REMEDIATION ROUNDTABLE

November 18, 2014

Connecticut Department of Energy and Environmental Protection

www.ct.gov/deep/remediationroundtable

Agenda

- Updates and Announcements
- Letters of No Audit
- Engineered Control Implementation: Site Status Survey
- Groundwater Compliance Monitoring Requirements
- Transformation Roadmap and New “Wave 2” Discussion Drafts – Deed Notice and Urban Soil
- Proposed Beneficial Use Soil Regulations Update
- Risk Evaluation Status Update

Roundtable 2015

2015 Scheduled Dates:

February 24, 2015 at 1:30-3:30pm (not 2nd Tues)

June 9, 2015 at 1:30-3:30pm

September 8, 2015 at 1:30-3:30pm

December 8, 2015 at 1:30-3:30pm

…In the Gina McCarthy Auditorium

Website Updates

- Residential UST pages
- CDM Smith presentation at public meeting and comments submitted to DEEP
- Comment Response Documents on MNA and Alternative GWPC
- GW Compliance Monitoring Factsheet
- Siting Clean Energy on Brownfields and EPA Prepared Municipal Workbook coming soon!

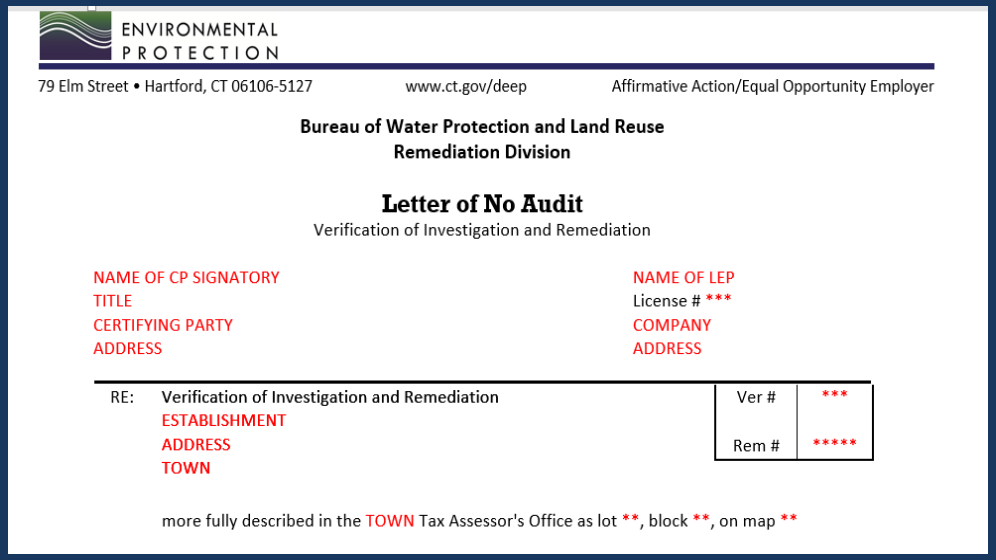
Questions / Comments

Please **state your name** and speak loudly.

www.ct.gov/deep/remediationroundtable

Letters of No-Audit

Purpose and Meaning



ENVIRONMENTAL PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

Bureau of Water Protection and Land Reuse
Remediation Division

Letter of No Audit
Verification of Investigation and Remediation

NAME OF CP SIGNATORY
TITLE
CERTIFYING PARTY
ADDRESS

NAME OF LEP
License # ***
COMPANY
ADDRESS

RE: Verification of Investigation and Remediation
ESTABLISHMENT
ADDRESS
TOWN

Ver #	***
Rem #	*****

more fully described in the TOWN Tax Assessor's Office as lot **, block **, on map **

Rob Robinson
Supervising Environmental Analyst
Remediation Division

Evolution of the No-Audit Letter

- Many years ago, we recognized that many business deals, property/business transfer escrows, and liabilities of parties to a transfer became dependent upon how DEEP would respond to the receipt of a verification

✓ We also understood that stakeholders needed some level of comfort that a verification was not going to be audited

Evolution of the No-Audit Letter

As a result of this understanding, we began issuing a letter of No-Audit if we were not going to select the verification for an audit

- Initially titled:

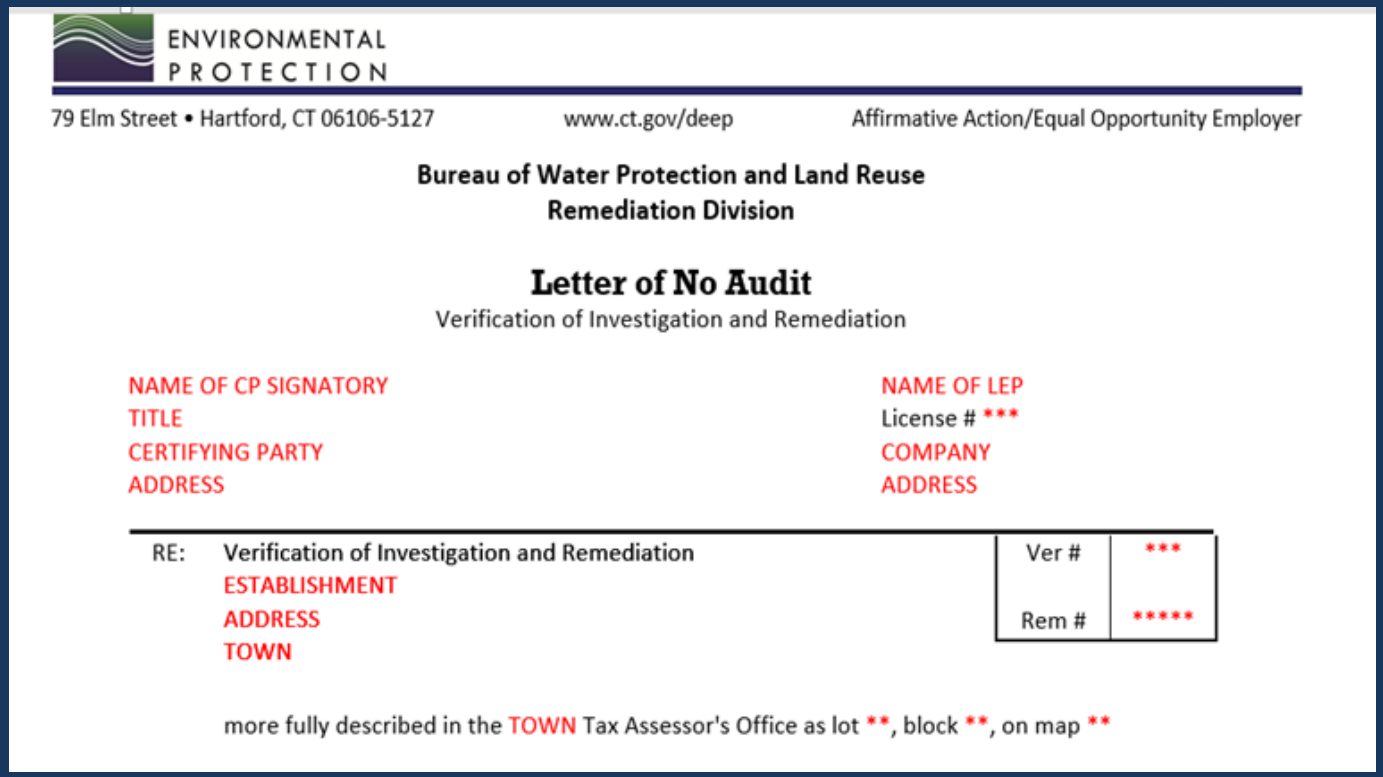
  "Acknowledgement of Receipt of Verification of Remediation"

  » Originally issued only for FINAL site closure verifications

- 1st issued = March 30, 2001
  - A United Illuminating facility in West Haven

Evolution of the No-Audit Letter

This morphed into a more definitive title:



ENVIRONMENTAL PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

Bureau of Water Protection and Land Reuse
Remediation Division

Letter of No Audit

Verification of Investigation and Remediation

NAME OF CP SIGNATORY
TITLE
CERTIFYING PARTY
ADDRESS

NAME OF LEP
License # ***
COMPANY
ADDRESS

RE: Verification of Investigation and Remediation
ESTABLISHMENT
ADDRESS
TOWN

Ver #	***
Rem #	*****

more fully described in the TOWN Tax Assessor's Office as lot **, block **, on map **

» We consider all types of verifications for a No-Audit letter

Meaning of the No-Audit Letter

The meaning of the No-Audit letter has remained the same since March 30, 2001

→ The Commissioner does not intend to audit the verification

> Thank you for submitting the verification. The Commissioner does not intend to audit the verification rendered by Mr. / Ms. LAST NAME OF LEP.

