

Remediation Roundtable

June 20, 2017





Roundtable Webinar

- Basic directions provided on listserv email
- Detailed directions on website
 - ▶ www.ct.gov/deep/remediationroundtable



Agenda

➤ Updates:

- New Division Organization
- 2017 Legislative Session
- Wave 2 RSR and EUR Progress
- Electronic and Hardcopy Document Transmittal
- Roundtable Tips (#10 &11)

➤ Presentations:

- Discharge Permits
- CT Brownfields Initiative
- Interim Verifications
- PFASs



Announcements

- ➔ EPA Region 1 Awards
 - ➔ Ron Curran and Patrick Bowe for Raymark Industries Superfund Site in Stratford
 - ➔ Shelton Mayor Mark Lauretti and James Ryan of the Shelton Economic Development Corp



Website Updates

- Covenant Not to Sue revised
- ELUR Map refresh
- Document transmittal webpage and forms
 - Electronic and Hardcopy
- Verification Report Guidance Document revisions to Interim Verification sections

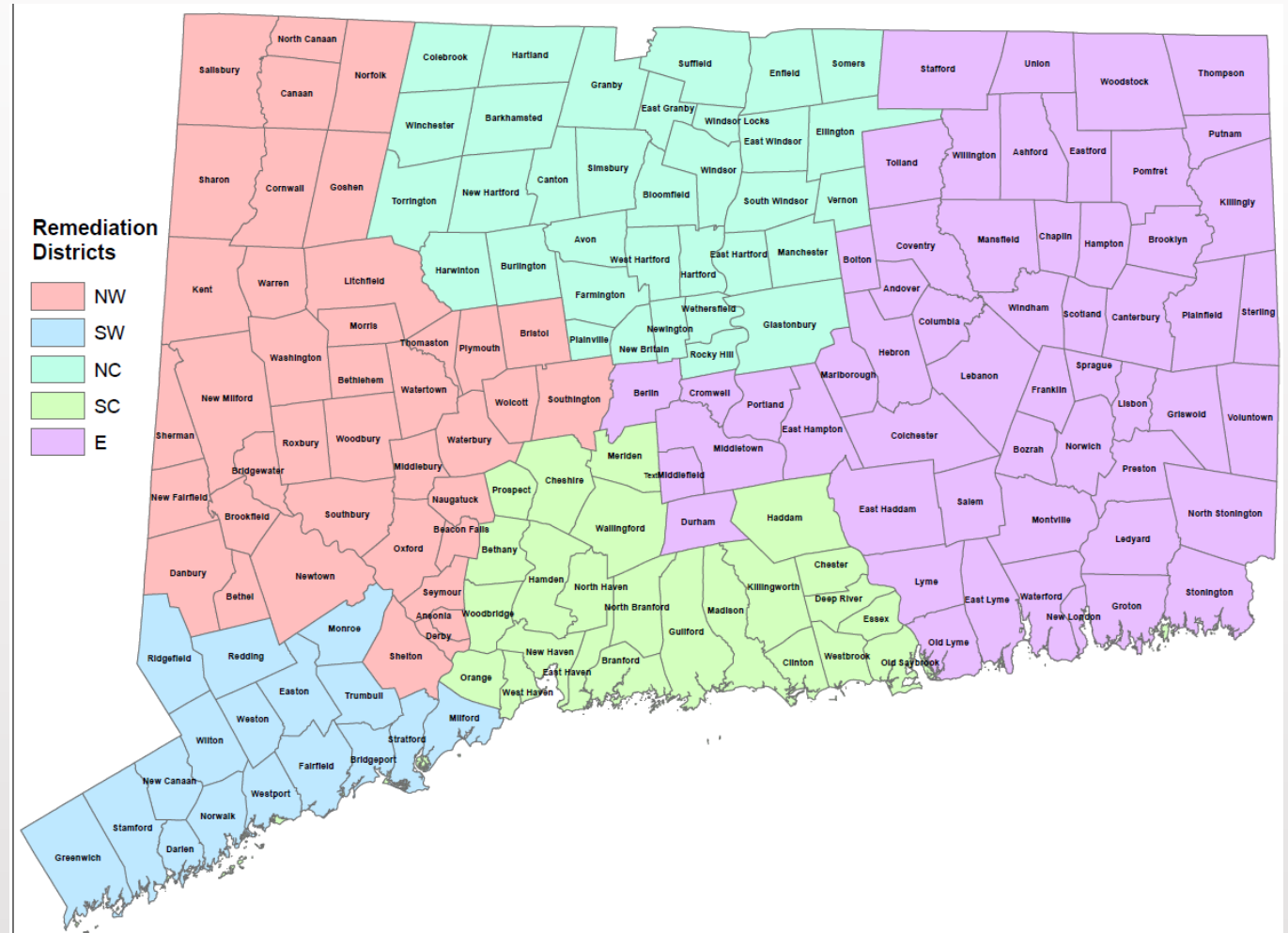


Update – Remediation Division Organization

➔ 5 Districts

➔ Map

➔ Towns





Questions or Comments?

Please Speak into Microphone
and State Your Name

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2017 Legislative Updates

Robert Bell
Assistant Director
Remediation Division



Questions or Comments?

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Wave 2 RSR and EUR Progress Update

Kevin Neary
Environmental Analyst 3
Remediation Division



Wave 2 RSR and EUR Progress Update

- DEEP Legal Staff continuing to evaluate proposed language
- No concrete timeframe to start formal process
- Anticipate Public Notice period to be greater than required 30 days
- Looking to provide reviewable document outside legal version



Wave 2 RSR and EUR Progress Update

- Pesticide Provision –
 - Exemptions provided for land used for agriculture
 - Relocation of pesticides impacted topsoil to Commissioner approved farm land
- Replacing 7Q10 with Q99
- Additional remedies suitable for NAUL
- Engineered Control for Metals stabilization
- Commissioner approval option for Alternative GWPC for non-sustainable aquifers



Questions or Comments?

Please Speak into Microphone
and State Your Name

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Document Transmittal:

Electronic Document Upload and Multi-Program Hardcopy

Kevin Neary and Camille Fontanella
Environmental Analyst 3
Remediation Division



Electronic Document Transmittal Form

- ▶ Multi-Program use = Remediation and LUST
- ▶ Only submit documents identified on the Electronic Transmittal Form
- ▶ Once process has been tested, additional document types will be added to the Electronic Transmittal Form
- ▶ **No paper document need**



Type of e-Documents Currently Accepted

- ▶ LUST
 - ▶ All Documents
 - ▶ List on 2nd page of transmittal form

- ▶ Remediation is only accepting:
 - ▶ Annual Remedial Reports
 - ▶ Monitoring Reports (quarterly, semi-annual, and annual)

- ▶ Monitoring reports associated with SEH program are **not accepted** electronically
 - ▶ Need to be submitted on paper with Hardcopy Transmittal Form



Process for e-Document Transmittal

- ➔ **Follow Directions** on DEEP - Remediation/LUST Transmittal of Documents Webpage



Process for e-Document Transmittal

1. Email DEEP.cleanup.upload@ct.gov to obtain CT **Secure File Transfer (SFT)** website password
 - ▶ Will get an auto reply with password
 - ▶ Only need first time summmiting eDocument
2. Go to Remediation/LUST [Transmittal of Document webpage](#)
3. Download Electronic Transmittal Form
4. Fill out, **embed as first page** of e-document and **save as PDF/A**
5. Go to [CT SFT website](#)
 - ▶ Enter username: deepcleanupdocuments
 - ▶ Enter password: #####
6. Upload Document



Process for e-Document Transmittal

Thank you for contacting the DEEP Cleanup Upload email to obtain a user name and password to upload documents to the Remediation Division and LUST Coordination Program. Please be advised that the user name and password provided will be used every time you upload a document.

