Bureau of Waste Site Cleanup Advisory Committee Meeting

May 22, 2025

* ***This meeting is being recorded.***

WSC Advisory Committee Meeting Agenda

Welcome / Agenda Review - Adoption - 5 minutes	**Millie Garcia-Serrano, BWSC**
21E Program Updates - 25 minutes	
➢ **Administrative (5)**	**Millie Garcia-Serrano, BWSC**
➢ **Federal Programs (5)**	**Diane Baxter, BWSC**
➢ **Policy (5)**	**Ken Marra, BWSC**
➢ **ER & MOSPRA (5)**	**Cathy Kiley, BWSC**
➢ **NRD (5)**	**Michelle Craddock, BWSC**
Demo on WSC Public Data Portal – 10 minutes	**Shannon Smith, EIO** **Matthew Cogliano, BWSC**
LSP Board Updates – 5 minutes	**Terry Wood, LSP Board**
LSP Association Updates - 5 minutes	**Joe Roman, LSP Association**

MassDEP

WSC Advisory Committee Meeting Agenda

ORS Updates - 15 minutes ➢ Dioxin TEF Process (5) ➢ PFAS Signature in Private Septic Systems (5) ➢ Risk Characterization Guidance (5)	**Greg Braun, ORS**
PFAS Update - 10 minutes	**John Ziegler, BWSC**
Engineered Barriers and Financial Assurance Mechanisms (310 CMR 40.0998) - 20 minutes	**Millie Garcia-Serrano, BWSC** **Brian Roden, BWSC** **Erica Judd, BAS** **Eric Fahle, BAS**
Q&A - 5 minutes	**Millie Garcia-Serrano, BWSC**
Appreciation Awards – 25 minutes	**Commissioner Bonnie Heiple, MassDEP** **Millie Garcia-Serrano, BWSC**

Next WSC Advisory Committee Meeting: Thursday, August 21, 2025 (Virtual)

Administrative Updates

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection

Millie Garcia-Serrano, MPH, Assistant Commissioner
MassDEP | Bureau of Waste Site Cleanup

Administrative Updates

- **State Budget Process - FY26**
  - 1/2025 - Governor filed proposal
  - 4/2025 – House debated/completed their version
  - ***5/20/25 – Senate starts debating / finalizing their version***
  - 6/2025 – House & Senate reconcile 2 versions / send for Governor review/signature
- **Hiring Freeze (effective 5/27/25)**
  - Hiring freeze across all Executive Department agencies per A&F
  - Proactive step to manage spending
  - Federal funding cuts, tariffs, increased inflation and spending pressures -> uncertainty for FY26
  - Freeze to be reevaluated
- **Staffing Changes**
  - NERO DRD (*and* ER Chief)
    - Andrew Clark (position formerly held by Steve Johnson)
  - SERO ER Chief
    - Andy Jones (position formerly held by Dan Crafton)
  - WERO ER Chief
    - Derrick Bruce (with David Slowick supporting through 6/27/25)
- **Advisory Committee Membership**
  - "21E Consultant" Open Slot (formerly held by Larry Feldman, retired)
- **"At the Podium"**
  - 6/4/25 – EBC Apex Award - James D.P. Farrell Award for Brownfields - Remediation Project of the Year
    - City Pier, Fall River MA

Program Updates

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection

Diane Baxter, Ken Marra,
Cathy Kiley, Michelle Craddock
MassDEP | Bureau of Waste Site Cleanup

Federal Programs Updates

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection

Diane Baxter, Division Director, Federal Grants Program
MassDEP | Bureau of Waste Site Cleanup

Federal Programs Highlights

- Federal Sites
- Brownfields
- RCRA Hazardous Waste – Contained-In Determinations

Federal Sites Program

- Oversight of CERCLA Response Actions
  - 31 Non-DOD “Superfund” Sites
  - >12 Military Installations
  - 10 Formerly Used Defense Sites
- Recent highlights
  - Remedial construction initiated at 2 sites and continuing at a 3rd site
  - Removal actions to address newly identified concerns at a site that has been in long-term operation, maintenance, monitoring (OMM) phase

Walton & Lonsbury Superfund Site, Attleboro

March/April 2025

Platform Construction in preparation for Permeable Reactive Barrier Installation

Facility Demolition in Preparation for Source Control Remedy

Creese & Cook Superfund Site, Danvers

April/May 2025

Photo by: Paul Dimakos

Former railroad trestle on spur to be used for construction access across river. Temporary bridge to be installed over it.

