uniform decision-making process on how to achieve Early Exit or entrance into a longer-term cleanup. The first section of the flow chart determines the presence of a release to the environment; the second section determines risk reduction and short-term remediation; and the final section determines the continued presence of contamination in excess of remedial criteria and/or the potential for migration of pollution to receptors, indicating a need for longer-term measures. The EECC would be signed by either appropriate DEEP personnel, a ERP or a LEP, as applicable.

Figure 2. Early Exit Decision Tree Flow Chart.



VIII. Remediation Standard Regulations

The cleanup standards or remediation standard regulations (“RSRs”) would undergo significant improvements and enhancements. These regulations would detail all of the options for regulatory closure of a release (new or historical) including Early Exit pathways and the Tiered Exits. Although the RSRs already apply to released-based cleanups, they will need to be further streamlined and updated to ensure timely, commonsense approaches can be applied to releases on a cost-effective basis while continuing to protect human health and the environment. DEEP is currently moving forward with regulatory changes that will start to achieve the goal of focusing efforts on the highest risk releases and removing roadblocks to timely cleanups.



The RSRs are currently undergoing a revision initiated independent of this cleanup transformation, and this process will continue, as these revisions support the goals of the transformation. The table below provides the highlights of proposed changes to the RSRs.

Table 2. Highlights of Currently Proposed Changes to the RSRs

2012 Proposed RSR Amendments (public hearing October 25, 2012)
Groundwater monitoring for steady state plumes – reduce monitoring requirements
<ul style="list-style-type: none"> ○ Reduction from three (3) years of monitoring to one(1) year in GA groundwater classified areas ○ Reduction from two (2) years of monitoring to one (1) year in GB groundwater classified areas ○ Reduction from two (2) or three (3) years to zero (0) years after a Direct Exposure soil-only cleanup
Pollutant Mobility Criteria – alternative, less costly compliance options
<ul style="list-style-type: none"> ○ Self-implementing waiver where groundwater meets standards and most of the release area in soil has been open to precipitation for at least five years; applicable to all pollutants except VOCs ○ Allow use of GB Pollutant Mobility Criteria in GB areas with seasonal high water table below bedrock
Capping alternatives – faster and less costly
<ul style="list-style-type: none"> ○ Self-implementing capping of fill contaminated with petroleum hydrocarbons and certain other pollutants by eliminating need for two (2) feet of clean material below the cap (for Direct Exposure Criteria exceedances) ○ Increase allowance of less expensive Engineered Controls where leaching to groundwater is demonstrated to not be an issue

Increase practical approaches – less costly
<ul style="list-style-type: none"> ○ Increased use of appropriate statistical methods (i.e., use of the 95% UCL) to meet standards
<p>Clarify pollution from normal societal activities do not need to be addressed:</p> <ul style="list-style-type: none"> ○ Normal operation of motor vehicles, including vehicle residues at parking lots ○ Normal asphalt paving and maintenance (products used for intended purpose)
Submittals - “leaner” processing through use of Commissioner-approved forms

Several Transformation Workgroups and DEEP workgroups have begun the process of evaluating compliance options and the compliance structure, as a whole, to look for opportunities which provide more clarity and flexibility in the RSRs. In general, it was agreed that the overall organization of the RSRs could be better structured to provide clear compliance pathways. In particular, the focus was on soil, sediment, groundwater, surface water, and institutional controls, looking for new and improved ways to provide the same level of protection in the RSRs through alternative compliance options, an increase in self-implementation, and expansion of levels of cleanup (see tiers below) dependent on site use.

A. Expansion of Self-Implementing Options

Feedback from stakeholders indicated a strong need for development of more opportunities for self-implementation in demonstrating compliance within the RSRs. The increase in self-implementation options would provide additional authority to LEPs. With the additional authority provided to LEPs through self-implementing options in the RSRs, statutes and regulations must also ensure commensurate responsibility and accountability. Through Transformation Workgroups, self-implementing options were proposed for soil, sediments, groundwater, surface water, and institutional controls. These options are further discussed in their respective sections below. The goal is to make variances largely self-implementing to compliment the requirement for responsible parties to proceed to a timely cleanup endpoint. Only in certain cases where variances involve compelling reasons would obtaining DEEP approval be necessary.

B. Applicability and Definitions

Certain sections of the RSRs would need to be updated and/or expanded. The Applicability section of the RSRs is one such section where more specific direction could be provided to the regulated community. The Applicability section (22a-133k-1(b)) would be updated to clarify how the RSRs apply to release areas and how the RSRs do not apply in certain circumstances (e.g., naturally occurring contaminants, appropriately applied pesticides and herbicides, permitted discharges). Further, there would be a transition clause describing how to navigate RSR criteria updates and clarification on conducting Laboratory Data Quality Assessments and Usability Evaluations. Applicability of each category of RSR criteria (i.e., direct exposure, groundwater, etc.) would be described more clearly at the outset of each subsection.

Another major improvement would be to update the Definitions section (22a-133k-1(a)). In this section, more clarity on certain concepts could be provided (e.g., anthropogenic contamination, background conditions, naturally occurring contaminants, historical and widespread fill, upgradient conditions, etc.). Additionally, new terms would need to be introduced to be consistent with a new statutory program and the revision of subsections in the RSRs that pertain to the remediation of environmental media.

C. Soil and Sediment

Several main concepts for providing greater flexibility and clarity in remediating soil and sediments arose from workgroup discussion. Since the assumptions used to develop criteria do not always fit the specific setting for a release and use of a property, additional tiers for criteria are suggested (e.g., residential, recreational, commercial, industrial, agricultural, etc.). The additional tiers would allow for land use-based cleanups and provide more standard options for compliance without requiring DEEP approval.

The cleanup of soils regulated by federal law, such as soil polluted with PCBs, would not be re-evaluated or changed by DEEP.

1. Direct Exposure to Polluted Soil

The current RSRs offer two exposure scenarios – one for residential and one for industrial/commercial settings – and provide variances from those scenarios with DEEP approval. Several changes to the RSR criteria would be considered:

- Re-evaluating worker exposure timeframe in terms of days/year, taking into consideration the duration of frozen ground in New England, for industrial/commercial criteria;
- Evaluating commercial and industrial exposure scenarios separately;
- Creating a more moderate exposure scenario based upon passive recreational use, which would not be as stringent as the residential scenario and would be based upon factors such as exposure pathways and frequency and duration of exposure;
- Providing the opportunity for a self-implementing site-specific calculation, using appropriate, alternative default assumptions;
- Revisiting the definition of “inaccessible soil” to evaluate the depth intervals and types of barrier structures set forth in the current RSRs; and
- Expanding the options available (self-implementing by LEP and for Commissioner Approval) for Institutional Controls which prevent direct exposure (refer to the Institutional Controls section below for further details).

Table 3. Summary of Possible Changes to Direct Exposure Compliance Scenarios

Direct Exposure to Polluted Soil	
Compliance Options	Potential Expanded RSR Options
Default	Evaluate site-specific assumptions in calculating the numerical DEC criteria Add additional land use-based default criteria: <ul style="list-style-type: none"> • Residential and Active Recreational • Passive Recreation / Open Space • Commercial • Industrial • Agricultural
Self-Implementing (LEP)	<ul style="list-style-type: none"> • Institutional Controls based on land use • Barrier structures available with Institutional Control • Site-specific risk calculation (using DEEP parameters) • Cleanup to less than four feet with Institutional Control • Asphalt barrier directly over impacted soil with Institutional Control
Site-Specific (Commissioner Approval)	<ul style="list-style-type: none"> • Site-specific risk calculation

2. Pollutant Mobility in Soil

Transformation Workgroup discussions identified two areas for re-evaluation of pollutant mobility in soil: review of the derivation of the pollutant mobility criteria (PMC) and the expansion of self-implementing options. As pollutant mobility in soil is inherently tied to groundwater quality, recommendations regarding review of the Anti-Degradation Policy to expand PMC categories are further described in the Groundwater section below. Initial internal analysis of assumptions used in calculating the PMC have considered the age of a release, type of substance released, geology, fate and transport, dilution factors, and leachate analysis. While this scientific evaluation process is proceeding, several possible changes to the RSRs pertaining to the creation of self-implementing and site-specific options without modifying the assumptions behind the PMC could be made. These options would work to prevent the need for remediation of contaminants which exceed default cleanup criteria but can be shown to be at levels that do not pose a risk to human health or the environment.

The envisioned self-implementing options would consist of simplified partitioning and model-based formulas where the setting of the release meets certain basic conditions and certain site-specific conditions, such as the amount of clean soil between the pollution and the groundwater and the fraction of organic carbon in the soil, which could be input within specified ranges. A spreadsheet tool with the formulas would be developed and made available on the DEEP website to support the self-implementation of these options. These formulas would allow remedial efforts to be more appropriately scaled to the actual risks posed by a release.

Comparison of the current self-implementing circumstances to the assumptions in the site-specific formulas to be developed would be necessary to ensure that the technical assumptions used are appropriately conservative. Furthermore, some of the policy-based limitations on the use of

attenuation which occurs during migration from a release should be re-evaluated. The end result should retain a simple and protective default adjustment option.

While self-implementing options would be created for LEP use, there would remain more complex site-specific options available for the Commissioner's approval, such as options to request use of site-specific conditions outside of the specified ranges or to allow the use of other modeling approaches.

In cases where site-specific conditions are used for developing an alternative dilution and/or attenuation factor, it may be necessary to include restrictions on reuse of soil off-site, since those off-site locations would not have the same site-specific exposure assumptions for these soils to avoid posing a risk to groundwater quality.

An additional modification to current self-implementing options would be the use of proposed changes to the 95% UCL procedures as recommended by the [Remediation Roundtable](http://www.ct.gov/deep/remediationroundtable) (<http://www.ct.gov/deep/remediationroundtable>) 95%UCL Workgroup. In essence, the proposed changes include the following:

- Removal of the "two times" limit on the data;
- Change the minimum amount of soil samples required to ten (10); and
- Removal of the excavation restriction for use of the 95%UCL.

Guidance that is being developed by the 95%UCL Workgroup will provide greater clarity for the use of this particular provision in the RSRs in any circumstance where 95%UCL calculations are used for the statistical analysis of environmental data.