All electronic submittals must have the Electronic Submittal Form included with the attached document. For a detailed instruction on uploading a document please visit DEEP's Remediation and LUST Coordination Program [Transmittal of Documents Webpage](#).

User name: **deepcleanupdocuments**

Password: **"password"**

Please note: This email address is only to be used to acquire a user name and password. There will be no response to any upload questions, please visit the Electronic Submittal for DEEP Remediation and Lust FAQ (link)



Process for e-Document Transmittal

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 - Enter username: deepcleanupdocuments
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6. Upload Document



Electronic Transmittal Form for DEEP Remediation and LUST Secure File Transfer (SFT)

DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
REMEDICATION DIVISION
LEAKING UNDERGROUND STORAGE TANK COORDINATION PROGRAM

www.ct.gov/deep

This Electronic Transmittal Form is to be used when submitting a document to the Connecticut SFT website. This form must be completed and included as the cover sheet of your electronic document.

Requirements for Transmittals through the SFT website:

- Only document types identified in Part III below may be submitted through the SFT website.
 - Documents submitted through the SFT website must include all applicable figures, tables and laboratory data.
 - Files must be formatted as PDF/A and use the appropriate naming convention:
 - For Remediation Filings: **REM_RemID_DocumentType_DateofDocument**
Example: REM_1234_MonitoringReport_01-01-2001
 - For LUST Filings: **LUST_SiteAddress_Town_AbbreviationForDocumentType_DateofDocument**
Example: LUST_1MainStreet_Hartford_ESA_01-01-2001
- Note:** For AbbreviationForDocumentType use appropriate abbreviation on page 2 of this form

Part I: Program Type (Select either Remediation or LUST as your Primary Program Type)

<input type="checkbox"/> Remediation Primary Program: Select Primary Program *Rem ID: [] (required)	<input type="checkbox"/> LUST UST Facility ID: [] (if applicable) Spill Case Number: [] (if known)
--	--

Part II: Site Information

Site Name: []	State: CT	Zip Code: []
Site Address: []	City/Town: []	
Secondary Programs (complete as many as applicable for this document):		
Program: Select Secondary Program	Project ID: []	
Program: Select Secondary Program	Project ID: []	
Program: Select Secondary Program	Project ID: []	
Program: Select Secondary Program	Project ID: []	
Provide Project ID for each secondary program if it is known. Each program has a unique ID (i.e. Rem ID, Spill Case #, UST Facility ID, PCB File #, etc.)		

Part III: Document Information

Select Document Type
Date of Document: SELECT DATE.

Part IV: Submitter Information

Name: []	**E-mail: []
**By providing this e-mail address you are agreeing to receive official correspondence from the department, at this electronic address, concerning the subject document. Please remember to check your security settings to be sure you can receive e-mails from "ct.gov" addresses. Also, please notify the department if your e-mail address changes.	
Name of company/business this document is being submitted on behalf of: []	



Electronic Transmittal Form for DEEP Remediation and LUST Secure File Transfer (SFT)

DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
REMEDICATION DIVISION
LEAKING UNDERGROUND STORAGE TANK COORDINATION PROGRAM
www.ct.gov/deep

Document Naming Convention

For Remediation Document:
Remediation Example:

REM_RemID_DocumentType_DateofDocument
REM_1234_MonitoringReport_01-01-2001

For LUST Document:
LUST Example:

LUST_SiteAddress_Town_AbbreviationForDocumentType_DateofDocument
LUST_1MainStreet_Hartford_ESA_01-01-2001

*Rem ID: (required) Spill Case Number: (if known)

Part II: Site Information

Site Name:
 Site Address:
 City/Town: State: **CT** Zip Code:

Secondary Programs (complete as many as applicable for this document):

Program: Select Secondary Program	Project ID: <input type="text"/>
Program: Select Secondary Program	Project ID: <input type="text"/>
Program: Select Secondary Program	Project ID: <input type="text"/>
Program: Select Secondary Program	Project ID: <input type="text"/>

Provide Project ID for each secondary program if it is known.
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Part III: Document Information

Select Document Type
Date of Document: SELECT DATE.

Part IV: Submitter Information

Name: **E-mail:

**By providing this e-mail address you are agreeing to receive official correspondence from the department, at this electronic address, concerning the subject document. Please remember to check your security settings to be sure you can receive e-mails from "ct.gov" addresses. Also, please notify the department if your e-mail address changes.

Name of company/business this document is being submitted on behalf of:

(Do not submit this page with your filing)



DEEP Contact Information:

Remediation Division
79 Elm St 2nd floor
Hartford, CT 06106-5127
860-424-3705

LUST Coordination Program
79 Elm St. 4th floor
Hartford, CT 06106-5127
860-424-3378

Additional Information for LUST Filings

Select one of the following abbreviations for use in File name

Report	Abbreviation
Tank Closure Assessment Report/UST Closure Report	CR
Investigation - Site Characterization Report	ESA
Investigation - Subsurface Investigation Report	ESA
Investigation - Phase I Site Assessment Report	ESA
Investigation - Phase II Investigation Report	ESA
Investigation - Phase III Investigation Report	ESA
Investigation - Receptor Survey	SRS
Investigation - Environment Site Assessment	ESA
Investigation - Supplemental Phase I Site Assessment Report	ESA
Investigation - Supplemental Phase II Investigation Report	ESA
Investigation - Supplemental Phase III Investigation Report	ESA
Investigation - Well Receptor Survey	SRS
Remediation - Corrective Action Plan	CAP
Remediation - Corrective Actions Report	CAR
Remediation - 20 Day Spill Report	CAR
Remediation - 45 Day Spill Report	CAR
Remediation - Soil Excavation Report	CAR
Remediation - Free Product Removal Report	CAR
Remediation - Remedial Action Plan	RAP
Remediation - Operation & Maintenance Plan	RAR
Remediation - Remedial Action Report	RAR
Remediation - Remedial Design Report	RAR
Monitoring Reports - Ground Water Monitoring Report	GWMR
Monitoring Reports - Site Status Report	SSR
Schedule	SCH
Scope of Work	SOW



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- ✓ Fill out, embed as first page of e-document and save as PDF/A

5.

Go to [CT SFT website](#)

- Enter username: deepcleanupdocuments
- Enter password: #####

6. Upload Document

Process – e-Document Transmittal



A screenshot of a web browser window displaying the ST Web Client login page. The browser's address bar shows "https://stf.ct.gov/". The page features the "ct.gov" logo and the text "ST Web Client". On the right side, there is a "Login" section with a "User ID:" field containing "deepcleanupdocuments", a "Password:" field with masked characters, and a "Log in" button. Below the login fields is a "Forgot your password?" link with a plus icon. The Windows taskbar is visible at the bottom, showing icons for various applications and the system clock displaying "11:38 AM 6/14/2017".



Process for e-Document Transmittal

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- ✓ Go to CT SFT website
 - Enter username: deepcleanupdocuments
 - Enter password: #####

6.