Photo by: Paul Dimakos

Placing clean fill after excavation of contaminated soil along former railroad spur.

Creese & Cook Superfund Site, Danvers

April/May 2025

Photo by: Paul Dimakos

Collection of in-situ waste classification soil samples with DPT drill rig.

Endicott-Peabody Cemetery.
Historical feature to be protected.

Nuclear Metals Superfund Site, Concord

May 2025

In-Situ Sequestration (ISS) in former Holding Basin

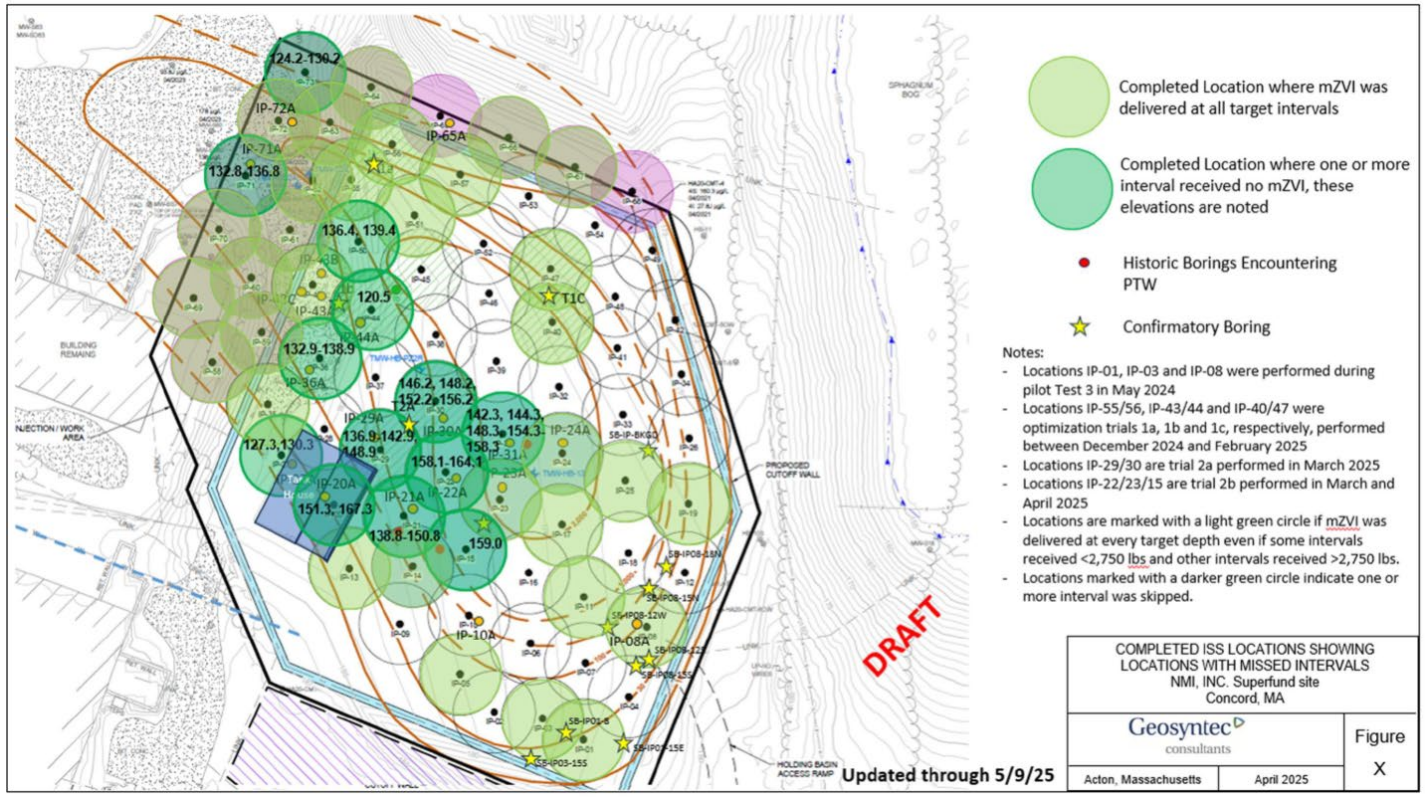


Figure used to track progress of the injections on a weekly basis.