Compliance with PMC is particularly difficult to achieve in cases where fill in urbanized areas exists. These Urban Soils are historically emplaced, typically comprised of a mélange of common but potentially hazardous chemicals and metals that often contain low levels of residual pollution in soil, and can be heterogeneous in nature. The current recommendation from the [Remediation Roundtable](#) Urban Soils Workgroup states that, provided that contaminants found in these soils are not the result of a release, that deposition of such soil was not prohibited at time of placement, and that such soils do not include materials such as foundry slag, casting sand or coal tar, such Urban Soils would be consistent with the current exemption from the PMC commonly referred to as the "Coal Ash Exemption." Urban Soils would not necessarily be limited to inner city areas, as fill emplaced in rural areas may also have the same attributes. Any contaminants in Urban Soils considered to be from a specific release would require remediation in accordance with appropriate standards. Since Urban Soils may contain hazardous substances, contaminants at concentrations in excess of the DEC would require remediation, therefore standardized Institutional Controls are being evaluated by the Urban Soils Workgroup in addition to guidance on how to address such soils.

Expansion of Institutional Control options to comply with the PMC is discussed further below. It is thought that any revisions to the numerical PMC should be made before possible changes to Institutional Controls pertaining to PMC, since revisions of the criteria may eliminate the need for rendering soils "environmental isolated" in many cases.

DEEP would develop additional guidance and prescribed forms for both LEP self-implementing and site-specific Commissioner's approval options to facilitate their use, as these options seem to be under-utilized due to uncertainties as to what would be appropriate.

Table 4. Summary of Possible Pollutant Mobility Compliance Options

Pollutant Mobility in Soil	
Compliance Options	Potential Expanded RSR Options
Default	<ul style="list-style-type: none"> • Compare to numerical criteria for GB PMC and GA PMC
Self-Implementing (LEP)	<ul style="list-style-type: none"> • Provide tools and guidance for all self-implementing options • Retain current options available under 22a-133k-2(c)(2)(A), (B), (C), (D) & (E) that take certain site conditions into account • Create new options that take soil characteristics into account • Implement changes to 95%UCL procedures and provide guidance • Urban Soils exemption, guidance, and Institutional Controls
Site-Specific (Commissioner Approval)	<ul style="list-style-type: none"> • Retain Commissioner approval options for site-specific adjustments available under 22a-133k-2(d)(3), (4), (5) & (6) • Provide guidance for the utilization of these options

3. Sediment

The current RSRs require the remediation of sediment on a case-by-case basis with no specified criteria. The ambiguity in this approach has led to uncertainty in addressing sediment contamination for the regulated community and significant use of DEEP resources. DEEP is considering revisions to the RSRs that would include clear direction as to when sediment remediation is required and to which standards such remediation will be held. In addition to providing clearer regulations, DEEP would need to develop guidance to describe the appropriate standard of care for investigation and remediation of releases to sediments. This guidance, although not regulation, would be relied upon by DEEP and LEPs for consistency.

The Transformation Workgroups have proposed a tiered program that is based on the complexity of the environmental setting and toxicology to evaluate releases to sediments and to define exit points from the regulations. LEPs would conduct the large portion of this process, while the most complex, highest risk, and large scale situations would be handled in consultation with DEEP. This tiered program would be accompanied by checklists and forms prescribed by DEEP to document the decision making process and exit point for each release. The sediment evaluation and remediation would be subject to audit, just as is the current case for a release impacting other media.

Four tiers, or levels assessment, are being considered and would be followed in sequence. The sediment assessment levels are described as follows:

- (1) Scoping-Level Assessment – The purpose of this initial level of assessment would be to determine the presence of sediment in the vicinity of a release and if that release could have the potential to impact sediments through migration or direct contact. The need for testing of sediment would be limited. Achievement of this assessment would be demonstrated on the form for Early Exit or on the Completion of Investigation form for Tiered Cleanup Exits, as applicable, and certified by the ERP or LEP. If the Scoping-Level Assessment demonstrates that sediments are present and that there is a pathway or that there is a likely pathway for

contaminants from a release to migrate to sediments, additional assessment would be required as described below.

- (2) Screening-Level Assessment – The goal of the Screening-Level Assessment would be to determine if sediments have been impacted by a release through analytical testing and comparison to benchmark values that would be established or incorporated by reference in the new cleanup regulations. Achievement of this assessment would be demonstrated on the form for Early Exit or the Completion of Investigation form for Tiered Cleanup Exits, as applicable, and certified by the ERP or LEP. If it is determined that pollution from a release is present in sediments that exceed benchmark values, the LEP would proceed to the next level of assessment described below.
- (3) LEP Risk Assessment – This level of assessment would be used to determine where a release poses an unacceptable risk to human health or the environment due to contamination of sediments. Regulatory requirements at this level would allow LEPs and other credentialed environmental professionals, such as ecologists, to conduct a risk assessment to demonstrate the presence or absence of an unacceptable risk to human health or the environment. This assessment would be based on analytical testing and assessment of release conditions and pathways by the LEP.

If the assessment demonstrates that no unacceptable risk exists or that unacceptable risk does exist and the LEP decides to conduct remediation to eliminate the risk, the release may be eligible for Early Exit, provided that these assessments can be completed within the 90-day or one-year timeframe, as the case may be. If the assessment demonstrates that unacceptable risk exists and the remediation will require longer than the applicable Early Exit timeframe or that the risk may be addressed through Institutional Controls, the release would no longer qualify for an Early Exit.

Achievement of this assessment would be demonstrated on the form for Early Exit or the Completion of Investigation form for Tiered Cleanup Exits, as applicable, and certified by the LEP. (ERPs would not be able to certify an Early Exit with sediment issues that progress to this level of assessment.) If achievement of this assessment cannot be completed by the LEP and further assistance by the DEEP is warranted, the next level of assessment would be applicable.

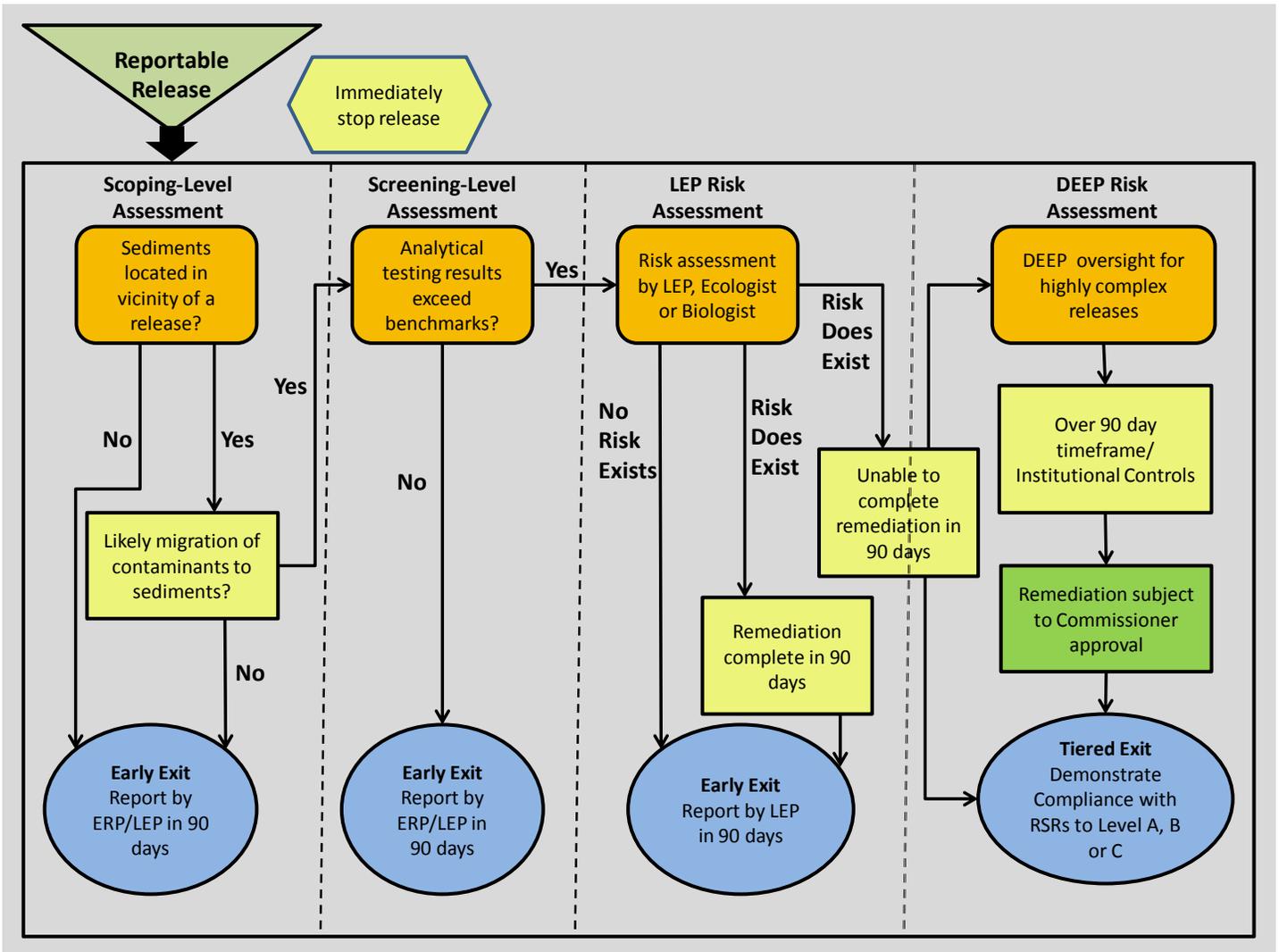
- (4) DEEP Risk Assessment – This level of assessment would be reserved for releases with a high degree of risk and/or complexity that have impacted a large area, and where public interest/policy warrants. In this case, certain factors involved in a release to sediments would shift the responsibility from LEP verification to DEEP approval. These factors may include, but are not limited to, instances of technical impracticability, remedies that would result in the destruction of a wetland, a release that has impacted a watershed, and/or locations where public interests/policy issues are involved. In such cases, DEEP would provide oversight and work with the LEP to achieve resolution of sediment impacts. The remediation of such impacts would be subject to Commissioner approval. Achievement of this assessment would be demonstrated on the Completion of Investigation form for Tiered Cleanup Exits, as applicable. Due to the timeframes required to address highly complex situations, Early Exit for DEEP Risk Assessments sites is not an option.

Following this four-stage process will clarify when action is to be taken to protect ecological receptors, while allowing for site-specific approaches to meet established sediment benchmarks.