Upload Document

Upload e-Document Transmittal



ct.gov ST Web Client

YOUR FILES

DO Welcome, DEEPCLEANUPDO

▼ Your files

Your files

 Upload  Share  Actions

Name ↓

Last modified

Size

Uploads monitor



Upload e-Document Transmittal



ct.gov ST Web Client

YOUR FILES

DO Welcome, DEEPCLEANUPDO

Your files

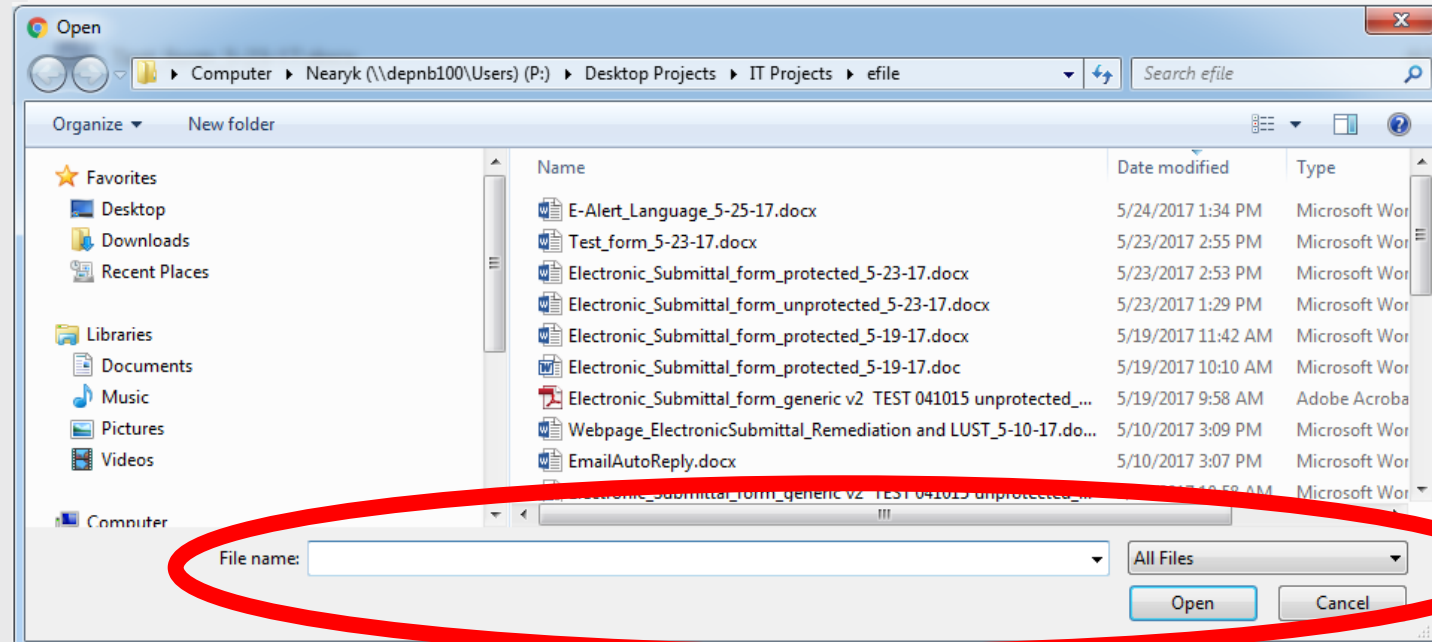
Your files

Upload Share Actions

Name ↓

Last modified

Size



A Windows File Explorer window titled "Open" is overlaid on the web client interface. The address bar shows the path: Computer > Nearyk (\\depnb100\Users) (P:) > Desktop Projects > IT Projects > efile. The left sidebar shows "Favorites" (Desktop, Downloads, Recent Places) and "Libraries" (Documents, Music, Pictures, Videos). The main pane displays a list of files with columns for Name, Date modified, and Type. A red oval highlights the "File name:" field and the "All Files" dropdown menu at the bottom of the window.

Name	Date modified	Type
E-Alert_Language_5-25-17.docx	5/24/2017 1:34 PM	Microsoft Word
Test_form_5-23-17.docx	5/23/2017 2:55 PM	Microsoft Word
Electronic_Submittal_form_protected_5-23-17.docx	5/23/2017 2:53 PM	Microsoft Word
Electronic_Submittal_form_unprotected_5-23-17.docx	5/23/2017 1:29 PM	Microsoft Word
Electronic_Submittal_form_protected_5-19-17.docx	5/19/2017 11:42 AM	Microsoft Word
Electronic_Submittal_form_protected_5-19-17.doc	5/19/2017 10:10 AM	Microsoft Word
Electronic_Submittal_form_generic v2 TEST 041015 unprotected...	5/19/2017 9:58 AM	Adobe Acrobat
Webpage_ElectronicSubmittal_Remediation and LUST_5-10-17.do...	5/10/2017 3:09 PM	Microsoft Word
EmailAutoReply.docx	5/10/2017 3:07 PM	Microsoft Word

Uploads monitor





Tips for e-Document Transmittal

- ▶ For questions please visit the FAQs on the [Transmittal of Documents Webpage](#)
- ▶ Please make sure you are using the **most recent** Electronic Transmittal Form, as new document types will be added
- ▶ If unable to log in, please resend email to DEEP.cleanup.upload@ct.gov **FIRST**
 - ▶ the password may have changed
- ▶ Everyone who will be uploading documents should email DEEP.cleanup.upload@ct.gov
 - ▶ We will be maintaining a list of users



Questions or Comments?

Please Speak into Microphone
and State Your Name

www.ct.gov/deep/remediationroundtable



Hardcopy Document Transmittal Form

- ➔ Multi-Program use = Remediation, LUST, PCBs
- ➔ Only use when cannot submit electronically
- ➔ Only use when no form is already “prescribed by the Commissioner” (e.g., COI-TF, RAP-TF)
- ➔ Always use for PCB documents
- ➔ Always use for SEH reporting

[Transmittal of Document](#) webpage



Questions or Comments?

Please Speak into Microphone
and State Your Name

www.ct.gov/deep/remediationroundtable



Roundtable Tips





Tip #10 Significant Hazards Initial Responses

- ▶ CGS section 22a-6u requires that the notifier conduct an initial response action and submit report or plan with notification
- ▶ If monitoring beyond initial notification is needed to ensure mitigated state of hazard condition, please include a schedule for submittal of status reports in initial response action report/plan

http://www.ct.gov/deep/lib/deep/site_clean_up/hazard_notification/SEHQuickSummary.pdf



Tip #10.

Initial Responses: Drinking Water Hazards



	Supply Well (b)	Supply Well (c)	Monitoring Well (g)
Trigger	> GWPC or NAPL	<GWPC any detection	> GWPC 500 ft to DG well 200 ft any direction
Notify	1 day verbal and 7 day written	30 day	30 day
Actions by day 30	<ul style="list-style-type: none"> Well Survey 500 feet radius Test abutters 	<ul style="list-style-type: none"> Retest Well If > GWPC, more actions 	<ul style="list-style-type: none"> Well Survey 500 feet radius Test abutters
Report	30 day report <u>with recommended actions</u>	With notification at 30 days with <u>recommended actions</u>	





Tip #10. Initial Responses: Surface Soil Hazards



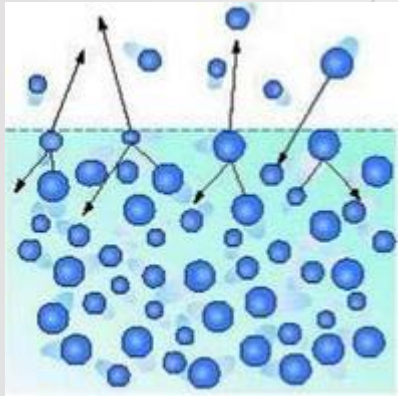
	Industrial/ Commercial	Ind/Comm but Residential use is within 300 feet	Residential
Triggers: Metals and PCBs	30 x IDEC* *see 40 CFR 761.123 for non-restricted access definition PCBs	15 x IDEC 30 x IDEC if paved/fenced	15 x RDEC
Triggers: Organics	30 x IDEC	30 x IDEC	15 x RDEC
Notify	90 day	90 day	90 day
Actions by Day 90	<ul style="list-style-type: none"> • Notify • Determine extent • Prevent Exposure • Report with Recommendations (including annual M&M report) 		
Exceptions	<ul style="list-style-type: none"> • Hazard abated prior to 90 days by: removal, inaccessible per RSRs, remediated to RSRs • TPH and specified organics 		
		<30XI/C DEC and already has well-maintained pavement/fencing	Site in LHD lead paint abatement program





Tip #10.