Industri-Plex Superfund Site, Woburn

Removal of drums found inside a building under a concrete floor during redevelopment of the property.

2025 – Regional Brownfields Roundtables

EPA Assessment Grantee

WESTERN REGION

Berkshire Regional Planning Commission

Franklin Regional Council of Governments

Pioneer Valley Planning Commission

CENTRAL REGION

Montachusett Regional Planning Commission

Central Massachusetts Regional Planning Commission (CMRPC Applied FY24)

NORTHEAST REGION

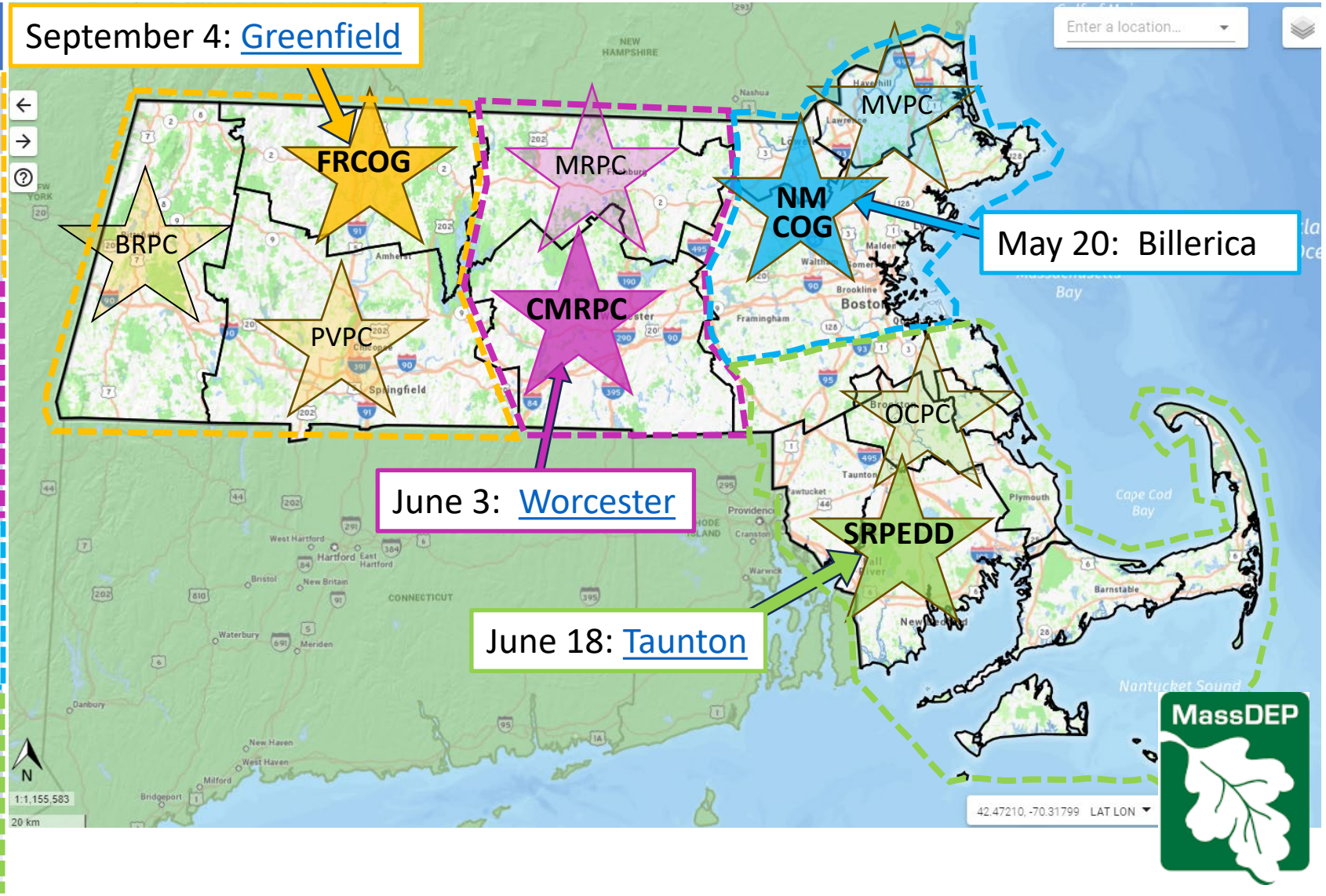
Merrimack Valley Planning Commission

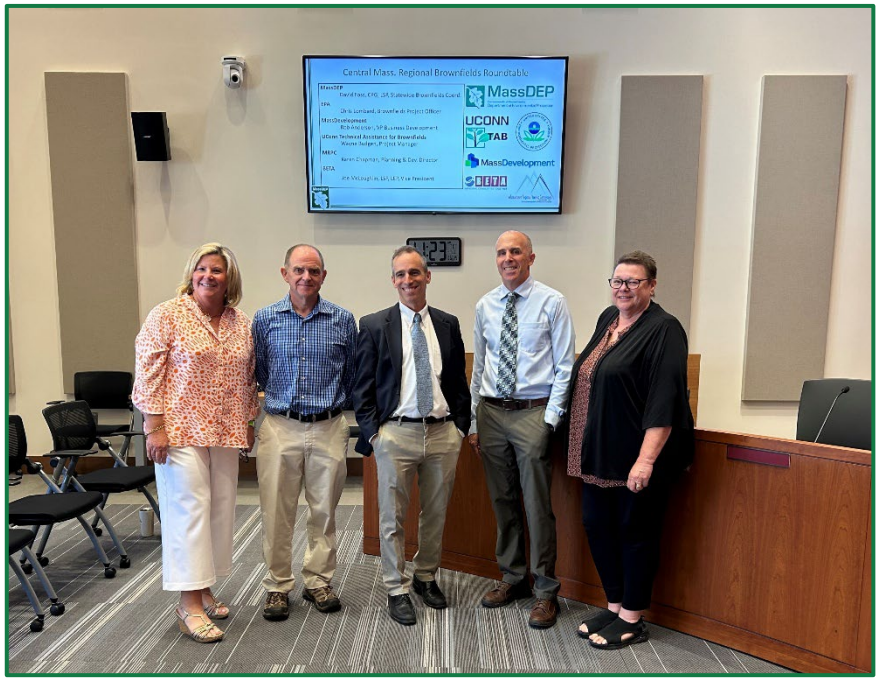
Northern Middlesex Council of Government (NMCOG Applied FY24)