Meaning of the No-Audit Letter

This means that the Department :

Is not going to complete a technical review of the investigation that was used as a basis for the verification;

Is not going to conduct comprehensive assessment on the LEP's application of the RSRs

Meaning of the No-Audit Letter

What we do in decision making process …

- ✓ Administrative review for completeness, and
- ✓ Look at Verification Form for obvious red flags

What we may do …

- ✓ Check Verification Report for discussion / clarification of screened red flags
- ✓ Check if a previously known historical concern was addressed

Meaning of the No-Audit Letter

- *The Letter of No-Audit is not a final decision regarding the adequacy of a verification*
  - It only states that the verification will not be selected for an audit
  - It does not state or mean that we agree with, or approve of the verification

Significance of Verification

The LEP Program was adopted by the Legislature as a means to expedite the remediation of sites with the oversight of LEPs

A verification rendered by a LEP is a written legal opinion authorized by the Commissioner

The verification is effective when it is submitted to the Commissioner

Such a verification is not to be taken lightly or with no confidence

Significance of Verification

- All stakeholders should have the expectation that all LEPs will abide by the Standard of Care

- All stakeholders should have the same level of comfort in a verification as the Commissioner does

Otherwise, the LEP Program becomes irrelevant and weightless

Closure

Despite the inherit significance of a verification …

Stakeholder uncertainty re: DEEP's response to verification because of the 3 year timeline to complete an audit (of a FINAL verification)

We understand the need for timely certainty

- We have been fairly diligent in issuing a response document

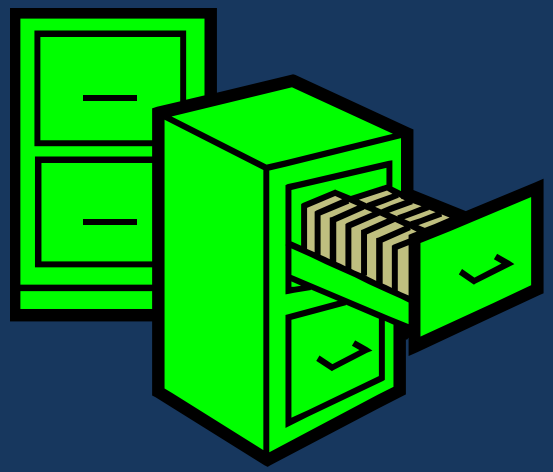
Closure

Stakeholder concern that the Commissioner may decide to audit a verification after issuance of a No-Audit Letter

- To date, DEEP has not reversed a decision not to audit a verification
  - We have been notified, in accordance with the LEP regulations, of a condition that became known subsequent to the verification; however, the situations were addressed outside of an audit

Closure

- Upon issuance of a Letter of No-Audit, we send the Verification to the public file



- We have no intention to pick it back up on our own initiative

Significance of Verification

Regulatory mandate of all LEPs (and obligations of DEEP) to…

- hold human health paramount

Resultantly, the Commissioner will not limit his ability to hold LEPs accountable for their verifications

Statutory Re-opener

If the Commissioner has reason to believe that

- A verification was obtained through the submittal of materially inaccurate or erroneous information or otherwise misleading information material to the verification

- Or that misrepresentations were made in connection with the submittal of the verification

Statutory Re-opener

Or if the Commissioner determines that

- ❑ there has been a violation of the Property Transfer Law; or
- ❑ remediation may have failed to prevent a substantial threat to public health or the environment …

- ➢ The Commissioner may call the CP and LEP in for audit
  - ➢ Even after 3 years

Scope of the No-Audit Letter

The subject verification is applicable to the releases identified at the establishment as verified by Mr. / Ms. LAST NAME OF LEP and submitted *choose one:* [on behalf of] *or* [by] NAME OF CP, and as indicated in this letter. **The verification does not attest to any release that may have occurred subsequent to APPLICABLE DATE OF THE VERIFICATION.**

The Letter of No-Audit is specific to the verification

» whether that be the applicable date of a Final Form III verification or any other type of verification

No-Audit Letter Metrics

	Total	2010	2011	2012	2013	Through 3 qtrs. of 2014
# Verifications Received	335	39	58	68	89	81
# No-Audit Letters issued (of annual verifications)	236	28	48	53	71	36
	78%	72%	83%	78%	80%	(44%)
# Notice of Audits issued after issuance of "Letter of No-Audit"	0%	0	0	0	0	0

No-Audit Letter Metrics

Average response time from receipt of verification to issuance of Letter of No-Audit:

60 - 90 days

Questions / Comments

Please **state your name** and speak loudly.

www.ct.gov/deep/remediationroundtable

Engineered Control Implementation: Site Status Survey

Amanda Killeen
Environmental Analyst 2
Remediation Division

Engineered Control Regulations

Pursuant to section 22a-133k-2(f)(2)(C) of the RSRs:

"Any person implementing an engineered control […] shall perform all actions specified in the approved engineered control proposal including the recordation of the environmental land use restriction and posting of the surety, and any additional measures specified by the Commissioner in his approval of such plan."

Engineered Control Process

In general, the following steps are necessary following the implementation of the approved Engineered Control:

Provide written notification to DEEP of completion of EC construction

↓

Obtain financial assurance instrument within 1 year of EC construction

↓

Record ELUR on the land records

↙ ↘

Annually adjust and maintain the financial assurance instrument

Submit annual reports documenting monitoring (if applicable) and maintenance of the EC

Maintaining Financial Assurance

- As part of the Part II EC application, the applicant proposes a financial assurance instrument in the amount equal to one year's monitoring and maintenance, including anticipated repair costs, of the EC as estimated over a 30 year period

- Approved by the DEEP

Maintaining Financial Assurance

- The approved financial assurance amount should be increased by the estimated annual cost for the first five years following the installation of the EC

- After five years, the total should be maintained and adjusted annually to account for inflation

EC Reporting Changes

- There is no language in the Regulations that sets a timeline for when the EC must be installed following approval of the variance
- Annual Reporting has been requested within 1 year of EC installation
- This leaves a gap in reporting and presents a challenge for properly tracking the process
- Property Transfer filings post-October 2009 (8 years)

EC Reporting Changes

- For tracking purposes, the Department is changing the annual reporting from 1 year following installation to 1 year from the date of the approval
  - Simple status letter and schedule for installation
  - Once EC is installed and the financial assurance is obtained, the annual reporting for both can be combined in one report for convenience

EC Tracking Exercise

- Letter requesting status update for any approved ECs for which the Department has missing information

  (i.e., EC Installed? Annual monitoring/reporting? Financial Assurance obtained?)