Table 5. Summary of Recommended Sediment Remediation Concepts

Sediment	
Compliance Options	Potential Expanded RSR Options
Default	<ul style="list-style-type: none"> • Establish numerical criteria for sediment
Self-Implementing (LEP)	<ul style="list-style-type: none"> • (1) Scoping-Level Assessment (presence of sediment and pathway for migration) • (2) Screening-Level Assessment (comparison of data to benchmarks) • (3) Risk Assessment (by qualified LEP, ecologist, biologist) • Institutional Control based on zoning, monitoring, and registry
Site-Specific (Commissioner Approval)	<ul style="list-style-type: none"> • (4) DEEP Risk Assessment – DEEP oversight of remediation for most complex situations • Screening-level Assessment for “special case contamination” such as PCBs

Figure 3. Flow chart for sediment evaluation – levels of assessment.



D. Groundwater, Surface Water, and NAPL

Transformation Workgroups identified several major areas for improvement to the RSRs with respect to groundwater, surface water, and non-aqueous phase liquids (NAPLs). These areas include a decrease in requirements for post-remediation monitoring, clarification of several concepts that are not currently described in regulations, increased opportunities for self-implementing compliance measures, and increased flexibility in compliance options for areas classified as GA.

Requirements for post-remediation monitoring have already been proposed in the revisions to the RSRs that are currently in the legislative process. This adjustment, if passed, would condense compliance and post-remediation monitoring requirements and make closure of groundwater issues much shorter in duration.

Additionally in the new cleanup program, the need for groundwater monitoring requirements would be eliminated for certain Contemporaneous Releases where no impact to groundwater quality is expected or detected. In these cases, sufficient soil data to demonstrate that contaminants have not reached the water table and/or groundwater testing would be required. Such Contemporaneous Releases are candidates for Early Exit, provided that work is completed within the 90-day timeframe.

It is recognized that clarity on certain policies pertaining to water quality and contamination would be necessary. Among these are the upgradient policy for groundwater, disallowing of use alternative Surface Water Protection Criteria (SWPC) for stagnant water bodies or tidal waters, addressing co-mingled plumes, distinguishing naturally occurring substances from an identifiable release of pollutants, and Technical Impracticability (TI) issues. Any PCB water quality criteria will continue to be regulated under the Federal code.

1. Technical Impracticability

Current provisions in the RSRs allow for considering the remediation of groundwater to be technically impracticable. Obtaining such a variance can be a cumbersome, technically complicated, and expensive process. Efforts are being made to clarify and simplify this process in order to increase the ability for this option to be used. These efforts are two-fold:

- (1) To identify criteria for determining the applicability, appropriateness, and protectiveness of a TI by demonstrating that a release subject to a TI variance does not and will not adversely impact human health or the environment; and
- (2) To provide additional mechanisms for the use of a TI, including the use of Institutional Controls for groundwater and volatilization, a TI for impacts to groundwater from residual sources which have been remediated to the maximum extent prudent (or practicable), and a TI for groundwater plumes that can be shown to not be naturally attenuating in a reasonable time frame.

With regards to the first, it would be necessary to provide a better definition of what will be expected in remediating a release to the “maximum extent prudent”, “reasonable timeframe,” “extent practicable” and other technical concepts such as determining cost versus benefit to the environment, cost versus level of risk to receptors, and cost versus the ability to achieve compliance with criteria. The value of the current requirement to apply for a GB reclassification as part of the TI request should be revisited. It

would also be useful to have the option to include prohibition of all groundwater pumping as part of an ELUR, rather than simply a prohibition to use water for potable or other domestic uses.

Two types of TIs are currently in use: the Residual Source TI and the Steady State TI. The Residual Source TI option applies to those sites where the primary release has ceased but a recalcitrant residual phase causes a continuing impact to the State's water quality. The Steady State TI option applies to those sites where the source (primary and residual) has been eliminated, but resulting groundwater impacts, whether contiguous or detached, will remain for an unreasonably long time due to low groundwater velocity or other geologic conditions.

Because of the associated long-term groundwater obligations, closure of a release for which a TI variance is obtained would be eligible for Class C Tiered Cleanup Exits (refer to Section XI). The TI provision in the RSRs (22a-133k-3(e)(2)) does not mandate the posting of surety nor does it mandate long-term monitoring and maintenance. Since long-term obligations to maintain and monitor systems required for a TI variance would be comparable to those for Engineered Controls, this language would be updated in revisions to the RSRs. To make these long-term obligations clearly enforceable, there would need to be a framework in place, such as a permitting process which can be transferrable from party to party and is long in duration. If the Responsible Party ceases to exist after the TI is in place, thereby abandoning its long-term obligations, the release would no longer be in compliance. Financial surety would be required to cover the cost of the State in taking over any short-term responsibility until obligations can be assumed by a new party. In such cases, it may be beneficial to allow some or all of the surety to be used as an incentive for a new owner to cover the cost of the long-term obligations that they would be assuming. TI variances would also be subject to registry for non-conforming groundwater quality so that such information will be readily available to interested parties.

Another expansion option may be the use of TI variances for containment of a plume exceeding volatilization criteria where containment is necessary to address volatilization issues that cannot be otherwise addressed by vapor barriers or negative pressure systems, such as when access is not granted to a neighboring property.

TI variances are often too rigorous and expensive to be used as a tool for addressing low level residual plumes, such as those commonly associated with gas stations. A less complex mechanism is needed to deal with those types of groundwater plumes, since they are typically smaller in area and the contaminants are less persistent. An alternative would be the use of a risk assessment variance that could show there is an acceptable level of risk. The risk assessment approach would allow some releases that would currently necessitate a TI to be addressed without DEEP approval and without the continuing obligation for periodic reviews under a TI.

2. Self-Implementation and Groundwater Compliance

Monitored Natural Attenuation

Among the self-implementing compliance measures, a future proposed revision would be the use of Monitored Natural Attenuation (MNA) to address situations where groundwater quality will achieve compliance with applicable criteria in a reasonable timeframe as a result of natural processes. MNA is distinct from situations where a TI is appropriate. Eligibility to use a TI rather than MNA is in part based on the ability achieve groundwater criteria in a reasonable timeframe and how that timeframe is defined. In most reference documents, an acceptable duration for an MNA program is 5 to 20 years.

Self-implementation of MNA would include an evaluation of downgradient receptors and off-site issues, along with a periodic progress evaluation to demonstrate that attenuation is in fact occurring. The MNA evaluation may include modeling of recalcitrant plumes to document that attenuation is occurring within a certain timeframe.

It is anticipated that a timeframe extension request may be needed in this situation. However, if review of the progress made under MNA during a request for extension shows that it is not an effective remedial approach, the potential for unremediated source areas to be present would need to be addressed. Because of the long-term groundwater obligations, closure of a release to which MNA is applied would be eligible for Tiered Exit Class C and the area of groundwater degradation may need to be registered.

Groundwater Compliance

Other opportunities for self-implementation arise from the re-evaluation of the applicability of groundwater protection criteria (GWPC) to incorporate site-specific conditions and refinement of groundwater classifications (GA versus GB areas).

Currently, the RSRs have essentially two paths for meeting groundwater cleanup goals, contingent upon whether the groundwater quality classification is GA or GB. Based on reasonable assumptions regarding risk and known resource allocation, areas could be identified where alternative, resource-based groundwater cleanup standards may be used as a self implementing option in certain GA areas – in effect, an Alternative GWPC. Considering the Anti-degradation Policy in the Water Quality Standards (WQS), it may be acceptable to remediate to an Alternative GWPC in a GA area only if there is no current use or future plan to utilize the water resource for drinking purposes. In these areas, releases to soil that constitute a source of pollution would still be remediated to applicable RSR soil criteria, but the dissolved phase plume associated with the release could be afforded an alternative interim cleanup goal. In this scenario, long-term attenuation through natural processes would be expected to dissipate a typical contamination plume without active remediation, ultimately achieving the Class GA management goal.

Where this Alternative GWPC would be applicable, the plume would still be required to meet the Surface Water Protection and Volatilization Criteria; the three-dimensional and seasonal extent of the plume would need to be characterized; the mass of contaminants in the plume would need to be in a diminishing state; and would not apply to certain aquifer types, such as bedrock. The Alternative GWPC would be a multiplier of the GWPC that would allow for minor groundwater impacts to naturally attenuate in areas where groundwater is not used for drinking water purposes. This Alternative GA area would need to be documented and mapped through a registration of non-conforming groundwater quality.

Currently, 5% of the area of the state is assigned a groundwater classification of GB. Taking into consideration the factors listed below, the Alternative GWPC may be applicable to an additional 8% of the state, which roughly contains approximately 15% or more (estimated values may change as more data is analyzed) of sites currently in the Property Transfer Program:

- Area served by public water;
- Area not defined as GB:

- Area not defined as GAA;
- Area not within an Aquifer Protection Area;
- Area not within a Public Supply Watershed;
- Area not within a Public Supply Source Area; and
- Area not within a Potential Aquifer Area.

In certain circumstances self-implementation would not be possible because the conditions cannot be met. However, there may be exceptions to the conditions presented for self-implementation for which a LEP could request the Commissioner's Approval of site-specific use of the Alternative GWPC. These conditions would include areas where a public water supply is not currently mapped, a contaminant plume is present in bedrock, GAA Areas, and plume concentrations exceed the established Alternative GWPC. Further information would be required to review and approve such requests.

In addition, DEEP will commit to a state-wide re-evaluation of GA areas to determine if additional areas of the state can be reclassified to GB. The WQS allow DEEP to reclassify Class GA areas to Class GB if certain requirements are met. The requirements set forth in the WQS are that groundwater is not used for drinking water purposes; public water is supplied from outside the area; intense urban, commercial, or industrial development is present which occurred prior to 1981; and hydrologic conditions of the subject area are not suitable for the development of a significant public water supply. Although individual site reclassifications have taken place, a full-scale evaluation of GB areas has not been conducted in many years due to lack of available detailed data and limited staffing. DEEP will undertake such a re-evaluation on an area-wide basis using existing reclassification procedures, but will need assistance and agreement from the municipalities and local officials to verify public water service connections and resource uses.