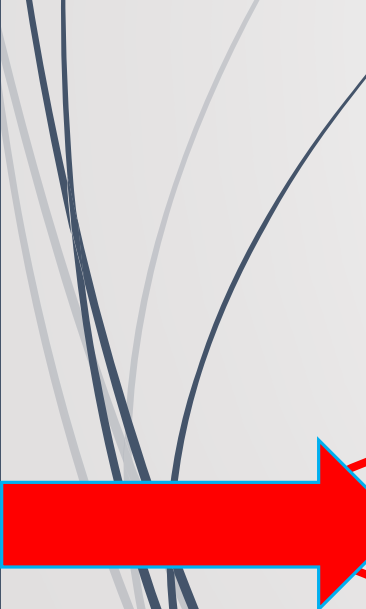
Initial Responses: Volatilization Hazards



	GW within 15 feet of structure	Explosion
Trigger	>10X GWVC (Res or Ind/Comm)	Explosivity meter shows any detection
Notify	30 day written	Immediately to Spills and LFD 7 day written
Actions by Day 30	30 day notification with plan to mitigate or abate	With notification at 30 days with recommended actions
Exceptions	<ul style="list-style-type: none"> • Soil vapor <10 X SVVC under building • <10X DEEP approved site-specific criteria • Others 	



Tip #10. Initial Responses: Surface Water Hazards



	GW near and likely entering SW	Entering SW
Triggers	> 10X Acute WQS NAPL	NAPL
Notify	30 day written	Immediate verbal to Spills 30 day written
Actions by Day 30	Notify with plan to monitor, mitigate, or abate	<ul style="list-style-type: none">• Immediate response as directed by Spills• Notify with plan to monitor, mitigate, or abate



Questions or Comments?

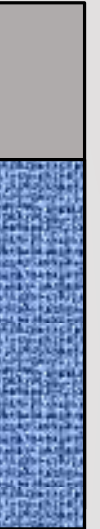
Please Speak into Microphone
and State Your Name

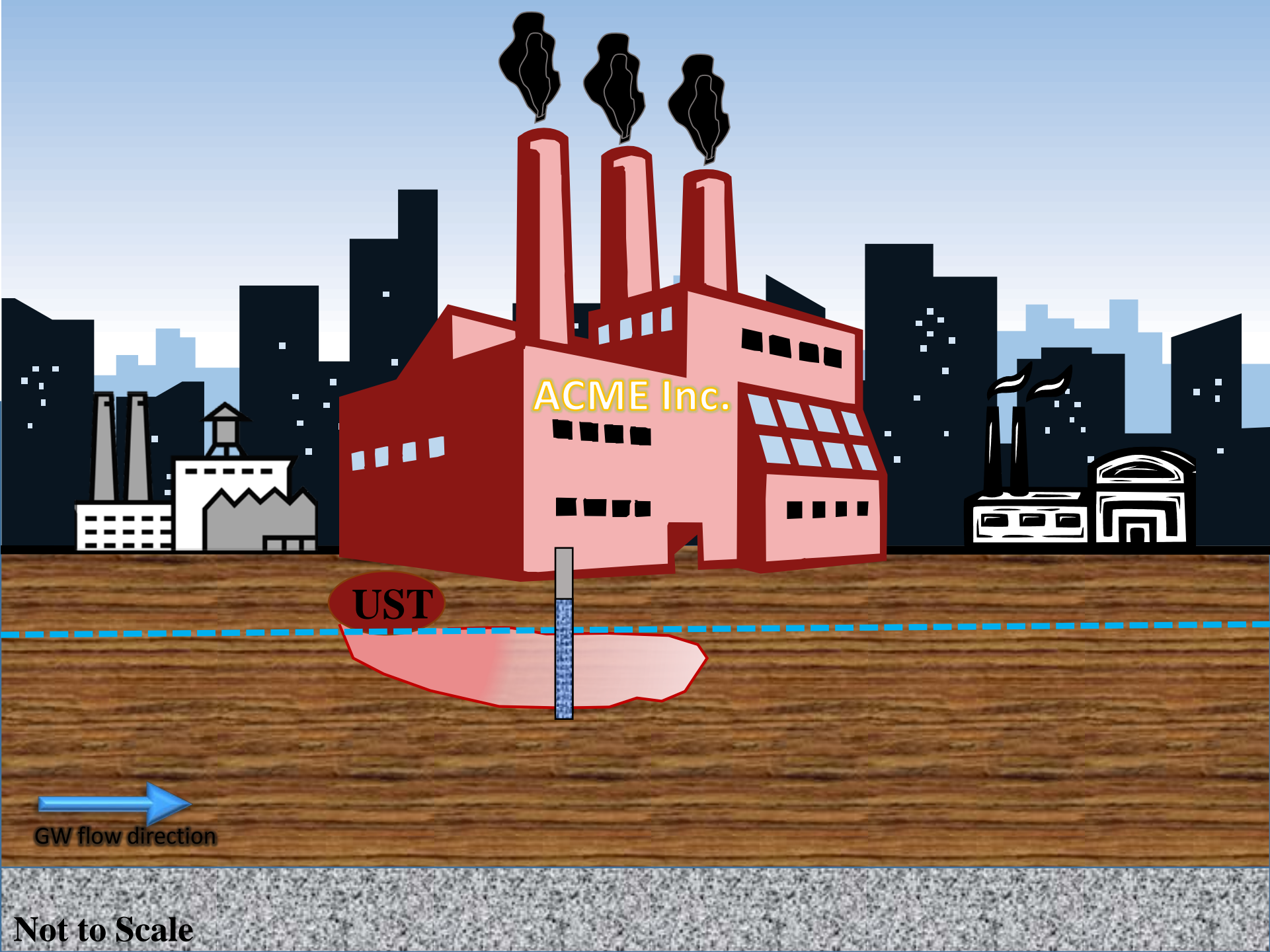
www.ct.gov/deep/remediationroundtable



Tip # 11. Representative Monitoring Well Screened Intervals

- ▶ The 15-foot well screen is becoming more popular
 - ▶ Captures larger depth of groundwater
 - ▶ Covers widely fluctuating water tables
 - ▶ More water available for low flow sampling
 - ▶ Helps determine gross presence of contamination
- ▶ 15-foot screens are not appropriate for full characterization or compliance monitoring
 - ▶ Tends to under represent groundwater plume concentration (DQOs)
 - ▶ Longer intakes do not allow for more specific hydraulic head and flow monitoring
 - ▶ Issue with collecting representative samples to evaluate RSR compliance
 - ▶ More appropriate to install nested well for shallow and deep aquifer





Not to Scale



Questions or Comments?