- Response form
- Sent to the Certifying Party to whom the EC Approval was originally issued with copy to LEP

Construction Complete

If construction of EC is complete and financial assurance has already been obtained, the CP is asked to provide:

1. Response Form documenting completion of construction date;
2. An original of the FA instrument to be held by the Department or documentation that FA instrument has already been sent to and received by the Department (please include a copy);
3. The most recent annual report documenting maintenance of FA instrument; and
4. The most recent annual report documenting monitoring (if applicable) and maintenance of the EC

Construction Complete

If construction of EC is complete but financial assurance has not been obtained, the CP is asked to provide:

1. Response Form documenting the completion of construction date;
2. Documentation that FA has been obtained in the DEEP approved amount;
3. An original of the FA instrument for maintenance of EC; and
4. The most recent annual report documenting monitoring (if applicable) and maintenance of the EC

Construction NOT Complete

If the construction of EC has not been completed as outlined in the DEEP-approved plan the CP is asked to provide:

1. The Response Form documenting the proposed schedule for construction of the EC and obtaining FA instrument; OR
2. Written notification that construction of the EC is no longer planned.

Attachment I – Response Form

Site Name: _____

Site Address: _____ **City:** _____

Certifying Party/Property Owner Name: _____

Address: _____ **City:** _____

Telephone: _____ **Email:** _____

1. **Has construction of the engineered control (EC) approved for your site been completed?**

   ☐ Yes, construction was complete on the following date: _____

   ☐ No, construction of the EC is planned to be completed in the future.
   Please attach a schedule for completion to this response form.

   ☐ No, this EC is not going to be constructed.

2. **If the EC is constructed, has an up-to-date financial assurance instrument been secured and submitted to DEEP?**

   ☐ Yes

   Type of financial instrument: _____

   Amount: _____

   Expiration Date: _____

   Date secured: _____

   Date last adjusted for inflation: _____

   _____

   Please attach a copy of the financial assurance documents.

   ☐ No

   Please attach a schedule for securing a financial assurance instrument. Financial assurance is required to be in place within one year of completing construction of the engineered control.

3. **Have annual reports been submitted to DEEP documenting maintenance and monitoring of the EC and maintenance of the financial assurance instrument?**

   ☐ Yes, reports have been submitted on the following dates: _____

   ☐ No, reports have not been submitted.
   Please submit an annual report to DEEP with this response form.

   ☐ Not applicable, this EC is not constructed.

NOTE: Providing this information to the Department has no effect on any legal obligation to comply with the Property Transfer Act or any other cleanup program including statutory deadlines, or on the other timeframes set forth in the attached letter. Submitting this form, and the Department's receipt of it, does not extend any statutory or Department-approved schedule. However, the Department will take such information into consideration in determining the status of the remediation of the site.

Please submit this completed form to:

DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
BUREAU OF WATER PROTECTION AND LAND REUSE
REMEDIATION DIVISION, 2nd FLOOR
ATTN: ENGINEERED CONTROL STATUS COORDINATOR
79 ELM STREET
HARTFORD, CT 06106-5127

Attachment 2 – Annual Reporting

Attachment 2 – Annual Reporting

Annual Reporting for the Engineered Control should include the following:

- Name and contact information of the party responsible for assuring the integrity of the EC and whether that responsibility has been transferred to another party since the previous status report;
- A statement ensuring that the approved financial assurance for the EC in the appropriate amount and form has been implemented and maintained;
- Documentation that any required inspection of the EC has been performed;
- Any maintenance or repair measures needed since the previous status report;
- Documentation of any failure of the EC which has occurred (exposed waste, breached cap, etc.);
- Documentation of the status of the implementation and successful completion of such maintenance or repair measures;
- Except as noted in Item B above, documentation of any repairs should be signed by the appropriate environmental professional;
- Documentation of notification to DEEP as soon as knowledge of the failure occurred;
- Documentation that groundwater monitoring (if required) has been performed and the consistency of those results with those predicted by the conceptual site model; and
- Any changes to the land use at the site that may influence the effectiveness of the EC.

Attachment 3
Financial Assurance Guidance

1. As part of the Part 2 application, the Applicant submits for the Commissioner's review and written approval a proposal for the amount and format of an irrevocable financial assurance instrument equal to the cost of one year's "maintenance and monitoring" per the RSRs. DEEP looks for the following items to be included in such a program of "maintenance and monitoring":
   a. Operation of the EC,
   b. Maintenance of any active or passive systems,
   c. Maintenance of any material used to separate the EC from the ground surface,
   d. Monitoring of the engineered control, by inspection and/or by sampling, and associated annual reporting,
   e. The cost of additional potential repairs over a 30 year period as may be deemed applicable by the Commissioner in reviewing the proposal, and so 1/30th of the amount of that additional cost would be included in calculating the "cost of one year's maintenance and monitoring."

The proposal should include a line-by-line itemized Cost Estimate for the EC Maintenance and Monitoring that will be covered by the financial assurance instrument(s). Such an itemized list would include, as applicable, costs for field labor and equipment conducting groundwater monitoring activities, periodic inspections and repairs, analytical laboratory costs for constituents of concern, erosion and sediment controls, vegetative lawn care and maintenance, periodic and annual reporting plus a 15% contingency for unforeseeable events that may increase the cost.

For example, if the engineered control is a parking lot that will need resurfacing once during a 30 year period for engineered control financial assurance, at a cost of $300,000, the financial assurance would be calculated as:

Repair costs (30 years) $300,000 repaving/30years = $10,000/per year

Routine maintenance and monitoring costs annual:	Quarterly 3rd party inspection with completion of checklist Fill cracks, clear drains Annual reporting to DEEP $2,000 per year
Size of financial assurance	Year 1 $12,000 Year 2 $24,000 Year 3 $36,000 Year 4 $48,000 Year 5 $60,000 (Maintained for 25 additional years)

(Note: This example is for general illustration. It does not represent actual unit prices and it was not adjusted for 15% contingency and annual inflation. A spread sheet for assisting in financial assurance calculations is provided on the DEEP website at: www.ct.gov/deep/remediation)

2. The amount is based on the cost to the Applicant of hiring a third party to conduct such operations, maintenance and monitoring, and cannot incorporate a zero cost or salvage value for such activities.

3. The financial assurance must be in the format of at least one of the well-established instruments derived from section 40 CFR 264.151 of the Resource Conservation Recovery Act as prescribed by the Commissioner, and such instruments are subject to the Commissioner's review and concurrence. The following assurance mechanisms can be used to fulfill the EC requirement for financial assurance in order by preference: Irrevocable Standby Letter of Credit, Performance or Payment Bond, Trust Fund and Insurance. Templates for the Irrevocable Standby Letter of Credit and Performance Bond can be found on the Engineered Control website.

4. In general, departures from the template instrument language prescribed by the Commissioner typically will not be acceptable. The template language must reflect the Commissioner's authority to require the financial assurance obligation.

5. Concurrence of the financial assurance should be performed in parallel with the overall approval of the EC.

6. Note that the beneficiary in any and all financial assurance must be stated as the Commissioner of the Connecticut Department of Environmental Protection.

7. Either a single or multiple assurance instruments can be used to fulfill the financial assurance requirements for the EC.

   The Applicant must post such originally-signed financial assurance with the DEEP in accordance with the schedule approved under the EC application or Remedial Action Plan.

8. Prior to the anniversary date of the instrument, in each subsequent year, the financial assurance in amount by adding:

   a) an amount equal to the amount of the first year's financial assurance instrument, until the total amount of such financial assurance is equal to the cost of five years; and

   b) an amount equal to the most recent annual implicit price deflator for gross national product published by the U.S. Department of Commerce in its Survey of Current Business or Bureau of Economic Analysis.