Table 6. Summary of Possible Groundwater and Surface Water Concepts

Groundwater and Surface Water	
Compliance Options	Potential Expanded RSR Options
Default	<ul style="list-style-type: none"> • Compare to numerical criteria for Groundwater Protection Criteria (GWPC), Surface Water Protection Criteria (SWPC) and Volatilization Criteria (VC) • Expand the land use based tiers for VC, similar to DEC
Self-Implementing (LEP)	<ul style="list-style-type: none"> • Use the Alternative GWPC (Tier C Exit) • Use of the Upgradient Policy • Use of modeling of recalcitrant plumes to document attenuation occurring within a certain timeframe (Tier C Exit)
Site-Specific (Commissioner Approval)	<ul style="list-style-type: none"> • Groundwater plume at property line is below applicable criteria with IC (plume cannot exceed a maximum level) • Groundwater plume emanates off site and control water rights with IC (plume cannot exceed a maximum level) • Site-Specific application of the Alternative GWPC when self-implementing assumptions cannot be met • Site-specific risk assessment • Use of a aquifer dilution model for SWPC (property boundary distance from surface water) • Expansion of TI variance options with expanded IC

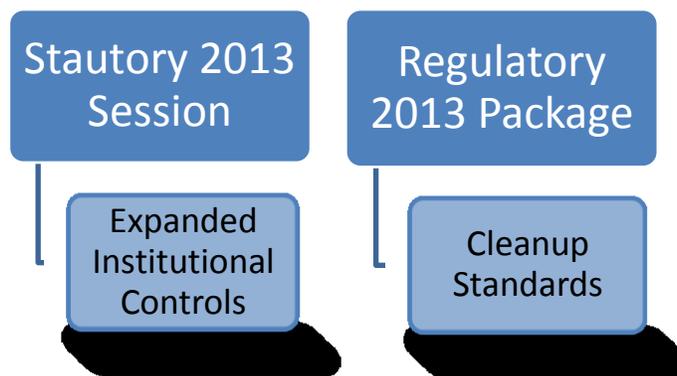
If self-implementing options are utilized, the LEP would need to demonstrate the validity of their use and LEP certification of such validity at each milestone and final verification would be necessary. DEEP understands that supplemental guidance would be needed. The use of self-implementing alternative criteria would be subject to DEEP audit.

3. Additional Topics for Future Consideration

Other topics for further consideration include the topics of surface water, soil and groundwater volatilization, NAPL, and presumptive remedies. For instance, self-implementing surface water calculations to be revisited include using more accurate estimates of stream dilution, the potential for applying the 95% upper confidence limit (UCL) calculation for compliance, and the use of aquifer dilution models. Volatilization concepts to be explored include researching vapor risk posed by soil impacted by volatile compounds, models for vapor transport, mechanisms to mitigate risks, and addition of new criteria tiers (similar to those proposed for DEC). NAPL concepts would also need to be explored, including the definitions of “prudent” and “practicable” as they apply to light NAPL, the mobility of NAPL, and the use of TIs where NAPL exists so that these releases may be closed under the Tier C Exit.

E. Institutional Controls

Currently, the only type of Institutional Control (IC) which is provided by Connecticut law is a Declaration of Environmental Land Use Restriction and Grant of Easement (ELUR). ELURs can be onerous for the responsible party to prepare and for DEEP to approve because of the complexity of legal documents and the statutory requirement that all interests in the land, which are affected by the ELUR, be subordinated to the ELUR.



ELURs are important, however, because they are used to limit human exposure to pollutants by prohibiting specific activities at a parcel. In most cases, this is an easement granted by the property owner to the State with subordination of the existing interests in the land which are affected by the ELUR, subject to approval by the State, and that runs with the land in perpetuity as long as contamination remains which exceeds the default criteria in the RSRs. These measures are designed to promote awareness of the restriction for future owners and prevent exposure to pollution. In addition, an ELUR has clear enforcement authorities.

While this highly-protective approach is appropriate in high-risk situations, the ELUR approach may not be necessary in low-risk situations to adequately protect human exposure or the environment (refer to Figure 4). For example, in the cases where parcels are already zoned for industrial or commercial use, a self-implementing Deed Notice that indicates that any pollution on that property meets the criteria for such use may be more appropriate. This self-implementing approach may also apply to passive recreational use parcels that are cleaned up to such potential criteria.

Having additional types of ICs that are self-implementing and certified by a LEP will provide the flexibility needed to implement a simpler, and yet effective environmental control for lower risk situations. This will promote more efficient, streamlined and result-oriented cleanups. This recommendation has been espoused by many stakeholders, including many Transformation Workgroups.

A Deed Notice would be an informational document filed in public land records that could alert anyone searching the records to important information about contamination on the property, as well as activities and uses compatible/incompatible with such conditions. Advantages of a Deed Notice would be that it could be self-implementing by a responsible party under a verification by an LEP, thus making it a quicker and less costly IC to create.

A Deed Notice could be an effective IC by being recorded in the chain of title, thus providing notice to prospective future owners and others who may review the chain of title, and by being enforceable against current and future owners and easement holders of the property.

Any Deed Notice would need to be effective against existing easement holders whose rights may include excavation or other activities that could create exposures to the contamination left behind. One approach would be to require management of soil contaminated above the cleanup criteria, for which a Deed Notice has been recorded, in a manner consistent with applicable federal, state, or local

requirement and laws, including complying with any Deed Notice filed on the land records. Alternatively, any excavation or exposure in the area could be reported as a release and remediated in accordance with the cleanup standards to achieve the same or more conservative exposure and soil management goals.

DEEP proposes that a Deed Notice could be used in low-risk situations which include, but are not limited to, the following circumstances:

- To provide notice that a property cannot be used for residential, educational, childcare, or recreational activities if the property is zoned for commercial or industrial land uses which are consistent with the RSR definition for residential activity;
- To prevent disturbance of polluted soil that exceeds the applicable Direct Exposure Criteria but is inaccessible, in compliance with the provisions of the cleanup regulations, provided pollutant concentrations in such inaccessible soil do not exceed a specified multiplier of the applicable direct exposure criteria;
- To prevent disturbance of an engineered control to the extent such engineered control is for the sole remedial purpose of eliminating exposure to polluted soil that exceeds the direct exposure criteria, provided pollutant concentrations in such soil do not exceed a specified multiplier of the applicable direct exposure criteria; or
- To prevent demolition of a building or permanent structure that renders polluted soil environmentally isolated, provided either: (i) The pollutant concentrations in the environmentally isolated soil do not exceed a specified multiplier of the applicable direct exposure criteria and the applicable pollutant mobility criteria, or (ii) the total volume of soil that is environmentally isolated is less than a specific quantity, such as, ten cubic yards.

1. Increasing Transparency of Information Regarding Institutional Controls

In order for any IC to be effective, information regarding ICs must be made available in a manner that readily available to the public (including, owners, operators, tenants, occupants, public utilities and contractors, governmental entities and neighbors) in the course of their usual activities. The following types of information are being considered and may be applicable to certain types of ICs:

- **IC Registry** – This registry would be used to provide a list of ICs and information regarding activities and uses compatible/incompatible with a given IC. This registry would be made available on the Internet.
- **Zoning Notice** - A notice would be filed with the municipal building and/or planning department to ensure that there is no change in zoning or building (demolition, construction, or structural modifications) without consideration of the IC.
- **Geographical Information System** – Maps would be made available on the internet showing the locations subject to ICs. (For situations where only a portion of a parcel is subject to the Notice, the portion would need to be delineated by an appropriate mapping survey.)

- **One Call Information System such as the Connecticut “Call Before You Dig”** - The CT “Call Before You Dig” Program was established to alert the public to the dangers of digging into underground public utility lines. The program is supported by monies paid for by the utilities that subscribe to the program. This type of information system would notify parties which intend to excavate of the presence of an IC and direct them to the Deed Notice Registry, Geographical Information System, municipal land records, zoning notices, and DEEP files for further information.

Currently, ELURs go through a public involvement process prior to approval and this process would be necessary for other types of ICs, such as Deed Notices.

2. Maintaining Institutional Controls

ICs would remain in force for as long as the pollutants of concern from a release remain. The ability of an IC to successfully protect human health and the environment depends on a long-term maintenance and monitoring program which would include:

- Mapping and tracking of where and when ICs were implemented;
- Notification to the public and governmental agencies if activity will be take place which may interfere with the IC;
- Monitoring and maintenance of engineered solutions such as engineered controls;
- Financial assurance such as insurance to address the risk caused by a failed IC; and
- Self-reporting to DEEP of the status/condition of an IC in accordance with a defined schedule.

DEEP would have the authority to conduct inspections and audits of ICs.

Enforcement of ICs would be necessary to maintain the viability of the use of ICs to an instrument to protect human health and the environment. If the ICs are not perceived by the public to be effective and enforced, these remedies will be less readily accepted as being protective. Increased self-implementation options for ICs and providing additional authority to LEPs, would be coupled with appropriate responsibility and accountability. The enforcement provisions for ICs would include statutory fines for violations of ICs; provisions for traditional enforcement such as administrative orders; and provisions for third party enforcement such as US EPA and certain other affected parties.

3. Termination and Modifications of Institutional Controls

Terminations of ELURs have been routinely approved by DEEP and have played a successful role both in the cleanup and redevelopment of contaminated properties. ELURs can only be terminated by DEEP. DEEP would be authorized to terminate any Deed Notice unilaterally. LEPs would only be allowed to terminate DEED Notices approved by a LEP as long as DEEP is notified of the termination.

Provisions would be included to allow for the modification of Deed Notices for the purpose of making corrections. ELURs can only be modified by DEEP. DEEP would be authorized to modify any Deed Notice unilaterally. LEPs would only be allowed to modify DEED Notices approved by a LEP as long as DEEP is notified of the modification.