Please Speak into Microphone
and State Your Name

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General Permit for the Discharge of Groundwater Remediation Wastewater

Presented by Don Gonyea
Bureau of Materials Management & Compliance Assurance
Permitting and Enforcement Division



General Permit for the Discharge of Groundwater Remediation Wastewater

- ◆ DEEP has consolidated the General Permits for discharges of remediation wastewater to sanitary sewer and surface waters
 - ◆ Clarified that certain types of discharge are authorized
 - ◆ Contaminated construction dewatering
 - ◆ Dredging dewatering
- ◆ Added a limited allowance for discharge to the ground/groundwater
 - ◆ Recirculation systems and well rehabilitation
- ◆ Expands the activities covered by the general permit



General Permit for the Discharge of Groundwater Remediation Wastewater

- ◆ One permit **and** one registration can accommodate discharges to surface water, sanitary sewer and groundwater
 - ◆ Forms and detailed instructions will be available on [DEEP website](#)
 - ◆ This will include a flowchart of DEEP's internal processing steps
- ◆ Expected that 85% of discharges will be authorized upon submittal of a registration
 - ◆ If the registration is insufficient, discharge is not authorized



General Permit for the Discharge of Groundwater Remediation Wastewater



- ◆ New requirements incorporate updated regulations, Water Quality Standards and new general permit concepts
 - ◆ Discharges will be screened for Total Nitrogen and Phosphorus
 - ◆ Discharges lasting longer than 90 days are subject to NetDMR requirements
 - Registrant responsible for filing a “Subscriber Agreement”
 - ◆ [NetDMR](#) information available on the internet

General Permit for the Discharge of Groundwater Remediation Wastewater

- ◆ Certification by a “Qualified Professional” will be required for all discharges lasting more than 30 days
 - ◆ Qualified Professional is defined in the General Permit
- ◆ Emerging Contaminants will be considered for all discharges
 - ◆ Defined by [EPA](#)
 - ◆ Analysis required only when reasonably likely to be present
 - ◆ DEEP will decide if specific conditions are applicable
 - ◆ No additional fee will be required if DEEP issues an Approval based on an evaluation of emerging contaminants

General Permit for the Discharge of Groundwater Remediation Wastewater

- ◆ Discharges to Impaired Waters will be subject to specific conditions
 - ◆ Based largely on whether a TMDL is established for the pollutants being remediated
 - ◆ Total Maximum Daily Load
- ◆ [Impaired Water List](#) can be found on DEEP Website



General Permit for the Discharge of Groundwater Remediation Wastewater

- ◆ If a TMDL is not established
 - ◆ DEEP will separately specify whether monitoring is required
 - ◆ Requirement will expire if 1 year of monitoring indicates the pollutant of concern is below background levels
- ◆ If a TMDL is established
 - ◆ DEEP will separately specify whether monitoring is required
 - ◆ Requirement will expire if 1 year of monitoring indicates the pollutant of concern is below method detection unless otherwise specified

General Permit for the Discharge of Groundwater Remediation Wastewater

- ◆ An estimated 15% will require an Approval of Registration
- ◆ Discharges can be authorized to receiving waters with limited dilution
- ◆ Allows pumping from off-site wells back to a central treatment system
 - ◆ Must be part of the same plume
- ◆ Allows end-of-pipe compliance
 - ◆ Limited allowance for removal in a conveyance

General Permit for the Discharge of Groundwater Remediation Wastewater

- ◆ Discharges can be authorized to Class AA waters or other waters that are part of a drinking water supply system
 - ◆ Must first be approved by [DPH's Water Supplies Section](#)
 - ◆ Required per RCSA 19-13-B80
 - ◆ Treatment must incorporate treatment technologies certified to [NSF standards](#)
 - ◆ DPH or the water company may add special conditions
 - ◆ Drinking water methods may be required for analysis



General Permit for the Discharge of Groundwater Remediation Wastewater

- ◆ Discharges can be approved to ground and/or groundwater
 - ◆ Includes some well redevelopment / rehabilitation activities
 - ◆ Includes some recirculation systems
 - ◆ Does not include purge waters
 - ◆ Does not include in-situ injections
 - ◆ In-situ injections continue to be regulated under the [Remediation Division](#)

General Permit for the Discharge of Groundwater Remediation Wastewater



Other considerations

- DEEP's Oil and Chemical Spills Responders have broad authority to expedite approvals prior to formal permit issuance
 - Only in response to an imminent risk
- Discharges to sewer still require WPCA approval
- Need to consider [Diversion Act](#)
- Must be consistent with the Wild and Scenic Rivers Act if designated
- Analysis needs to use 40 CFR 136 methods, but in some cases drinking water methods may be substituted

General Permit for the Discharge of Groundwater Remediation Wastewater

💧 QUESTIONS or COMMENTS?

💧 Please Speak into Microphone
and state your name



Connecticut Brownfields Initiative (CBI) UCONN- State – Industry partnership

Kylene Perras

Director for Strategic Initiatives, School of Engineering

Nora Sutton

Development Officer, UCONN Foundation

Maria Chrysochoou

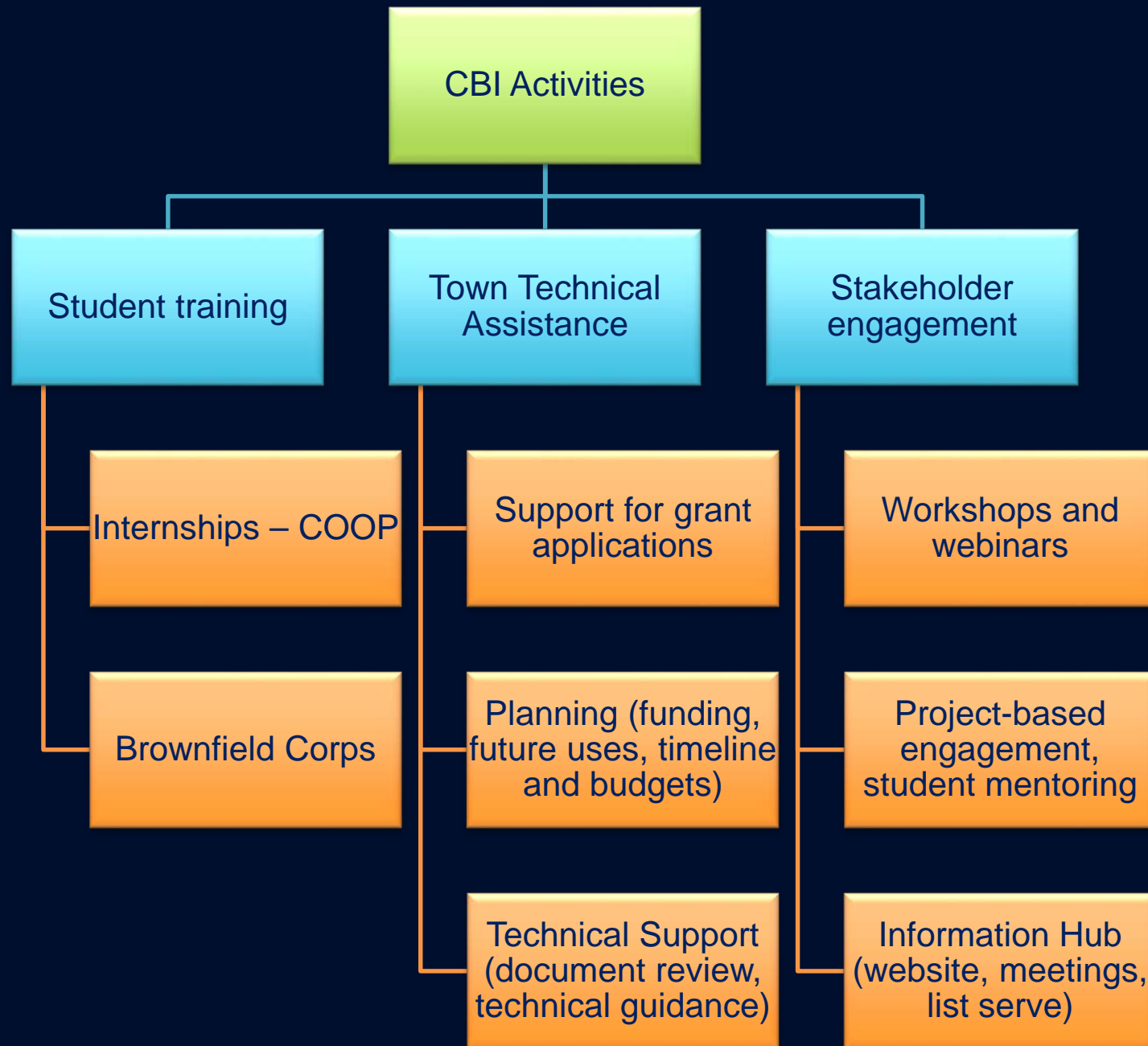
Director, Environmental Engineering Program
Department of Civil and Environmental Engineering