9. There can be no lapse in financial assurance amount or coverage until the Commissioner approves in writing that the need for operating, maintaining and monitoring this EC has ceased, and the Commissioner releases the financial assurance obligation.

10. If the Applicant or its successor fails to perform any of the terms or condition of this EC, the Commissioner may exercise her right as beneficiary to draw on or call up to 100% of the funds and place the funds in a DEEP dedicated account, and use such funds to pay for work concerning the EC. The Commissioner may notify the Party of Record in writing of the alleged failure to perform and provide the Party of Record with a reasonable period of not less than 10 days in which to remedy the alleged non-performance.

References

On the web:

Engineered Control Guidance Document

Tools for Financial Assurance

Additional questions or concerns on how to fill out the response form can be directed to Amanda Killeen or Michael Senyk

SHOPPING DAYS LEFT!!

- Hanukkah 28
- Christmas 37
- Kwanzaa 37

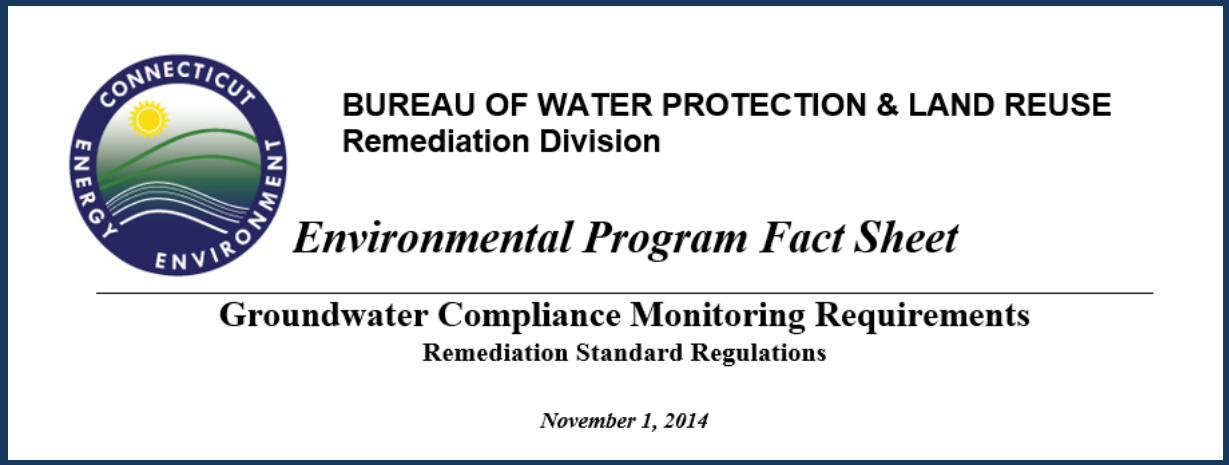
Questions / Comments

Please **state your name** and speak loudly.

www.ct.gov/deep/remediationroundtable

Groundwater Compliance Monitoring Requirements

Fact Sheet



BUREAU OF WATER PROTECTION & LAND REUSE
Remediation Division

Environmental Program Fact Sheet

Groundwater Compliance Monitoring Requirements
Remediation Standard Regulations

November 1, 2014

Rob Robinson

Supervising Environmental Analyst – Remediation Division

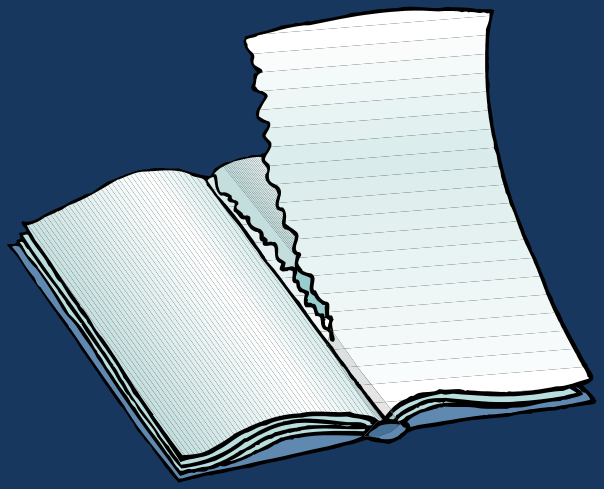
Fact Sheet

- The Groundwater Compliance Monitoring Fact Sheet focuses on the groundwater provisions that were amended and presents DEEP's explanation and expectations on the application of the amended provisions

- Clarifies monitoring requirements to demonstrate compliance with the Standards for Groundwater Remediation

Fact Sheet

- The March 17, 2006 "Guidance for Groundwater Monitoring for Demonstrating Compliance with the Connecticut Remediation Standard Regulations" has been removed from the DEEP webpage because the RSR amendments made much of the document obsolete



Pre - Compliance Monitoring

Before any application of the Groundwater Remediation Standards:

- The nature of the release must be understood;
- Characterization of the plume must be complete;
- The Fate & Transport of COCs in the plume must be understood;
- The hydrology and hydrogeology must be understood;

Pre - Compliance Monitoring

- The groundwater monitoring points must be representative of the plume;
- The plume must be in steady or diminishing state;
- The LEP must be aware of all receptors that may be or may have been impacted by the plume; and
- Final CSM must be validated

Monitoring Requirements - 22a-133k-3(g)(1)

Overview:

A. Efficiency of Soil Remediation
B. Measures to render soil environmentally isolated
C. Measures to eliminate / minimize risks associated with release

D. Determine if Background/GWPC in GA area is met
E. Determine if SWPC and VolC are met
F. Determine if existing uses in GB area at risk

Groundwater Monitoring Requirements

A. Effectiveness of soil remediation to prevent groundwater pollution

- groundwater data should be collected prior to the remedial action in order to later ascertain the effectiveness of the remedial measure

  1 (and only 1) exemption:

  - If remediation is to address the Direct Exposure Criteria (DEC) only, groundwater compliance monitoring is not required

- However: characterization of the release area is necessary to determine that PMC is not exceeded and that groundwater was not impacted by the release

Groundwater Monitoring Requirements

B. Effectiveness of measures to render soil environmentally isolated;

- Groundwater monitoring is necessary to confirm and document that measures to render soil environmentally isolated are effective in isolating polluted soils from groundwater

- The potential need for long-term groundwater monitoring may be addressed in DEEP's site-specific approval process for an Engineered Control

Groundwater Monitoring Requirements

C. Effectiveness of remediation to eliminate / minimize health or safety risks associated with release or identified in any risk assessment conducted in accordance with subsection (e)(2)

- 1st part refers to monitoring effectiveness of measures taken to isolate polluted soils from groundwater, and
- groundwater remedial measures to eliminate or minimize exposure to polluted groundwater
- 2nd part refers to the expected knowledge and understanding of a plume to obtain the Commissioner's Approval for a TI variance

Groundwater Monitoring Requirements

D. Whether a substance in groundwater in a GA area or an aquifer protection area meets background or GWPC, as applicable

- Background groundwater quality is the default goal/criteria
- GWPC may be the target remedial goal only if specific environmental setting requisites are present
  - The vast majority of GA and aquifer protection areas exhibit a Background groundwater quality that is pristine [natural, unpolluted] and potable
  - Many areas with naturally occurring metals/compounds or anthropogenic influences

Groundwater Monitoring Requirements

Background - per 22a-133k-1(a)(5):

"… background means the concentration of a substance in groundwater (A) at the nearest location upgradient of and unaffected by the release; or (B) if such release occurred at or created by a groundwater divide, at the nearest location representative of groundwater quality unaffected by any release

- Workgroup established to better define "BACKGROUND"
  - Soil
  - Groundwater

✓ "Policy on Up Gradient Contamination", dated 8/28/97, remains valid

Groundwater Monitoring Requirements

E (Part 1). Whether a substance in groundwater meets SWPC

First must know if steady state / diminishing plume, then have 3 options:

1. 95% UCL of plume
2. Point of discharge to surface water body; or
3. Leading edge of the plume

Groundwater Monitoring Requirements

(E) Option 1:

- **95% UCL** of the plume

- ✓ Must include all substances that are representative of the entire plume,

- ✓ Must include all monitoring points that are representative of the plume, and

- ✓ Must include all sampling events (used for 'compliance')

Groundwater Monitoring Requirements

(E) Option 2:

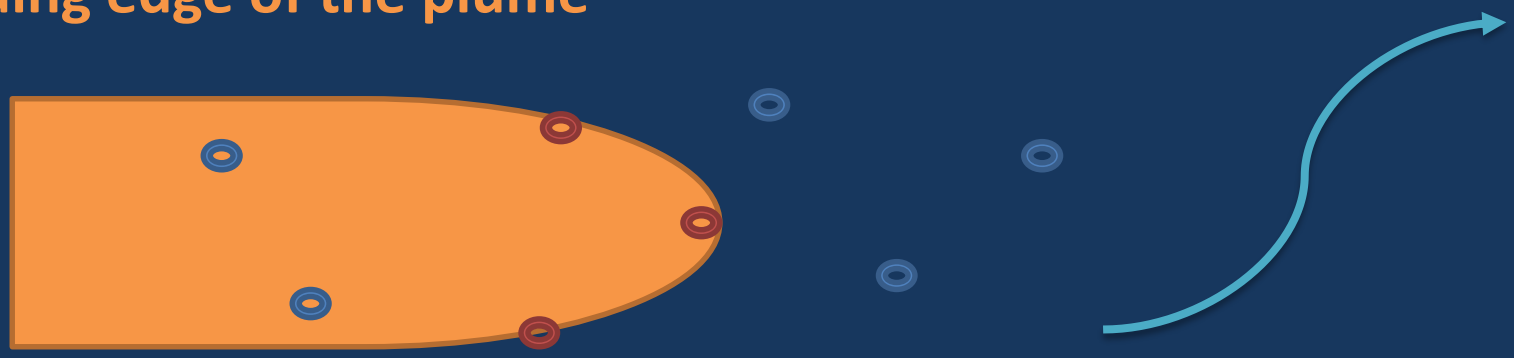
Immediately upgradient of the point at which plume discharges to surface water body

- This does not mean the property line
- This does mean that the plume has migrated to the surface water body

Groundwater Monitoring Requirements

(E) Option 3:

- If the plume has not migrated to the surface water body, the point of discharge would not be representative of the plume. Therefore, DEEP has accepted representative groundwater data from **the leading edge of the plume**

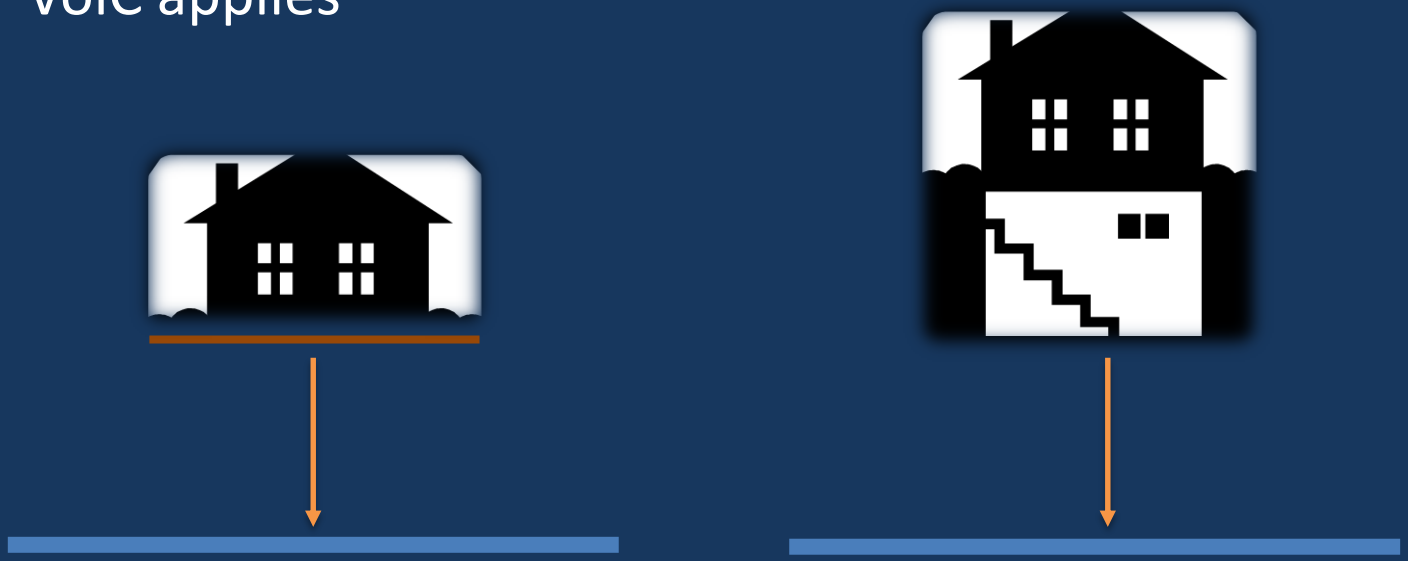


- LEP must support option with validated CSM

Groundwater Monitoring Requirements

E (Part 2): Whether a substance in groundwater meets applicable VolC

- If the plume is within 15 feet of the ground surface or a building, VolC applies



Groundwater Monitoring Requirements

F. Whether a plume in a GB area interferes with any existing use of the groundwater for a drinking water supply or with any other existing use of the ground water

- Receptor surveys are expected for:
  - process wells,
  - irrigation wells, and

  - drinking water supply wells

Groundwater Monitoring Requirements

- A receptor survey should be conducted in any scenario in which groundwater is impacted and has migrated off-site

Refer to the Water Supply Well Receptor Survey Guidance Document

If any drinking water wells are identified within 500 feet of the plume, regardless of groundwater classification, then a Significant Environmental Hazard notification will be required

Compliance Monitoring

22a-133k-3(g)(2): Compliance with Criteria for Groundwater

[When]

(A)(i) Samples used for determining compliance shall be collected after:

(I) All remedial actions have been concluded, other than MNA or the recording of an ELUR;

- compliance monitoring also applies to any plume - whether or not active soil or groundwater remediation has occurred

Compliance Monitoring

(II) The aquifer is no longer subject to the transient effects on hydraulic head attributable to withdrawal from, or injection to, groundwater;

(III) The geochemistry has stabilized from any remedial or MW construction influences; and

(IV) The concentration of such substance at each sampling location that represents the extent and degree of the ground-water plume is not increasing over time

» except as a result of natural attenuation or variations due to seasonal fluctuations

Compliance Monitoring

22a-133k-3(g)(2): Compliance with Criteria for Groundwater

[How]

(A)(ii) … a minimum of four sampling events shall be performed which reflect seasonal variability on a quarterly basis

- 4 sampling events must occur within two years of the last compliance event
- does not have to be consecutive
- The key is that the sampling must evaluate seasonal variability in different quarters of the year

Quarterly Compliance Monitoring

The 2 year window accounts for access or logistical issues in the field

- » makes it possible to complete compliance monitoring without having to start over

- Conducting compliance monitoring over one year continues to be acceptable, as long as all monitoring wells meet the appropriate criteria for all four quarters

Quarterly Compliance Monitoring

If a substance exceeds the applicable criteria during one sample event in the 1st year, compliance may still be demonstrated if the same seasonal sampling event in the 2nd year meets criteria

ie:

1st yr 2nd yr

However, it must be demonstrated that:

- ✓ The exceedance can be explained and detailed through secondary lines of evidence
- ✓ The difference between the exceedance and the subsequent compliance round is not due to differences in water table elevation, and
- ✓ The exceedance is not due to a new source

Groundwater Compliance Monitoring

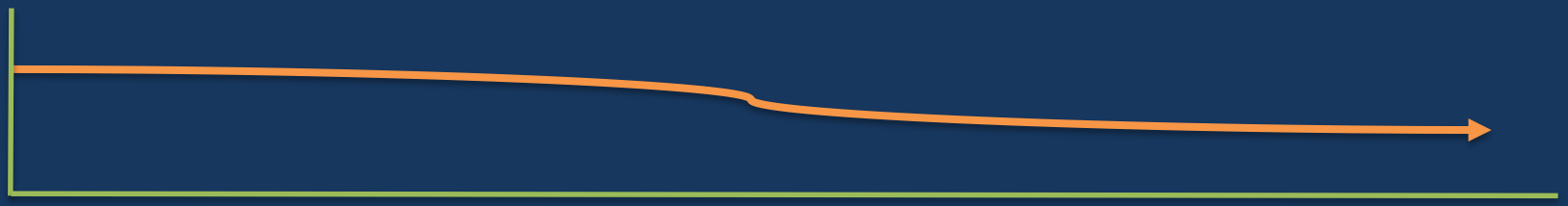
Final thoughts …

- There is no provision for an alternative to 4 seasonal quarters to demonstrate compliance
- Commissioner Approval for Additional Polluting Substances (APS) is still required
  - Such approved substances are to be included in the entire compliance monitoring plan

Groundwater Compliance Monitoring

Final thoughts …

- Groundwater data collected prior to soil remediation cannot be used as part of compliance monitoring
- Compliance monitoring starts only after remedial actions are complete
- Compliance monitoring also applies to any plume regardless of remedial needs
- Compliance monitoring starts only after plume is in steady or diminishing state



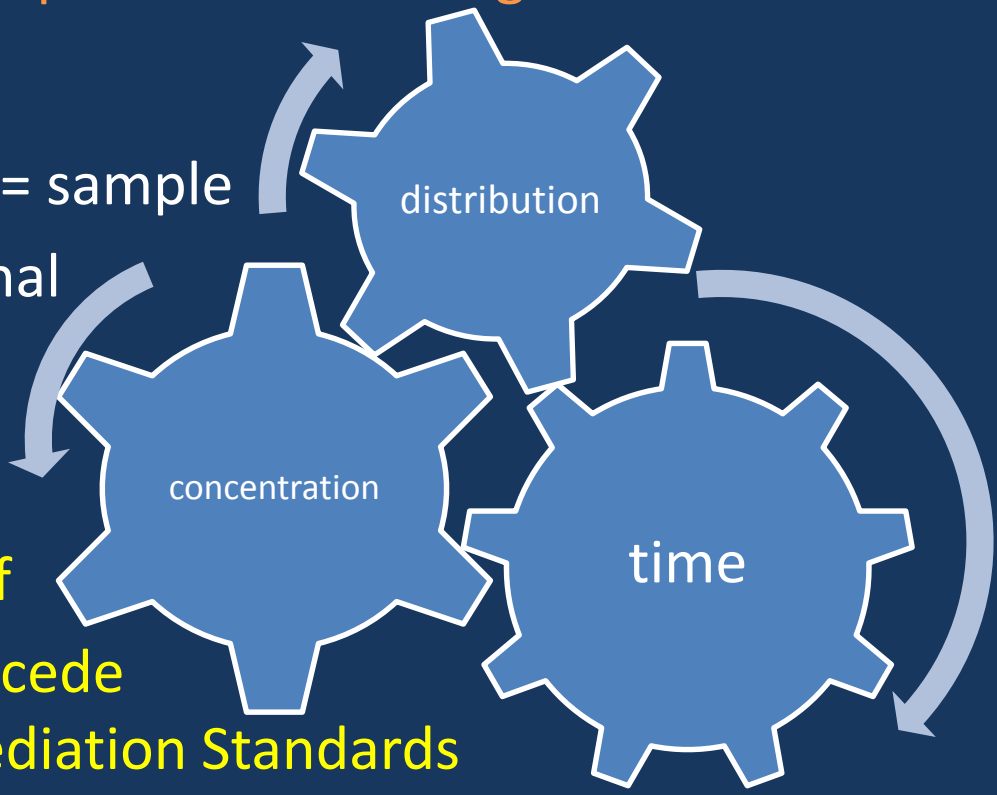
Groundwater Compliance Monitoring

Final thoughts …

- Sampling locations used for compliance monitoring must be representative of plume

- "Representative of the plume" = sample locations accurately reflect seasonal and dimensional aspects of all substances within the plume

- Therefore … characterization of groundwater and plume must precede application of Groundwater Remediation Standards



Groundwater Compliance Monitoring

Final thoughts …

- 4 quarters = seasonality!




- May complete the quarterly *Compliance* sampling over 2 year timeframe (prior to the most current compliance sampling event)

Frequently Asked Questions

Connecticut Department of Energy and Environmental Protection

ROB ROBINSON

Groundwater Compliance Monitoring: FAQs

Quarterly Sampling:

Q: If wells are dry for more than one season can we seek an alternative method of compliance?

A: No. The construction and integrity of the well should be evaluated, and the well replaced if data point is necessary for plume representation. Must have 4 quarters, cannot have any fewer.

Groundwater Compliance Monitoring: FAQs

Quarterly Sampling:

Q: If we have 1 non-compliant seasonal sample, but the 2nd yr seasonal sample is good, can we still demonstrate compliance?

A: YES. The 2 yr window provides the opportunity to miss quarters, but a noncompliant quarter must be explained.

Can't just throw out non-compliant data. The Verification Report must explain why 2nd sample is more representative than 1st sample. You must account for why there were samples that exceeded.

Groundwater Compliance Monitoring: FAQs

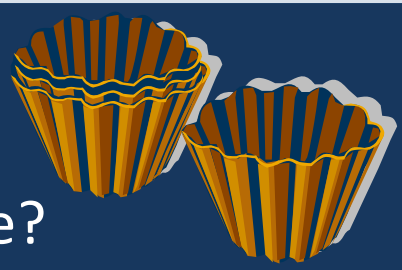
An acceptable reason = quality control issues?

An unacceptable reason = non-compliant sample due to higher than normal water table (because this indicates there is a problem during times of exceptionally high water table).

Another unacceptable reason = no sample due to dry well. This would indicate that the MW is not a valid representation of the plume. LEP should evaluate the reasons for a dry well and rectify if necessary

Groundwater Compliance Monitoring: FAQs

Quarterly Sampling:



Q: Can filtered sampling be used to achieve compliance?

A: Generally, the use of filtered groundwater samples for compliance monitoring is considered inappropriate.

- non-representative of natural conditions

- Non-representative samples can produce unreliable analytical test results, which then impact conclusions and decisions.

Groundwater Compliance Monitoring: FAQs

Use of filters (continued)…

A filter should be used only if all means to reduce turbidity have been explored.

Ultimately, it is the responsibility of the LEP to decide if the use a filter (as well as the filter size) is appropriate to produce representative samples.

Refer to DEEP's Technical Memorandum and Guidance for Filtering Groundwater

Groundwater Compliance Monitoring: FAQs

95% UCL – SWPC

Q: How much data (wells, # of rounds of sampling, # of samples, etc.) is required to use the 95%UCL for SWPC?

A: ALL data that is representative of the plume from ALL 4 quarters used for "compliance" is required.

Sample locations that are representative of the plume mean that contaminants were detected.