4. Applicability of Institutional Controls

If any IC is applied to a release, the release would not be eligible for Early Exit, as the IC would require continued monitoring under the Tiered Exits B or C. Below are some examples of how an IC might be applied to comply with regulations:

- Soil Direct Exposure – In scenarios that include rendering inaccessible and capping of soils that present a direct exposure risk, a Deed Notice recorded which:
 - Includes disturbance and building restrictions as appropriate, unless such activities are completed in accordance with the soil management plan approved by the Commissioner;
 - References a Soil Management Plan approved by the Commissioner, which includes regular inspections, erosion control, a description of the activities covered by the soil management plan, notification requirements, soil handling procedures, site restoration specifications, soil storage and disposal protocols, reporting requirements and record retention requirements; and
 - Includes a requirement that all federal, State and local health and safety laws and regulations are followed and that a Health and Safety Plan are followed for activities which involve the disturbance or exposure of contaminated soil.
- Soil Pollutant Mobility – With engineered controls that are designed to shed water and prevent infiltration into contaminated soil, such as a building or permanent structure, it may be appropriate for a LEP to use a self-implementing IC with recordation on the land records through a Deed Notice if certain conditions are met including:
 - The release has occurred within a GB area;
 - It has been verified that there is no use of the groundwater for drinking purposes, no sensitive environmental receptors exist within 1,500 feet of such release that may have the potential to be impacted by such release; and
 - The overlying structure has been determined by a Professional Engineer to be sufficiently impermeable to prevent the infiltration of water into the contaminated soil, such as a former building slab that is of sufficient thickness with no penetrations that would allow for significant infiltration of water.

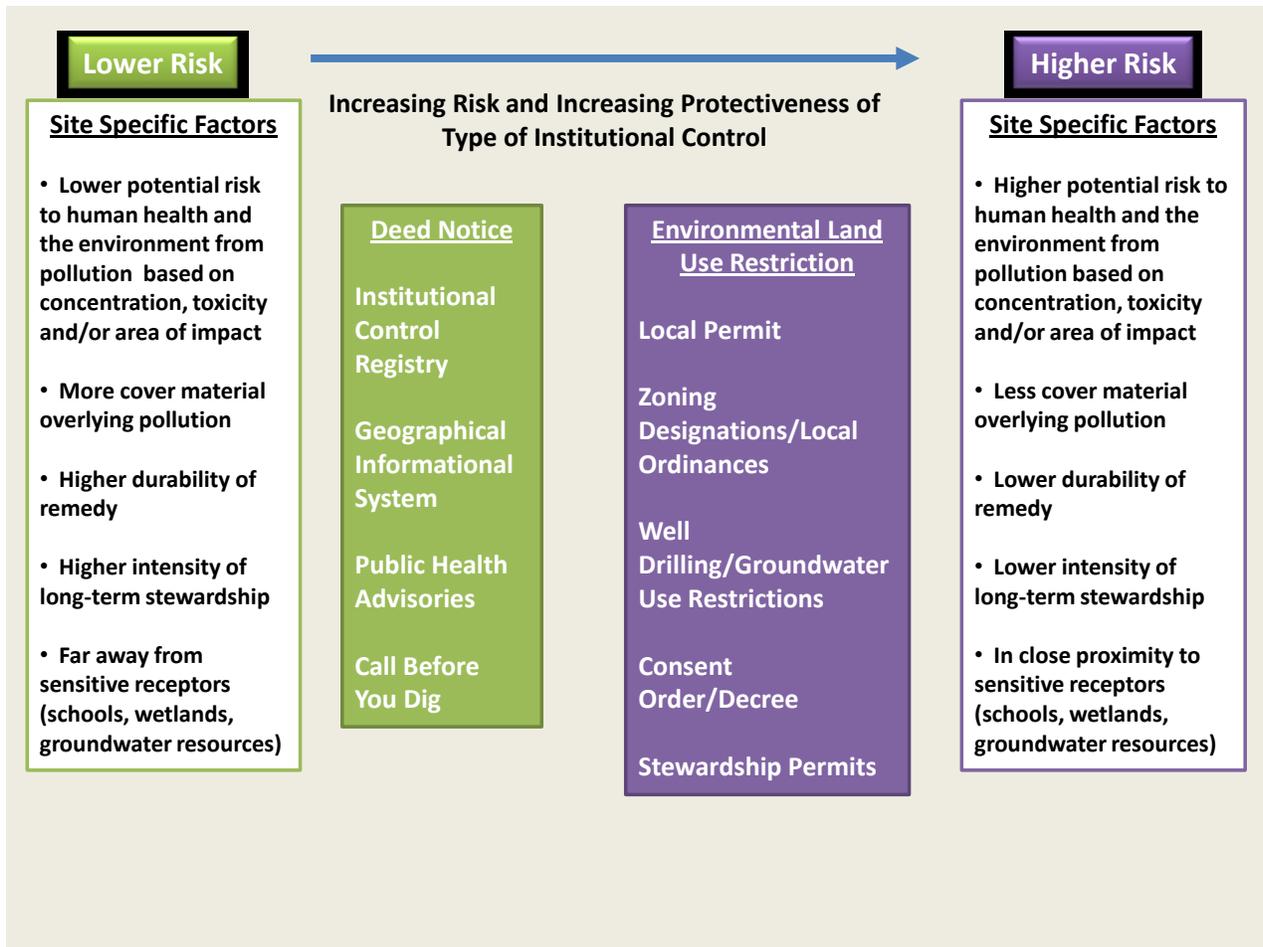
This may be particularly useful for former industrial sites where thick building slabs are left in place following the demolition of buildings. Since infiltration of water to environmentally isolated soils is one the higher-risk scenarios, any deviation from such specifications would require the Commissioner's approval and an ELUR.

- Sediment – ICs for sediment will be applicable only in cases where the zoning of the property on which a release has occurred restricts activities to commercial or industrial uses. This type of IC will require the release to sediments to be recorded not only on the land records but also on a registry to be maintained by DEEP. Such IC will also require continued monitoring of sediments

and surface water and periodic reporting. This option could be self-implementing if concentrations do not exceed certain thresholds and certain access limitations are in place.

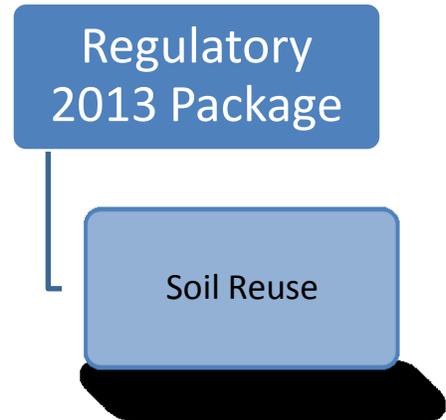
- Groundwater – A TI Variance is dependent upon certain site-specific receptor assumptions that were used to determine that the impacted groundwater does not pose an unacceptable risk to receptors. Various types of institutional controls will be necessary to assure that the conditions assumed in the risk assessment are not altered or if they are altered that appropriate contingencies are implemented.

Figure 4. Preliminary Conceptual Framework for Evaluating the Protectiveness of Institutional Controls



IX. Reuse of Polluted Soil

The current process for reuse of polluted soil does not appear to be well-understood by the public or clearly defined in the RSRs. DEEP's Waste Engineering and Enforcement Division is currently working on revisions to existing regulations, external to the RSRs, pertaining to the definitions for and the beneficial reuse of polluted soils, sediment, and aggregate. With increasing redevelopment of previously degraded properties, there is greater need for review of how excess soil materials are handled. Therefore, as requested by stakeholders, DEEP will work to create opportunities to safely reuse such materials during infrastructure redevelopment instead of adding low-level polluted soils to the disposal waste streams. The goal of these efforts will be to create a consistent, cost-effective grading system that provides clear and consistent identification of environmental quality and a framework that provides for self-implementing reuse while protecting human health and the environment. Northeast Waste Management Officials' Association (NEWMOA) is also conducting efforts to coordinate and educate stakeholders regionally on this topic.



The 2013 regulatory reform package will include regulations that simplify, in a practical, commonsense, and environmentally protective way, reuse options for earthen materials to advance cost-effective materials management solutions for infrastructure and remediation projects. These revisions will create opportunities that encourage development of recycling and treatment facilities for soil and dredged material, as well as opportunities for recycling for other common construction materials such as asphalt, brick, and concrete.

X. Municipal Liability Relief

All stakeholders will agree that there are numerous Brownfield properties that lay fallow in municipalities around Connecticut. This problem is not limited to our urban core. Brownfields are located in many village and town centers. Certain municipalities have undertaken efforts to redevelop these properties, regardless of the legal and financial liabilities potentially associated with acquiring such properties. Other municipalities have not been able to adequately address concerns that such action raise.

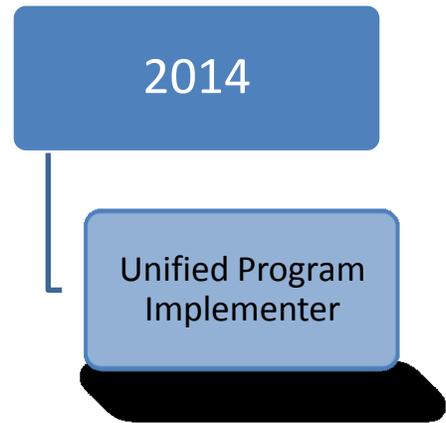
Addressing pollution issues at these properties and returning these properties to productive use is a goal shared by many. Municipalities are often critical to facilitating the redevelopment of many of the most important Brownfields. Many municipalities, however, fail to perform this facilitator function and therefore miss redevelopment opportunities based on perceived fear liability. These liability concerns relate to the potential that DEEP may require accelerated cleanup actions, that future owners may sue for contribution if unforeseen pollution is discovered, or that future users of the property may sue for issues related to the pollution.

DEEP will propose statutory language during the 2013 Legislative session that will create a program intended to eliminate these fears.



XI. Transition to the New Program

As there is a transition to a new cleanup program, environmental cleanup currently taking place under many of the existing programs must be considered. To avoid the confusion that a transition could potentially create, a balance between adoption of the new cleanup program and a phase out of current programs is proposed in the interest of cost-effectiveness and to allow for a smoother transition. The Transitions Transformation Workgroup discussed program-specific issues and made preliminary recommendations, which were taken into consideration in the proposed plan below. In essence, the new cleanup program would be used on a going-forward basis to minimize future conflict among multiple statutory/regulatory requirements.



DEEP is proposing to sunset the existing cleanup programs and replace them with the release reporting structure described above and the Long-Term Cleanup pathway described below on a going-forward basis. For responsible parties with current obligations, DEEP is considering permitting certain parties that are in compliance with their requirements to make a choice between their current program and the new Long-Term Cleanup pathway.

A. Long-Term Cleanups

Although one of the goals of the transformed cleanup program is to expedite the remediation of pollution, not all cleanups will be able to reach an Early Exit. There will be certain contemporaneous and historical releases that will require longer-term, phased investigations and remediation approaches that will not be able to be completed expeditiously for various reasons. Further, some parties may wish to address pollution more slowly for financial or logistical reasons. Regardless of the reason, if an Early Exit is not achieved, the release would enter into a Tiered Cleanup Exits pathway.