UCONN



CBI Mission and Vision

To be the foremost program for education, technical assistance and networking opportunities on brownfields redevelopment in the State of Connecticut.



Brownfield Corps

- Year-long program for junior and senior undergraduates (engineering and non-engineering)
- 1 semester training (classroom, OSHA) + 1 semester practicum, working on brownfield projects with CT towns and industrial collaborators

Examples of student-led projects

- Creation of scenarios and plans for future uses
- Putting together EPA or DECD grant applications for brownfield funding
- Cost benefit analyses (Economics or Business students)
- Phase II/III sampling plans, evaluation of remediation scenarios (Engineering students)
- Other site-specific determinations (floodplains, wetlands etc.)

Other CBI functions

- Direct technical assistance to CT municipalities (grant applications, technical documents review, liaison with stakeholders)
- Organization of workshops, meetings, webinars + compilation of BMP documents for the state
- Applications for federal funding

What can you do?

- We are asking industry to make a philanthropic contribution to help support the first three academic years of the program to promote and establish long term sustainability.
- Involvement in student mentoring, internships and the CBI advisory board is encouraged

Why do it?

- CBI will create a cohort of students ready to enter the workforce, with hands on experience and OSHA training
- CBI will offer networking and PR opportunities for the state and beyond
- CBI will help attract funding and create business

For further information

Maria Chrysochoou

Director, Environmental
Engineering Program

Maria.Chrysochoou@uconn.edu

860-208-4323

UCONN





Questions or Comments?

Please Speak into Microphone
and state your name

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Interim Verifications: Applicability & Requirements

Robert Robinson

Supervising Environmental Analyst

Remediation Division



Interim Verifications: Applicability

Property Transfer Form III

- ❑ An Interim Verification may be submitted for:
 - an establishment [§22a-134a(g)(1)(C)] or,
 - a portion of the establishment [§22a-134a(g)(2)(A)]

- ❑ A Form III Interim Verification may be designated to apply to all releases existing at the establishment or portion of the establishment at the time indicated on the Verification Form.



Interim Verifications: Applicability

Property Transfer Form III

- ❑ An Interim Verification submitted for an establishment complies with the Form III milestone requirement to submit a verification within 8 years. [§22a-134a(g)(1)(C)]
- An Interim Verification submitted for a Portion of Establishment does not comply with the 8-year milestone.



Interim Verifications: Applicability

Voluntary Remediation (VRP) - 133x

- An Interim Verification may be submitted for:
 - the entire property or
 - a portion of the property [§22a-133x(2) and §22a-133x(e)]

- An Interim Verification is not sufficient to support a subsequent filing of a Form II [§22a-133x(f)]



Interim Verifications: Applicability

Brownfield Remediation & Revitalization Program (BRRP)

- ❑ An Interim Verification may be submitted for:
 - the entire property [§32-769(j)(2)] or
 - a portion of the property [§32-769(j)(3), as amended by Bill 7229]
- An Interim Verification for the entire property complies with the milestone requirement to submit a verification within 8 years of the 1st installment date of the required fee. [§32-769(j)(2)(C)]
- An Interim Verification submitted for a Portion of the Property does not comply with the 8-year milestone.



Interim Verifications:

Definition per §22a-134(28) and §22a-133x(2)

- ❑ Investigation is complete;
- ❑ Standards for Soil Remediation have been achieved; and
- ❑ Groundwater Remediation Standards have not been met, but a groundwater remedy is ongoing.
- **Groundwater Compliance Monitoring is not considered a "Remedy"**



Interim Verifications: Documentation of Groundwater Remedy

- Plans & specs of the selected remedy;
- Why the selected remedy is appropriate for the environmental setting;
- Operation and maintenance requirements of the remedy; and
- Confirmation that there are no current exposure pathways to receptors



Interim Verifications:

"No Current Exposure Pathways"

Exposure pathways from contaminated groundwater to receptors:

- drinking water;
- surface water; and
- vapor migration into indoor air



Interim Verifications: No Current Exposure Pathways

For Drinking Water:

- ❑ There are no drinking water receptors located within 500' hydraulically downgradient of a groundwater plume that exceeds Groundwater Protection Criteria (GWPC).

Or

- if there are drinking water receptors present within 500', but outside of the delineated plume area, **there must be a continued demonstration through monitoring that there is no pathway to exposure**, or
- if there are drinking water receptors present within 500' and within the delineated plume area, **an incomplete pathway to exposure must be demonstrated through ongoing monitoring and treatment, if necessary**.



Interim Verifications: No Current Exposure Pathways

For Drinking Water (cont):

- ❑ If a significant environmental hazard is present, it must be in a mitigated status with regular hazard reporting.

For Surface Water:

- ❑ A demonstration that there is no groundwater plume with concentrations that exceed the Surface Water Protection Criteria (SWPC) or an alternative SWPC - as described in RCSA section 22a-133k-3(b)(3) - that is discharging or will discharge to surface water.



Interim Verifications: No Current Exposure Pathways

For Indoor Air:

- ❑ There are no occupiable structures overlying or located within 15' of a groundwater plume containing volatile organic substances that exceeds applicable VoC for Groundwater or Soil Vapor.

OR

- If there are such structures, vapors must be demonstrated to be currently mitigated now and in the future.
- ❑ If a significant environmental hazard is present, it must be in a mitigated (controlled) status with regular hazard reporting.