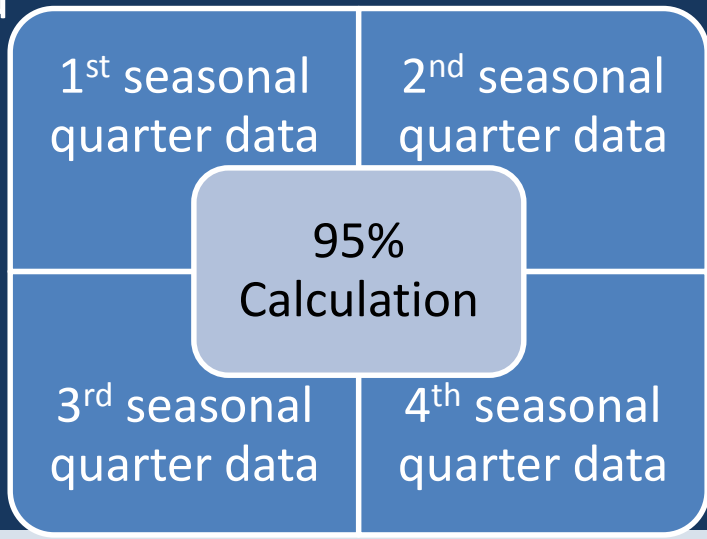
Refer to the 95%UCL Guidance Document for greater detail.

Groundwater Compliance Monitoring: FAQs

95% UCL – SWPC

Q: When using the 95% UCL for SWPC, can you pick which samples to use from the two-year window or do you have to use all of them?

A: All sample results that are used to comply with the quarterly (seasonal) requirement should be used in one overall calculation. You do not need to calculate a 95% UCL for every quarter.



Groundwater Compliance Monitoring: FAQs

SWPC:

Q: Do the four seasonal quarters in a two-year window apply for compliance with the SWPC and VolC? Doesn't that increase the monitoring requirements in GB areas?

A: Four quarters (seasonality) is required for **ALL** groundwater remediation standards.

The LEP has always been required to have an adequate degree of information to understand the plume and hydrology. Now the minimum amount of groundwater data is embedded in the RSRs.

Questions / Comments

Please **state your name** and speak loudly.

www.ct.gov/deep/remediationroundtable

Transformation Roadmap and New "Wave 2" Discussion Drafts

Deed Notice

Rob Bell
Assistant Director
Remediation Division

What is Notice AUL/Deed Notice

- Public Act 13-308 gives DEEP the authority to develop, through regulations, a Notice of Activity and Use Limitation (Notice AUL) [also known as a Deed Notice]
- Additional, optional Institutional Control
- Facilitates safe, cost-effective, and sustainable future land use
- Notice to World: owner records a Notice AUL on the land records
- Enforceable: by terms of statute and regulations
- Notice AUL identifies activities/uses incompatible with pollutants left in place

Applicability of a Deed Notice

To restrict:

1. Residential use at a site;
2. Disturbance of inaccessible soil <10x Direct Exposure Criteria (DEC)
3. Disturbance of an engineered control for polluted soil <10x DEC
4. Demolition of a building or permanent structure that renders polluted soil environmentally isolated and inaccessible <10x DEC and <10x Pollutant Mobility Criteria (PMC)

   - or, if exceeds 10x DEC and 10x PMC, the total volume of soil (which exceeds) shall be less than or equal to ten cubic yards;

Or: 5. Other purposes that the commissioner prescribes by regulation

ELUR vs. DEED Notice

ELUR	Notice AUL
DEEP is the Grantee of the property	State has no ownership interest
Subordination of easements	No subordination required, but can't use NAUL in many cases when interests in land conflict
DEEP review and written approval	Self Implementing with LEP oversight
Any level of contamination	Concentrations no higher than 10 x DEC or/and 10 x PMC, or other factors
Complex legal documents	Simpler document (confirmatory notice to DEEP)
A cleanup tool to reach end point	A cleanup tool to reach end point
Using form prescribed by DEEP	Using form prescribed by DEEP (MA template)
Record on municipal land record	Record on municipal land record

Public Input

- Public Discussion Draft – To Be posted on DEEP Remediation Website in December

  - Public comment period to run through January
  - Begin crafting language after January – DEEP will be looking for volunteers to help develop

Submit comments to:
DEEP.Cleanup.Transform@ct.gov
Or to volunteer to join workgroup please contact:
Jing Chen or Jade Barber

Questions / Comments

Please **state your name** and speak loudly.

www.ct.gov/deep/remediationroundtable

Transformation Roadmap and New "Wave 2" Discussion Draft

Urban Soil

Jan Czeczotka
Assistant Director
Remediation Division

Key Concepts

- Urban Soils
  - contain pollutants that are typically >background concentrations and therefore considered a "release"
  - Are the result of historic filling in combination with historic legal property use
- Issue
  - Causes added expense to investigate and remediate

Urban Soil Workgroup

Workgroup active from June 2011- January 2013

John Albrecht - AECOM

Tamara Burke Devine - CDM

Kathy Cyr – GZA Inc.

David Clymer – UTC

Russ Downey – Pfizer

Greg Garvey – Golder Associates

George Gurney – Stantec

Larry Hogan – AECOM

Steve Holtman –Woodard & Curran

Attorney David Losee

Victoria Man – Zuvic-Carr Associates

Bert Sacco – TPA Construction

Michael Susca – LBG Inc.

Sandy Brunelli - CTDEEP

Maurice Hamel – CTDEEP

Conceptual RSR Wave 2 Changes

Wave 2 RSR Revisions for Urban Soil could include:

- Definition of Urban Soils
- Source materials
- List of common contaminants of concern (COCs) including thresholds for each COC

Conceptual RSR Wave 2 Changes

Additional Wave 2 RSR Revisions to the Urban Soil concept could include:

- Self Implementing Engineered Controls
  - Minimum Default Designs
  - Pavement
  - Durable Surfaces
  - Landscaping
  - Turf
  - Optimize Use of Existing Conditions
  - Maintenance Plan
  - Surety

Supplemental Guidance

- Simplified Characterization Goals
  - Conceptual Site Model
  - Define Limits of Waste
  - Identify Maximum Concentrations
  - Use of PMC Exemptions
- Additional AOCs addressed separately

Cleanup Transformation Roadmap

2014

- DEEP Recommendations – Risk Assessment Evaluation
- Regulation Reform:
  - Wave 2 Cleanup Standards (includes Institutional Controls)
  - Spill Reporting
  - Soil Reuse

2015

- Significant Hazard Phase-in (2013 amendments)
- RSR Wave 2, Spill Reporting, and Soil Reuse regulation adoption process

2015 cont.

- Legislation
- Statewide Groundwater Reclassification process
- Information management system and website upgrade

Public Input

- Public Discussion Draft – To be posted on DEEP Remediation Website in December

  - Public comment period to run through January
  - Begin crafting language after January

Submit comments to:
DEEP.Cleanup.Transform@ct.gov

Questions / Comments

Please **state your name** and speak loudly.