1. Transition To Long-Term Cleanups

If the responsible party is unable to meet an Early Exit, after abating likely or actual imminent hazard risks, they would comply with the investigation and remediation milestones for a long-term cleanup outlined below. There would be no need to file additional paperwork to enter the long-term cleanup pathway. For Contemporaneous Releases, the release would be entered into the long-term pathway if an Early Exit Closure Certification is not filed after ninety (90) days from the date of the release and after any DEEP-approved extensions elapse. For Historical Releases, the release would be entered after one year from the date of the release and after any DEEP-approved extensions elapse.

The responsible party would be required to continuously retain the services of a LEP to coordinate and oversee the investigation and remediation of any release in the long-term cleanup pathway.

2. Investigation and Remediation Milestones

Once in the long-term cleanup pathway, the responsible party and its LEP would continue to investigate and remediate the release and meet the following milestones in the specified time frames. Each milestone requires the submittal of a report or documentation. The details of the information to be submitted to satisfy each milestone are outlined below. Each milestone submittal shall be signed and certified by the responsible party and its LEP. Certain milestones would be accompanied by a LEP Verification. As discussed in a later section, each milestone submittal would be subject to DEEP review and audit. A single submittal may serve to satisfy more than one milestone.

a. Completion of Investigation Milestone

Within two (2) years of the date of the release or the date a Historical Release was discovered, the responsible party would submit a report detailing the degree and extent of pollution and a summary of efforts taken to investigate the release. In addition, this submittal would list and describe any Imminent Hazards identified and the current status of their abatement. If no Imminent Hazards were identified or remain, the submittal would include a statement to that effect. A Completion of Investigation Form prescribed by DEEP and signed and certified by the responsible party and its LEP would accompany this report. LEP verification would also accompany this milestone report.

b. Remedial Action Plan Milestone

Within three (3) years of the date of the release or the date a Historical Release was discovered, the responsible party would submit a plan of the proposed remedial actions (including the remediation of non-environmental media, such as building materials, structures, underground utility vaults or tanks, vehicles, utility poles, paved surfaces, or secondary containment) and a schedule for their implementation. In addition, this submittal would list and describe any Imminent Hazards identified and the current status of their abatement. If no Imminent Hazards were identified or remain, this submittal would include a statement to that effect. This submittal could be detailed in nature or the responsible party could choose to submit an overview on a form prescribed by DEEP. A Remedial Action Plan Form signed and certified by the responsible party and its LEP would accompany this report. No LEP verification would be required to accompany this submittal.

c. Annual Report Milestone

Starting on the date four (4) years after the date of the release or the date a Historical Release was discovered and continuing every year thereafter until active remediation is complete, the responsible party would submit an annual report. The annual report would summarize actions taken to remediate the release. In addition, this submittal would list and summarize any Imminent Hazards identified and the current status of their abatement. If no Imminent Hazards were identified or remain, this submittal would include a statement to that effect. Once active remediation of a release is complete and documented through a Completion of Remediation report, annual reports would not need to be submitted. The Annual Report would be submitted on a form prescribed by DEEP and signed and certified by the responsible party and LEP. No LEP verification would be required to accompany this submittal.

d. Long-Term Management Plan Milestone

Within ninety (90) days of completing soil remediation, the responsible party would submit its long-term management plan. This submittal would include, as necessary, plans for any passive or active groundwater remediation (e.g., monitored natural attenuation or groundwater treatment, respectively) and groundwater monitoring; a summary of institutional controls to be used with a schedule for their execution and a plan for institutional control monitoring and reporting; and a plan and schedule for posting any necessary financial assurance. This submittal would not be required when a Class A exit is achieved. This submittal would be on a form prescribed by DEEP and signed and certified by the responsible party and LEP. No LEP verification would be required to accompany this submittal.

e. Completion of Remediation Milestone

The responsible party would submit the completion of remediation milestone upon completion of all remediation, post-remediation groundwater monitoring, and as necessary, execution of any institutional control and posting of financial surety. The responsible party would need to reach this milestone within six (6) years of the date of the release or the date a Historical Release was discovered, unless an alternative deadline is approved by DEEP. (DEEP would not withhold an extension, if the party can show progress toward completion and reasonable cause for the delay.) This submittal would include all information and documentation in support of the completion of the remediation and demonstration of compliance with the new cleanup regulations for the release. A Completion of Remediation Form prescribed by DEEP and signed and certified by the responsible party and its LEP would accompany this submittal. LEP verification would also accompany this milestone submittal.

Table 7. Long-Term Cleanup Milestones

Milestone	Timeframe	LEP Verification
Completion of Investigation (COI)	2 years	Yes
Remedial Action Plan (RAP)	3 years	No
Annual Reports	4 - 6 years	No
Long-term Management Plan	Post-Remediation	No
Completion of Remediation	6 years	Yes

3. Tiered Cleanup Exits

Responsible parties would achieve one of the following Tiered Cleanup Exits, unless the release was closed pursuant to an Early Exit. Not all of the options would be available under certain federal programs (e.g., TSCA, NESHAPS), although DEEP will be working with federal agencies to receive concurrence with these cleanup approaches where possible. Responsible parties are always required to comply with all federal, state, and local requirements.

When a responsible party has achieved its intended exit, it would submit documentation to support such exit on a form prescribed by DEEP. Such form would be signed and certified by the responsible party and its LEP and be accompanied by a LEP verification.

a. Class A Cleanup Exit

The Class A cleanup exit would be available when no environmental media remains impacted above RSR default cleanup criteria and any remediation conducted utilizes only the default cleanup assumptions. Essentially, releases that reach this exit would have no long-term obligations and no future restrictions on use.

Soil

- Soil remediation has been completed and is in compliance with the residential direct exposure criteria and the pollutant mobility criteria for the applicable groundwater classification.

Groundwater

- Groundwater remediation has been completed or was not required, and groundwater is in compliance with applicable surface water criteria and residential volatilization criteria.
- For GA areas, any groundwater plume has been remediated to meet background or the Groundwater Protection Criteria, as appropriate.

Long-Term Management

- The remediation did not require the use of any institutional controls.
- Any polluted materials have been remediated in accordance with the applicable standards and guidelines.
- There is no remaining pollution from the release that could pose an unacceptable risk (Imminent Hazard) to public health or the environment.

b. Class B Cleanup Exits

There are two Class B cleanup exits - Class B1 and Class B2. Both Class B cleanup exits are available for releases where remediation of soil has been completed and is in compliance with the RSRs utilizing an institutional control to manage some level of contamination that is in excess of the default cleanup criteria. Class B2 differs from B1 in that B2 exits are reserved for cleanups that utilize alternative cleanup criteria or alternative cleanup assumptions.

CLASS B1 CLEANUP EXIT

Soil

- Soil remediation has been completed and is in compliance with the applicable direct exposure criteria and the pollutant mobility criteria for the applicable groundwater classification.

Groundwater

- Groundwater remediation has been completed or was not required, and groundwater is in compliance with applicable surface water criteria and applicable volatilization criteria.
- For GA areas, any groundwater plume has been remediated to meet background or the Groundwater Protection Criteria, as appropriate.
- Soil vapor is in compliance with the applicable soil vapor volatilization criteria or an institutional control is being utilized to protect indoor air quality.

Long-Term Management

- The remediation utilizes institutional controls and/or long-term obligations and any required financial surety mechanism(s) is in place.
- The remaining pollution from the release is being managed with an institutional control so that it will not pose an unacceptable risk to public health or the environment. This is inclusive of Imminent Hazards.
- Any polluted materials have been remediated in accordance with the applicable standards and guidelines.

CLASS B2 CLEANUP EXIT

Soil

- Soil remediation has been completed and is in compliance with the applicable direct exposure criteria or alternative criteria based on risk or site conditions.
- Soil remediation has been completed and is in compliance with the pollutant mobility criteria for the applicable groundwater classification or alternative criteria based on risk or site conditions.

Groundwater

- Groundwater remediation has been complete or was not required, and groundwater is in compliance with applicable surface water criteria and applicable volatilization criteria or alternative criteria based on risk or site conditions.
- For GA areas, any groundwater plume has been remediated to meet background or the Groundwater Protection Criteria, as appropriate.
- Soil vapor is in compliance with the applicable soil vapor volatilization criteria or an institutional control is being utilized to protect indoor air quality.

Long-Term Management

- The remediation utilizes institutional controls and/or long-term obligations and any required financial surety mechanism(s) is in place.

- If an institutional control is used, the remaining pollution from the release is being managed with an institutional control so that it will not pose an unacceptable risk to public health or the environment. This is inclusive of Imminent Hazards.
- Any polluted materials have been remediated in accordance with the applicable standards and guidelines.

c. Class C Cleanup Exits

There are two Class C cleanup exits - Class C1 and Class C2. Similar to Class B cleanup exits, Class C exits permit the utilization of an institutional control; however, Class C exits also permit the use of engineered controls and long-term groundwater remediation and monitoring. Also similar to the two Class B cleanup exits, Class C2 differs from C1 in that C2 exits are reserved for cleanups that utilize alternative cleanup criteria or alternative cleanup assumptions.

CLASS C1 CLEANUP EXIT

Soil

- Soil remediation has been completed and is in compliance with the applicable direct exposure criteria and the pollutant mobility criteria for the applicable groundwater classification.
- Compliance with the direct exposure or pollutant mobility criteria may rely on an engineered control.

Groundwater

- A groundwater remedy is operational; the remediation of groundwater has been completed and is in compliance with surface water protection criteria and applicable volatilization criteria; or groundwater remediation was not required.
- For GA areas, any groundwater plume has been remediated to meet background or the Groundwater Protection Criteria, as appropriate.
- A TI variance is in place for a groundwater plume.
- Soil vapor is in compliance with the applicable soil vapor volatilization criteria, or an engineered control, institutional control, or both are being utilized to protect indoor air quality.

Long-Term Management

- The remediation utilizes institutional controls and/or long-term obligations and any required financial surety mechanism(s) is in place.
- If an institutional control is used, the remaining pollution from the release is being managed with an institutional control so that it will not pose an unacceptable risk to public health or the environment. This is inclusive of Imminent Hazards.

- Any polluted materials have been remediated in accordance with the applicable standards and guidelines.