Interim Verifications: If Groundwater Remedy is MNA

- ❑ It must be demonstrated that MNA approach is an appropriate remedy (as presented in March 28 Roundtable presentation on MNA):
 - ✓ COC's and plume geometry are diminishing;
 - ✓ The attenuation process
 - destructive/non-destructive
 - geochemical footprints
 - etc
 - ✓ The attenuation conditions are sustainable; and
 - ✓ Estimated duration of attenuation rates for all COC's



Interim Verifications: Obligations

Property Transfer Form III

- ❑ §22a-134a(g)(1)(D) - The Certifying Party shall:
 - ✓ Operate and maintain the groundwater remedy,
 - ✓ Prevent exposure to the plume, and
 - ✓ Submit annual status reports on the groundwater remediation

- ❑ The Certifying Party will remain obligated by law to comply with all applicable requirements of 22a-134a until a Final Form III Verification is submitted for the entire establishment. **e.g., The Form III filing will remain open.**



Interim Verifications: Obligations

VRP-133x

- ❑ §22a-133x(e)(1)- Until the Groundwater Remediation Standards have been achieved, the applicant for the voluntary remediation of the property shall:
 - ✓ Remain obligated to operate and maintain the groundwater remedy,
 - ✓ Prevent exposure to the plume, and
 - ✓ Submit annual status reports on the groundwater remediation



Interim Verifications: Obligations

BRRP

- ❑ §32a-769(j)(4)- Until the Groundwater Remediation Standards have been achieved, the eligible party shall:
 - ✓ Operate and maintain the groundwater remedy,
 - ✓ Prevent exposure to the plume on the property,
 - ✓ Take all reasonable action to contain the plume on the property, and
 - ✓ Submit annual status reports on the groundwater remediation



Interim Verifications: Misunderstanding

- ❑ The applicability of a Form III Interim Verification is not identical to a Form IV Supporting Verification.
 - Under a Form IV-s scenario, groundwater compliance monitoring is an acceptable ongoing requirement.
 - **Groundwater compliance monitoring is not considered a "remedy"**. Therefore, if compliance monitoring is the only reason why the Groundwater Remediation Standards have not been achieved, the Interim Verification is not acceptable.



Questions or Comments?

Please Speak into Microphone
and State Your Name

www.ct.gov/deep/remediationroundtable



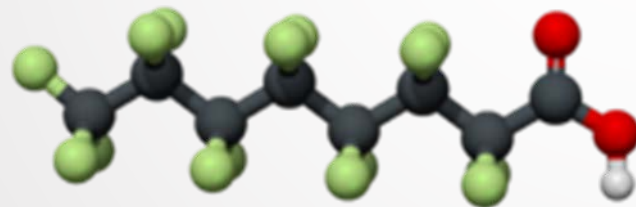
Poly- and Perfluorinated Alkyl Substances (PFASs) Briefing on CT Regulatory Status

Shannon Pociu
Environmental Analyst 3
Remediation Division

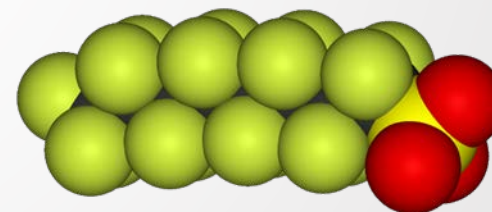


Overview

- ▶ What are PFASs in brief
- ▶ PFASs in Public Drinking Water
- ▶ CT DPH Drinking Water Action Level for PFASs
- ▶ PFASs and CT Remediation Standard Regulations



PFOA



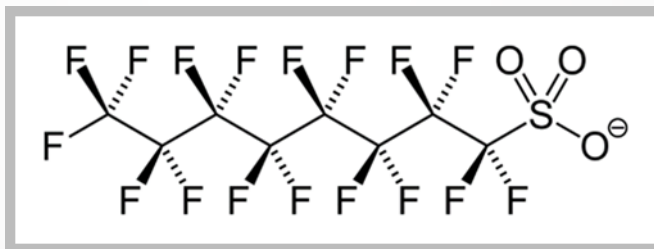
PFOS



PFAS Basics

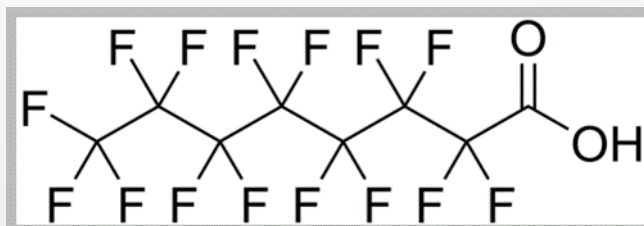
PFAS = Per- and Polyfluorinated Alkyl Substance

- Includes PFCs = Perfluorinated Chemicals (fully fluorinated carbon chains)
- PFOS = Perfluorooctane Sulfonate



Poly = not all carbons have fluorines

- PFOA = Perfluorooctanoic Acid





PFAS Characteristics

- Repel oil, grease, water, heat
- Stable



BUT....

- Extremely persistent – resists degradation
- Bioaccumulative
- Toxic
- Migrate easily
 - High solubility, low volatility, mobile in soil, leach to groundwater, air dispersion likely





PFAS Uses – Not all inclusive

- ▶ Oil, water, and dirt repellent coatings
 - ▶ Cookware, fabrics, clothing, carpeting, etc.
- ▶ Coated paper for food packaging
- ▶ Personal care products, cosmetics
- ▶ Paints and adhesives
- ▶ Fluoro-elastomers (gaskets, O-rings, hoses)
- ▶ Mist suppressant in metal plating baths, esp. chromium
- ▶ Aqueous Film Forming Foam (AFFF)





Why should we care?

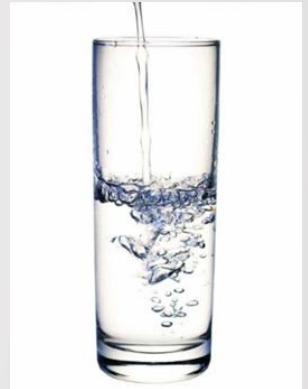
- ▶ Discovery of polluted drinking water supplies in Parkersburg, WV; Hoosick Falls, NY; Bennington and Pownal, VT; Pease AFB, NH; Barnstable, MA; others...
- ▶ Possible Health effects from PFOA and PFOS
 - ▶ Developmental effects to fetuses and infants
 - ▶ Liver, kidney, thyroid, cholesterol effects
- ▶ Present in blood – worldwide





PFASs in Public Drinking Water in CT

- ▶ Unregulated Contaminant Monitoring Rule 3 – (UCMR3) – Sampling of large water systems nationwide, required by EPA
 - ▶ Sampling between 2013-2015
 - ▶ Good news in CT
 - ▶ No PFAS detections in 40 CT water systems required to monitor
 - ▶ 130 sources sampled, included both surface water and groundwater





PFASs in Drinking Water – EPA Advisory

- ▶ May 2016 - EPA issues Lifetime Drinking Water Health Advisory for PFOA and PFOS
- ▶ 70 nanograms per liter (ng/L) or parts per trillion (ppt) for PFOA, PFOS, or \sum PFOA + PFOS



PFASs in Drinking Water in CT

➡ Nov. 2016 - [CT DPH established a Drinking Water Action Level](#) (DWAL) for PFASs in Private Wells

➡ **70 ng/L (ppt) for Σ 5 PFASs:**

- Perfluorooctanoic acid (PFOA)
- Perfluorooctane sulfonate (PFOS)
- Perfluorohexane sulfonate (PFHxS)
- Perfluorononanoic acid (PFNA)
- Perfluoroheptanoic acid (PFHpA)



Remediation Standard Regulations

- ▶ If PFASs are COCs based on site history/operations, they should be included in site characterization.
- ▶ PFASs must be addressed as Additional Polluting Substances at Remediation Sites.
 - ▶ Utilize EPA's RfD of 0.00002 mg/kg/day
 - ▶ Soil Direct Exposure Criteria – use equations in RSR Section 22a-133k-2(b)(5)
 - ▶ Groundwater – Adopting CT DPH's DWAL of 70 ppt for \sum PFOA, PFOS, PFHxS, PFNA, and PFHpA
- ▶ OR Calculate Site-Specific Criteria for DEEP review and approval



Suggested APS Criteria for PFASs

Remediation Standard	Criterion
Residential Direct Exposure Criterion	1.35 mg/kg
Industrial/Commercial Direct Exposure Criterion	41 mg/kg
GA Pollutant Mobility Criterion	1.4 µg/kg
GB Pollutant Mobility Criterion	14 µg/kg
Groundwater Protection Criterion (adopting DPH's Drinking Water Action Level for Σ PFOA, PFOS, PFHxS, PFNA, and PFHpA)	70 ng/L
Surface Water Protection Criterion	In Development

Applies to Σ PFOA, PFOS, PFHxS, PFNA, & PFHpA



PFAS Sampling Considerations

- ▶ Methods
 - ▶ EPA Method 537 for drinking water samples, use labs approved by EPA for UCRM3 sampling.
 - ▶ No EPA methods yet for environmental samples, but labs use modified methods.
- ▶ Laboratory availability
 - ▶ Limited in CT, available in the region.
 - ▶ Costs are lowering.
- ▶ Sampling protocol, potential for cross-contamination
 - ▶ Other states (NH, MA) and larger consulting firms have established recommendations for sampling.