SOUTHEAST REGION

Southeastern Regional Economic Development District

Old Colony Planning Commission





MassDEP

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

MassDevelopment

UCONN TAB

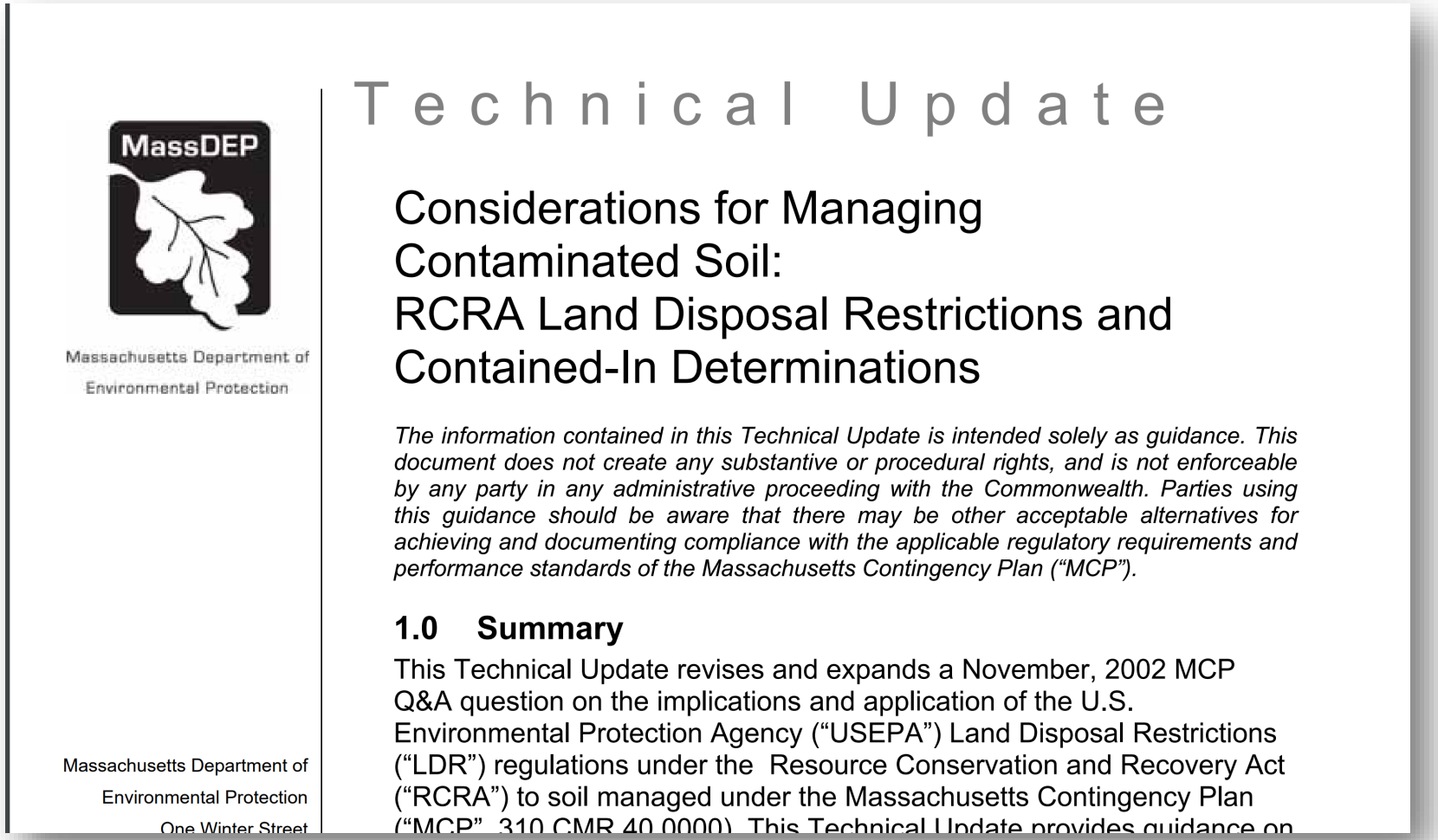
Contained-In Determination (CID) Petition Process

- MassDEP Policy provides for use of MCP S-1 standards to make a determination that soil containing constituents derived from a RCRA Listed Haz Waste does not have to be managed as a hazardous waste.
- All criteria outlined in guidance policy must be met.
- LSP overseeing the site assessment submits the petition using Form BWSC-126 through eDEP.
- 21-day presumptive approval, starting from date of receipt by MassDEP.
- 10 petitions received in 2024. 9 petitions received so far in 2025.
- Contact/Reviewer: Rose Knox at rosemary.knox@mass.gov

MassDEP CID Guidance Policy

(August 2010)

https://www.mass.gov/service-details/soil-as-rcra-hazardous-waste



MassDEP

Massachusetts Department of Environmental Protection

Technical Update

Considerations for Managing Contaminated Soil: RCRA Land Disposal Restrictions and Contained-In Determinations

The information contained in this Technical Update is intended solely as guidance. This document does not create any substantive or procedural rights, and is not enforceable by any party in any administrative proceeding with the Commonwealth. Parties using this guidance should be aware that there may be other acceptable alternatives for achieving and documenting compliance with the applicable regulatory requirements and performance standards of the Massachusetts Contingency Plan ("MCP").