CLASS C2 CLEANUP EXIT

Soil

- Soil remediation has been completed and is in compliance with the applicable direct exposure criteria or alternative criteria based on risk or site conditions.
- Compliance with the direct exposure or pollutant mobility criteria may rely on an engineered control.
- Soil remediation has been complete and is in compliance with the pollutant mobility criteria for the applicable groundwater classification or alternative criteria based on risk or site conditions.

Groundwater

- A groundwater remedy is operational; the remediation of groundwater has been completed and is in compliance with surface water protection criteria and applicable volatilization criteria; or groundwater remediation was not required.
- Groundwater remediation may also be completed in compliance with alternative surface water protection criteria and/or alternative volatilization criteria based on risk or site conditions.
- A TI variance is in place for a groundwater plume.
- For GA areas, any groundwater plume has been remediated to meet background or the groundwater protection criteria, as appropriate, or alternative groundwater protection criteria is being utilized.
- Soil vapor is in compliance with the soil vapor volatilization criteria or an engineered control, institutional control, or both are being utilized to protect indoor air quality.

Long-Term Management

- The remediation utilizes institutional controls and/or long-term obligations and any required financial surety mechanism(s) is in place.
- If an institutional control is used, the remaining pollution from the release is being managed with an institutional control so that it will not pose an unacceptable risk to public health or the environment. This is inclusive of Imminent Hazards.
- If alternative groundwater protection criteria are utilized, the groundwater plume has been registered.
- Any polluted materials have been remediated in accordance with the applicable standards and guidelines.

B. New Voluntary Remediation Program

There are currently two voluntary remediation programs in Connecticut under Connecticut General Statutes (CGS) sections 22a-133x and 22a-133y. Both programs are an elective process for property owners and other entities who wish to expedite the remediation of polluted property. Consistent with the goals of a transformed cleanup program - to address more releases under a more-attainable standard of investigation and remediation while continuing to protect human health and the environment – DEEP proposes to retain a voluntary remediation option. This option would be available for the cleanup of entire properties as well as the investigation and remediation of portions of a property.

The benefit of retaining voluntary cleanup, as pointed out by stakeholders, would be to provide a property owner with the advantage of a remediated site should they ever decide to sell the property. Full-site verification represents a value some owners may wish to pursue.

In the new cleanup program, any owner of property, municipalities, prospective purchaser, or bona fide prospective purchaser would be permitted to enter their property or portions of their property into the Voluntary Remediation Program (VRP). While in the VRP, the owner shall undertake an investigation of their property and, as releases are identified, the property owner shall notify DEEP (on a form prescribed by DEEP). Similar to the release response outlined above, all owners enrolled in the VRP would be required to immediately discontinue any discovered releases and abate any Imminent Hazards. Property owners would also be required to meet the milestones under Long-Term Cleanup Exits.

The current program offers volunteers the options of proceeding at their own pace or stopping short of full verification. A lengthy or unfinished cleanup is not compatible with the goals of the new cleanup program. Once a property or portion of a property enters into the VRP, the owner would be required to proceed and may not withdraw from the program.

Parties in the VRP would, however, have access to such additional benefits, such as the Brownfield Remediation and Redevelopment Program or the Abandoned Brownfields Cleanup Program. Further, parties in the VRP would be permitted to utilize any Presumptive Remedy offered under the new program and would qualify for a Covenant Not To Sue.

XII. Use of Environmental Professionals

A. Use of and Requirements for Environmental Release Professionals

A critical component of the new clean-up program will be the requirement for qualified, licensed, and accountable personnel to ensure a release is evaluated appropriately, any imminent hazard conditions are identify and addressed, and to determine if cleanup of such release achieves or doesn't achieve the conditions for Early Exit. DEEP proposes to establish the framework for a group of qualified individuals known as Environmental Release Professionals (ERPs) to meet the multiple goals of remediating more releases in a relatively short time-frame, without sacrificing environmental protection.

ERPs would need the experience and technical ability to assess a release, to recognize when a release must be disqualified from an Early Exit closure, and have the authority to certify that the release has been cleaned up to meet an Early Exit. DEEP intends to seek statutory authority during the 2013 Legislative session so that such program can be created. The actual authorities for ERPs in the transformed cleanup program will be more fully defined as a part of the 2014 implementer efforts.

An ERP would be able to submit an Early Exit Certification of Closure (EECC) for Threatened or Contemporaneous Releases, on a form prescribed by DEEP, to certify that a reportable release has been evaluated and remediated, and the actions have achieved the Early Exit requirements. ERPs would not be able to certify an EECC for Historical Environmental Conditions or verify compliance with a Tiered Exit.

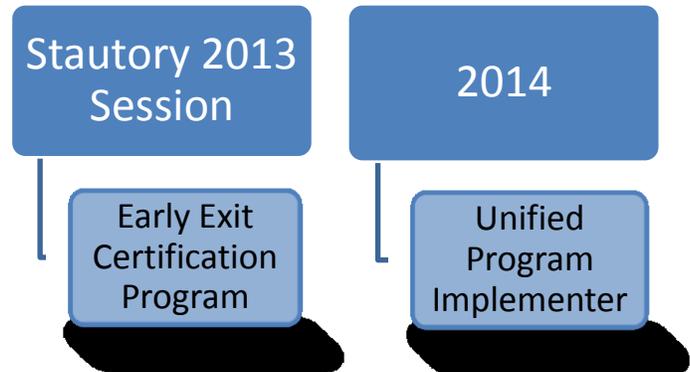
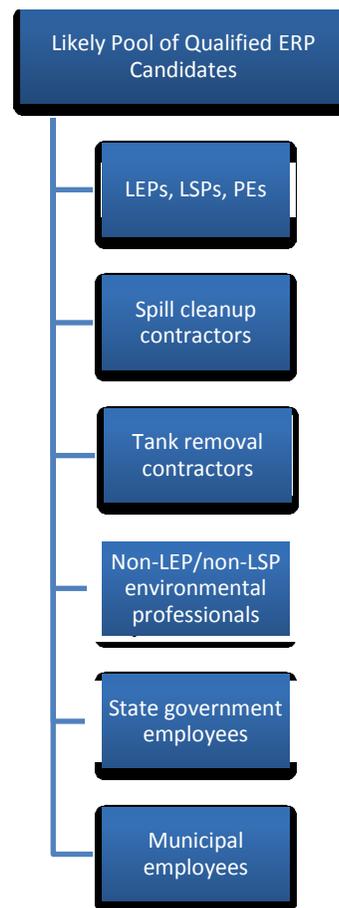


Figure 5. Possible Candidates for Environmental Release Professional



B. Use of and Requirements for Licensed Environmental Professionals

Connecticut Statutes established a licensing program for environmental professionals with the intent of facilitating the remediation of contaminated sites in Connecticut. Individuals who receive this license (pursuant to CGS section 22a-133v) are referred to as Licensed Environmental Professionals (LEPs). An eleven-member State Board of Examiners of Environmental Professionals (LEP Board) administers the licensing program with support from DEEP. The LEP Board authorizes the Commissioner to issue a license to an environmental professional who meets the specific criteria based on education, experience, and passing a written examination.

While the Commissioner may conduct an audit of any action authorized by law to be performed by a LEP, the Commissioner's authority is limited to these situations. The LEP Board may conduct investigations concerning the conduct of any LEP, based on complaints from clients, private citizens, or DEEP. This is a critical check and balance on a private-sector focused, self-implementing cleanup system. The LEP Board currently has no permanent staff to aid in the investigation and administration of potential misconduct by LEPs. However, a release-based and more self-implementing cleanup system will significantly increase the role of LEPs and the volume of LEP decisions and submittals. The whole premise of a self-implementing and private sector focused cleanup system can better succeed if the LEP Board is given the resources to hire and retain a permanent professional staff. Thus, permanent staff for the LEP Board would be critical under the transformed cleanup program. Such enhancements have been suggested by many stakeholders. By comparison, the Massachusetts equivalent, the Board licensing and overseeing MA Licensed Environmental Professionals, has a budget for multiple full-time staff, ranging from administrative, investigator, and attorney positions.

The LEP Program will continue as stipulated under law; however, the reliance on LEPs would increase under the transformed cleanup program. With an expanded role for LEPs, comes a greater need to ensure that LEPs are providing the best services for the citizens of the State of Connecticut and that they are holding paramount human health and the environment. This can be accomplished through ensuring LEPs have critical education and training, enhancing DEEP's auditing program, and increasing the role of the LEP Board. DEEP will work with the Environmental Professionals' Organization of Connecticut (EPOC), the membership organization for LEPs, to determine what additional training would be necessary, including continuing education that ensures regular education on key competencies.

If the remediation of a reportable release leaves polluted soil in place and thus requires application of the RSRs, beyond the achievement of numeric criteria, or if the release has impacted or has the potential to impact sensitive receptors, then a LEP would be required to be involved in the investigation and remediation of the release. Therefore, only a LEP may verify milestone events related to the investigation of releases and compliance with Tiered Cleanup Exit pathway.

XIII. Compliance Assurance

As DEEP looks to transform the cleanup program, it is important that there is a good system for assuring compliance by the regulated parties. Compliance assurance is a strategy with a spectrum of tools ranging from education and outreach to formal enforcement actions. The tools utilized by DEEP will depend on the situation. Generally, as the new requirements and obligations discussed in this report launch, DEEP will focus its efforts heavily on education and outreach and providing more technical and regulatory assistance. In the future, this focus may shift, as the program becomes more established. A strong program that assures compliance is necessary, particularly when third parties can certify and verify actions are conducted in accordance with State requirements. Decisions made by others on behalf of DEEP and for the benefit of responsible parties have the potential to affect future owners and



users of properties, neighboring properties, public health, and the environment.

A. Education, Training, and Guidance

With the development of new program requirements and obligations, coupled with the expanding role of LEPs and the advent of ERPs, comes a greater need to ensure that all regulated parties and their representatives understand the new program. It is also critical that DEEP ensures that the program is simple to implement and clear, and this can be accomplished by providing clarity of expectations.

DEEP will work with the regulated community to develop an outreach and education effort that will reach as many of the potentially affected parties as feasible. Web-based programs will be a component of the education and training program, so the information is available at any time for the regulated community.

As DEEP receives feedback from the those attending training and education programs, DEEP will identify topics that require further context or topics upon which the regulated community is seeking more guidance or assistance. DEEP, working with professional and membership organizations, will develop guidance to provide the regulated community with additional support.