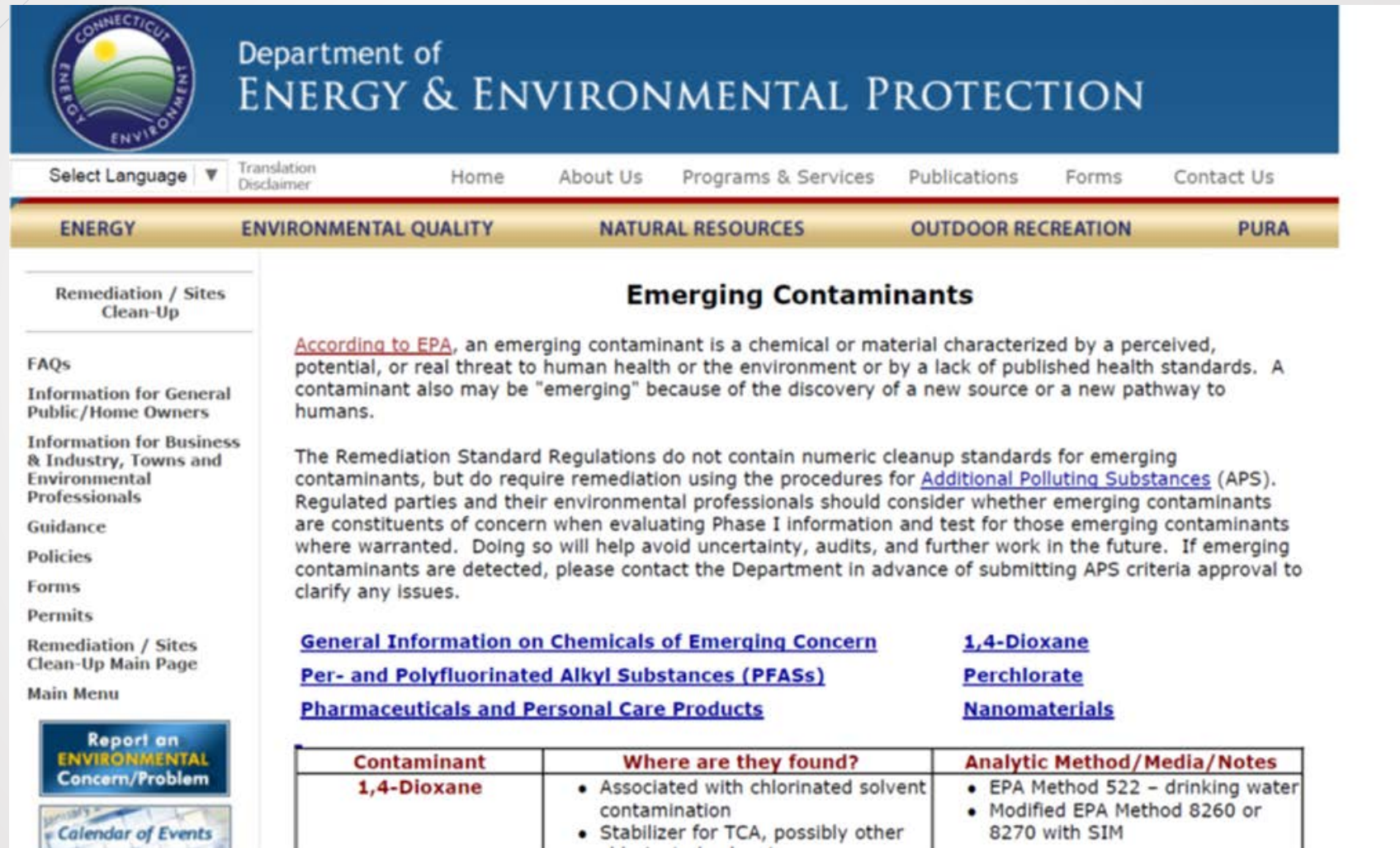


PFAS Information – Still Emerging

- ▶ NEWMOA PFAS Workshop – held May 8, 2017, info on website
- ▶ Interstate Technical Regulatory Council (ITRC) – working on a series of 6 Fact Sheets
- ▶ National Groundwater Association (NGWA) – also developing fact sheets PFAS topics
- ▶ Technical journal articles



DEEP Emerging Contaminants Webpage



The screenshot shows the DEEP website header with the logo and navigation menu. The main content area is titled "Emerging Contaminants" and includes a definition, a paragraph about remediation standards, and a table of contaminants.

Department of ENERGY & ENVIRONMENTAL PROTECTION

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Remediation / Sites Clean-Up

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Information for Business & Industry, Towns and Environmental Professionals
Guidance
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Permits
Remediation / Sites Clean-Up Main Page
Main Menu

Emerging Contaminants

According to EPA, an emerging contaminant is a chemical or material characterized by a perceived, potential, or real threat to human health or the environment or by a lack of published health standards. A contaminant also may be "emerging" because of the discovery of a new source or a new pathway to humans.

The Remediation Standard Regulations do not contain numeric cleanup standards for emerging contaminants, but do require remediation using the procedures for Additional Polluting Substances (APS). Regulated parties and their environmental professionals should consider whether emerging contaminants are constituents of concern when evaluating Phase I information and test for those emerging contaminants where warranted. Doing so will help avoid uncertainty, audits, and further work in the future. If emerging contaminants are detected, please contact the Department in advance of submitting APS criteria approval to clarify any issues.

[General Information on Chemicals of Emerging Concern](#) [1,4-Dioxane](#)
[Per- and Polyfluorinated Alkyl Substances \(PFASs\)](#) [Perchlorate](#)
[Pharmaceuticals and Personal Care Products](#) [Nanomaterials](#)

Contaminant	Where are they found?	Analytic Method/Media/Notes
1,4-Dioxane	<ul style="list-style-type: none"> Associated with chlorinated solvent contamination Stabilizer for TCA, possibly other 	<ul style="list-style-type: none"> EPA Method 522 – drinking water Modified EPA Method 8260 or 8270 with SIM

Report on ENVIRONMENTAL Concern/Problem
Calendar of Events



Questions or Comments?

Please Speak into Microphone
and State Your Name

Shannon.pociu@ct.gov or
860-424-3546

www.ct.gov/deep/remediationroundtable



Remediation Roundtable



E-mail: DEEP.remediationroundtable@ct.gov

Web: www.ct.gov/deep/remediationroundtable



Remediation Roundtable

Next meeting: October 17, 2017