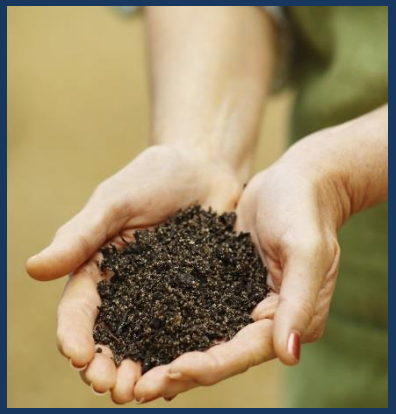
www.ct.gov/deep/remediationroundtable

Reuse of Polluted Soil, Sediment and Other Fill Materials – Concepts for Revised, Self-Implementing Regulations

Kevin T. Sullivan
Supervising Environmental Analyst
Waste Engineering and Enforcement Division

Connecticut Department of Energy and Environmental Protection

Prefacing Notes



- "Soil" = "soil and sediment"
- "Other materials" =
  - brick, concrete, ceramic
  - asphalt

Update

2013:

- Remediation Roundtable presentation
- Soil reuse criteria based on the default criteria in the RSRs
- Still headed in that direction
- Coordinating with other Northeast states

Presently…

- Working on a public discussion draft document
- December 2014 release
- Designed to encourage feedback prior to drafting actual regulatory language

Summary of the Proposed Revisions

APPLICABLE REGULATIONS

In general:

For soil at a remediation site:

- Remediation Standard Regulations ("RSRs"), Reuse of Polluted Soil section

For soil from elsewhere / a construction site:

- Solid Waste Regulations ("SWR")

Remediation Site

- ✓ Reuse provisions of RSRs
- On-site reuse is self-implementing if in accordance with the RSRs
- Off-site reuse not self-implementing

Construction Site

- Follow “Clean Fill” definition in the Solid Waste Regulations

Clean Fill

- 3 parts to this definition:

✓ Natural soil

2) Rock, (brick, ceramics, concrete and asphalt paving fragments) which are virtually inert and pose neither a pollution threat to ground or surface waters nor a fire hazard

3) Polluted soil… “reused in accordance with the RSRs”

Revised / Deleted Clean Fill Term

2) Rock, (brick, ceramics, concrete and asphalt paving fragments) which are ***virtually inert and pose neither a pollution threat to ground or surface waters nor a fire hazard***

- ✓ Too vague – delete it
- ✓ Make other provisions for reusing the other materials in blue font

Clean Fill

3) Polluted soil… “reused in accordance with the RSRs”

    - Useful exemption for onsite reuse under the RSRs

x Does not provide a process for reuse of polluted soil NOT managed under the RSRs

Clean Fill Effective Meaning

3) Third part means:

Soil with pollutants = solid waste,

at any concentration of pollutants

Raises the specter of disposal, liability, etc. for a lot of soil

- Is it OK to reuse onsite?
  - Is it OK to reuse offsite?
    - Is there liability?
      - Must it be disposed?

New provisions to replace clean fill:

- x ***3) Polluted soil… "reused in accordance with the RSRs"***

- ✓ Replace with numeric and situational criteria that define when it is safe to reuse polluted soil
- ✓ Specify that soil reused in accordance with the criteria are not solid waste
- ✓ Provide self-implementing process

Other Basic Provisions

- No requirement to remediate
- Excavated material only
- Applies to all sites, except
  - Residential source exemption
- Utility trench policy

Soil Reuse Criteria / Categories

Simplified Table

	"0"	50% RSRs	RES GA	I/C GB		
Soil Category	**A+**	**A**	**B**		**> I/C DEC or > GB PMC**	**RCRA Hazardous Waste**
Reuse Criteria	**< 50% RES & < 50% GA**	**< RES DEC & < GA PMC**	**< I/C DEC & < GB PMC**			

increasing concentration of pollutants →

Detailed Criteria / Categories

	"0"	50% RSRs	RES & GA	I/C & GB
Soil Category	A+	A	B	
Reuse Criteria	< 50% RES & < 50% GA	< RES DEC & < GA PMC	< I/C DEC & < GB PMC	
Reuse Area	anywhere	Residential GA area - Not for gardening - Not below water table - Not within 75' water well	Industrial/Commercial GB area - Not for gardening - Not below water table - Not within 75' water well	
Notes:	No PCBs/PBTs, Testing required	No PCBs/PBTs, "Knowledge of source"	No PCBs/PBTs, "Knowledge of source"	

increasing concentration of pollutants →

Corridor	C	C	C

Corridor Category

- From a corridor to a like corridor
  - transportation or utility corridor
  - "like to like" reuse
  - Try to match level of pollutants / urbanization
- Only pollutants typical of the corridor
- No PCBs or PBTs (persistent bioaccummulative toxins)

Other Provisions

- Brick, concrete and ceramic OK anywhere for filling or grading
  - must be free of oil, paint, other pollutants
  - similar to previous “clean fill”

Other Provisions

- Asphalt: no longer “clean fill”, but OK:
  - In new asphalt / as asphalt
  - In road base material (including parking lots)
- Street sweeps & catch basin cleanings
  - Same uses as asphalt
  - If processed to remove solid waste

Sediment: same reuse options as soil

- Dam Safety, fresh water sediment:
  - When dams are removed, sediment in the former impounded area exempted from SWR
  - Provisions for sediment management in Dam Safety Permit
- Dredged marine sediment
  - Delete “dredge spoils” from SWR, implies disposal
  - dwindling open water disposal capacity
  - help create upland reuse alternatives

Other Provisions

- Seller Certification
  - Regulations would require “seller” of reused soil to certify which category the soil meets
- Facility development
  - Exempt from Solid Waste permit, provided default operational requirements are followed
  - Patterned after Soil Staging General Permit
  - facilitate development of staging and processing capacity lacking today

Still to do

- Harmonize with DEEP Remediation Roundtable Workgroups:
  - Background Workgroup
  - Urban Soil Workgroup
- Define PBTs
- Define Corridor
- Define “like to like”
- Define knowledge of source

Next Steps

- "Public discussion draft" document being developed
  - "better than draft regulations"
  - available on DEEP website soon
  - intended to encourage feedback prior to drafting regulations

Next Steps

- December 2014 - Release public discussion draft document
  - (notice through Remediation Roundtable listserv, etc.)
- Give time for review
- January 2015 - Hold public discussion meeting
- Consider the feedback received
- Draft regulations
- Public notice regulations: ~ April 2015
- Adoption: ~ Fall 2015

Questions?

Contact Info

Kevin T. Sullivan

Waste Engineering and Enforcement Division

e-mail: kevin.t.sullivan@ct.gov

phone: 860-424-3275

Discussion Points

- Is 50% of the RSRs the correct criteria for the threshold below which soil would not be regulated?
- Is removing asphalt from clean fill problematic?
- Is “knowledge of source” a reliable approach, or will it encourage avoidance of due diligence and testing?

Discussion Points

- For construction soils, do we need to require to characterization of soil before excavation?
- Is I/C DEC and GB PMC the correct criteria for the upper limit of reuse of polluted soil?
- Is it problematic to require that there be no PCBs or PBTs in any of the categories?
- Will the new regulations increase testing? If so, how much will it cost? Will that be cost-prohibitive?

Questions / Comments

Please **state your name** and speak loudly.

www.ct.gov/deep/remediationroundtable

Risk Based Decision Making Evaluation

Ray Frigon
Environmental Analyst 3
Remediation Division

Risk Based Decision Making Evaluation

- Section 28, P.A. 13-308
- CDM Smith selected to conduct evaluation- January 2014
- Evaluation kicked off with a Public Meeting - March 12, 2014
- CDM Smith issued Final Report - August 29, 2014
- Public Meeting to present suggestions of the Final Report – September 10, 2014
- Public Comment Period - September 10 – 30, 2014
- DEEP recommendations for statutory changes due to legislature October 1, 2014

Questions / Comments

Please **state your name** and speak loudly.

www.ct.gov/deep/remediationroundtable

Remediation Roundtable

E-mail: DEEP.remediationroundtable@ct.gov

Web: www.ct.gov/deep/remediationroundtable

Next meeting: February 24, 2015

Schedule and agenda on website
www.ct.gov/deep/remediationroundtable

Submit comments to the Roundtable Committee at
DEEP.remediationroundtable@ct.gov