B. Remediation Roundtable

Since December 2010 the DEEP has held ten Remediation Roundtable forums to provide information and updates on regulatory matters affecting the cleanup of contaminated sites. The Roundtable provides an opportunity to exchange ideas and information on the various cleanup programs and topics and to solicit opinions, advice, and information from stakeholders on a routine and established basis.

The Roundtable has been used as a vehicle for the regulated community to ask questions and have both an immediate verbal response and a written response in the form of a newsletter. This newsletter has posted the replies to over two hundred questions on the DEEP's [Remediation Roundtable](http://www.ct.gov/deep/remediationroundtable) webpage (<http://www.ct.gov/deep/remediationroundtable>). Additionally, each Roundtable presentation is published on the [webpage](#) for reference. Joint work groups have been created through the Roundtable to address various complex issues including the remediation of Urban Soils, proper use of statistical approaches in remediation, and the design of an improved online list of contaminated sites. Through the Roundtable, DEEP routinely surveys stakeholders on various programmatic topics to obtain information which allows DEEP to better serve the public and shape policy. This outreach forum will be a valuable tool in communicating with the regulated community and those interested in the cleanup program.

C. Written Policy Statements

DEEP is considering establishing a program, with the guidance of the regulated community, which will formalize DEEP policy decisions. This compliance assurance tool will be available to responsible parties or environmental professionals that are seeking DEEP guidance on the application of provisions of the cleanup standards, including, but not limited to institutional controls and variances. There are many stakeholders that seek information on and the basis for DEEP decisions. It is important for DEEP to make clear to the regulated community all tools and approaches that are available. A decision that works for one release will work for many similar situations.

DEEP would complete the review and, as necessary, schedule a Compliance Assistance meeting. DEEP anticipates that the review and decision could be made in ninety (90) days after receipt of such request. Decisions, in the form of written policy statements, would be posted on DEEP's webpage for the benefit of all stakeholders.

D. DEEP Review and Auditing

As the cleanup program evolves, so would DEEP's review and auditing process. Timely, consistent and transparent review and auditing in conjunction with guidance, compliance tools, and continued education can improve communication with the regulated community, ensure that the environmental outcomes directed by licensed professionals protect public health and the environment, and ensure that all interested parties have a high level of confidence in the cleanup program.

DEEP's current audit program would need to expand to be able to review and audit actions that will be authorized by law to be performed by either ERPs or LEPs. Currently, in accordance with CGS Section 22a-133v(g), "The Commissioner may conduct audits of any action authorized by law to be performed by a licensed environmental professional." DEEP's authority to audit would need to be expanded by adding into the new cleanup program the authority for DEEP to audit all verifications by LEPs and certifications by ERPs or other similar decisions. This may include, but not be limited to, review of forms and reports, auditing of certifications and verifications, field inspections, and confirmatory sampling, if necessary.

The purpose of the audit program would be to ensure that the actions and opinions of ERPs and LEPs are based on an appropriate understanding of the environmental conditions of a release and/or site and that certifications/verifications are in compliance with all applicable statutes and regulations. Auditing is one of DEEP's mechanisms for creating accountability for environmental professionals and ensuring to

the public and other interested parties that such professionals and the responsible party are holding paramount the health, safety, and welfare of the public and the environment.

DEEP would have the authority to conduct technical review as outlined below. Most importantly, it is anticipated that with the addition of early exit strategies and multiple tiered exits, more releases will reach compliance quickly.

1. Early Exits

Both ERPs and LEPs are able to certify early exit closure. DEEP would have the authority to conduct a review of an Early Exit Certification of Closure (EECC) to determine if the certification is complete and appropriate. If DEEP determines that the certification is not appropriate, the certification could be rejected or DEEP could request clarification or additional information/justification. DEEP intends on screening EECCs quickly and anticipates that most screenings would be completed in ninety (90) days. The responsible party and ERP/LEP would be notified if DEEP seeks more information or determines that the certification is not appropriate and has been rejected.

2. Tiered Exits

Only LEPs are able to verify tiered exit closure. DEEP would have the authority to review and/or audit any milestone report or verification submitted to DEEP to document investigation and remediation conducted to achieve a Class A, B, or C closure. DEEP anticipates that the responsible party and LEP would be notified whether DEEP will review a LEP's verification no later than 120 days after its receipt. DEEP will have the authority to hold a review meeting, to gather more information or seek clarification, or DEEP may initiate a formal audit at any time (after a review meeting or in lieu of a review meeting).

If DEEP determines that an audit of a verification is warranted, DEEP would provide notification to the responsible party and the LEP that the verification has been selected for audit and would identify the scope of the audit to be performed. DEEP would issue Audit Findings at the completion of an audit. These Audit Findings would provide the final determination as to the adequacy of the verification.

If DEEP identifies any violations or deficiencies with the verification, the Audit Findings would detail the violations and/or deficiencies, and the responsible party would be required to submit an Audit Response Plan (ARP) and schedule to address the violations and/or deficiencies. Upon completion of the Audit Response Plan, the responsible party would be required to submit an Audit Response Verification rendered by a LEP on a form prescribed by DEEP. The Audit Response Verification may be subject to review to determine if the violations and/or deficiencies identified in the Audit Findings have been resolved to the satisfaction of DEEP.

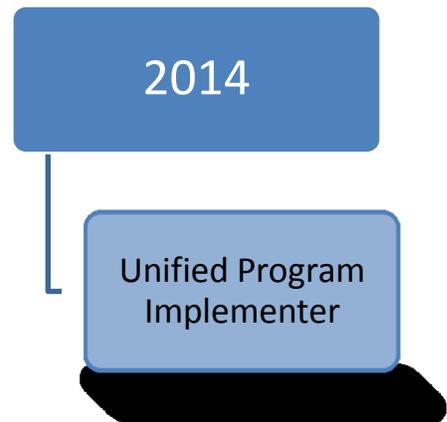
E. Enforcement

While all current enforcement authorities regarding the creation or maintenance of sources of pollution will remain as specified in CGS Chapters 445 and 446k, DEEP would evaluate additional compliance assistance methods as any new program is implemented. In addition, new enforcement authorities, including penalties, will be created for failure to report releases, failure to conduct the mitigation, investigation, and remediation required, and failure to submit the required reports in a timely manner.

XIV. Transparency

Many stakeholders have requested increased transparency of information regarding cleanup of pollution. Increased transparency would be achieved by making information as accessible as possible given the tools available to DEEP. Information currently is conveyed in numerous manners, including legal publications, signage, and use of DEEP's webpage. DEEP believes that greater reliance on web-based postings would provide interested parties with a consistent location to find information on pollution cleanup in Connecticut. As use of certain information technology solutions may be costly or slow in development, the information posted would increase over time and DEEP would prioritize the posting of information most frequently requested.

Postings may come to include the status of reported releases, opportunities for public comment on cleanup decisions or similar public notices, any DEEP correspondence or response documents, actions taken by the Commissioner, and the results of such action(s).



A. Public Participation

As the response to releases will likely be timelier with changes proposed as a part of this transformation, especially for historical releases, more valuable public participation processes will need to be considered. It is imperative that the public is made aware of when and where releases occur, the potential risks posed by the release, and the status of the release cleanup. Public notice requirements must be aligned with the remediation endpoints and the risks posed by the releases to ensure the speed and efficiency of the cleanup. It is also important that potentially impacted parties have an opportunity to comment on cleanup approaches that do not utilize permanent remedies in addressing such releases. Several methods can be effectively employed by DEEP and responsible parties to ensure adequate public participation opportunities exist.

B. Public Notification of Releases and Cleanup Status

With the increased emphasis on timely reporting and release response, certain traditional methods of public participation will not be as effective or beneficial. Alternative methods of notification through posting important information on public web pages can be utilized. Technology upgrades are available to allow information about releases and status of cleanups to be posted regularly on a webpage hosted by DEEP. In certain cases where high risks still exist, additional methods, such as perimeter signage with appropriate contact information, should be employed. This process would satisfy interested parties' right-to-know, as well as provide responsible parties with an efficient means to disseminate information.

It is important to create a public notice process that is flexible and allows for a range of public notice options that could include posting notices of a cleanup on DEEP's webpage for new releases to posting public notice in a newspaper and providing pertinent details concerning cleanup of historic releases to local officials and potentially impacted individuals.

C. Communication with the Public

An issue that has been raised by many stakeholders, is that limited access to information has impeded their ability to become informed and to engage DEEP and responsible parties in meaningful discussions regarding certain pollution issues. In response:

- (1) DEEP will create a dedicated webpage for community members to visit for listings of all public notices related to remediation.
- (2) DEEP will evaluate developing a system to show the status of on-going and completed cleanups.
- (3) An alternative option to the administrative hearing will be created for public participation.
- (4) DEEP will provide an opportunity for the public to receive additional information for any cleanup being performed under this remediation program.

1. Use of Technology

DEEP currently maintains a webpage used to post public information. One goal would be to create a posting process that would allow the responsible party to post notices directly on DEEP's webpage.

2. Public Notices

When certain remedies are selected by a responsible party that will not fully address a release to the degree that will be safe for unrestricted current and future use of a property, additional public participation should be provided. If pollution does not reach a permanent solution (i.e., use of an engineered control or certain institutional controls), formal public notice should be provided. However, it is not always necessary to provide an opportunity for a formal public hearing. Recent use of new public participation tools in DEEP's Environmental Justice program have shown that informal public informational sessions most often address the public's concern with a given approach or pollution problem. It is often the information that isn't known or the lack of effective communication that will result in significant concern by the public.

There should be a specific public process for the approval of technical impracticability of cleanup, since it grants a variance to groundwater clean-up criteria. However, since the magnitude of the impacts of sites included in the program will vary considerably, there should be varying levels of public notice and public participation requirements for various situations and settings. In addition to traditional notice requirements, notice should be provided directly to all in the area of the affected resource.

3. Informational Session / Public Hearing

If these improved methods of communication and transparency do not address public concern, there will be an option to request a formal informational sessions for certain high-risk releases. This would then trigger an obligation for the responsible party to conduct an informational session regarding the issues identified in the petition. It will be the goal of DEEP to assure that all interested individuals receive information that will provide a full understanding of the actions taken by the responsible party in addressing the release.

If the Commissioner determines that it is the public interest or if the party that requested an informational session petitions the Commissioner, a formal public hearing on the proposed remedial decision will be held.