1.0 Summary

This Technical Update revises and expands a November, 2002 MCP Q&A question on the implications and application of the U.S. Environmental Protection Agency ("USEPA") Land Disposal Restrictions ("LDR") regulations under the Resource Conservation and Recovery Act ("RCRA") to soil managed under the Massachusetts Contingency Plan ("MCP", 310 CMR 40.0000). This Technical Update provides guidance on

Massachusetts Department of Environmental Protection
One Winter Street

MassDEP

Policy Updates

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection

Ken Marra, Division Director,
Policy & Program Development
MassDEP | Bureau of Waste Site Cleanup

Policy/Guidance Updates

FINAL COMPLETE:

- AULs – *4/23/25*

NEXT UP:

- Risk Characterization
- Engineered Barriers/FAMs
- Public Involvement
- MCP Amendments Q&As
- PFAS:
  - PFAS Q&A
  - PFAS Interim Sampling
  - PFAS CAM
- COMM-25 Soils

IN PROGRESS:

- Master Q&A
- CAMs
- VPH/ EPH
- Off-Gas Treatment
- UST Closure Assessment Manual
- eDEP Forms
- Shortforms
- Vapor Intrusion

Emergency Response & MOSPRA Updates

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection

Cathy Kiley, Emergency Planning & Response Coordinator
MassDEP | Bureau of Waste Site Cleanup

Emergency Response

- **Cathy Kiley, Emergency Planning and Response Coordinator, cathy.kiley@mass.gov**

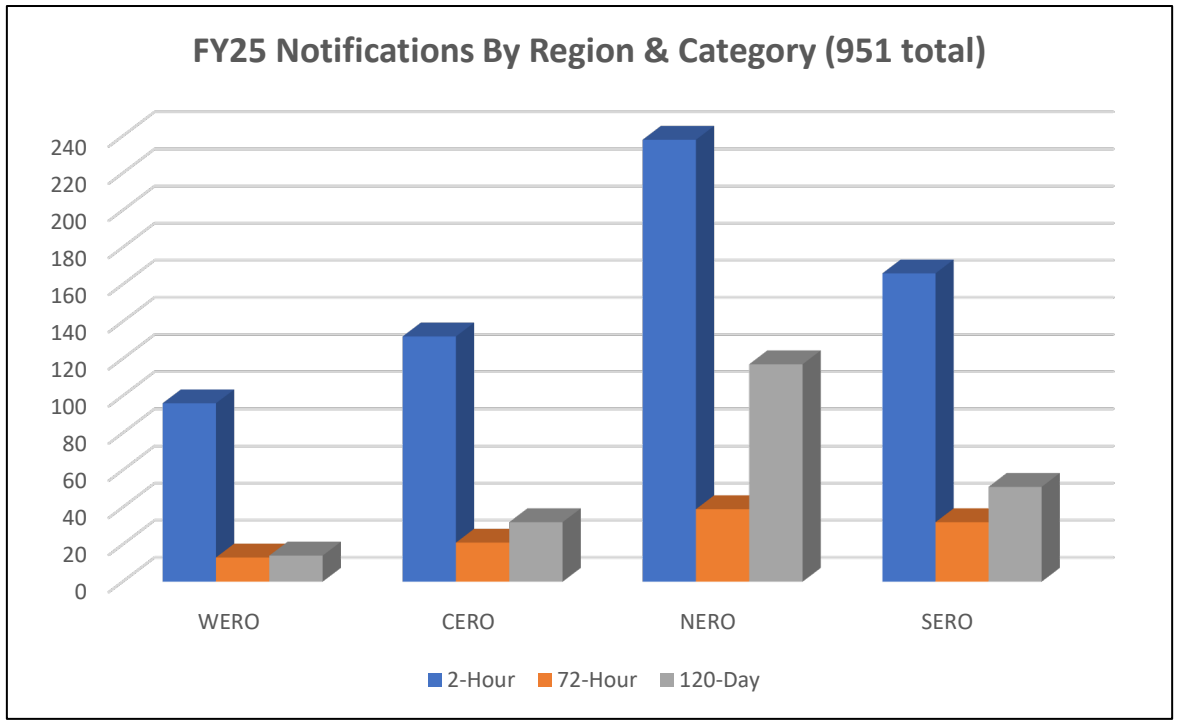
- **ER Staff Changes**
  - Dave Slowick, WERO ER Section Chief retiring end of June 2025
  - Derrick Bruce, new WERO ER Section Chief started 5/19/25
  - Andy Jones – new SERO ER Section Chief
  - Andrew Clark – NERO DRD BWSC, remains acting ER Section Chief in interim

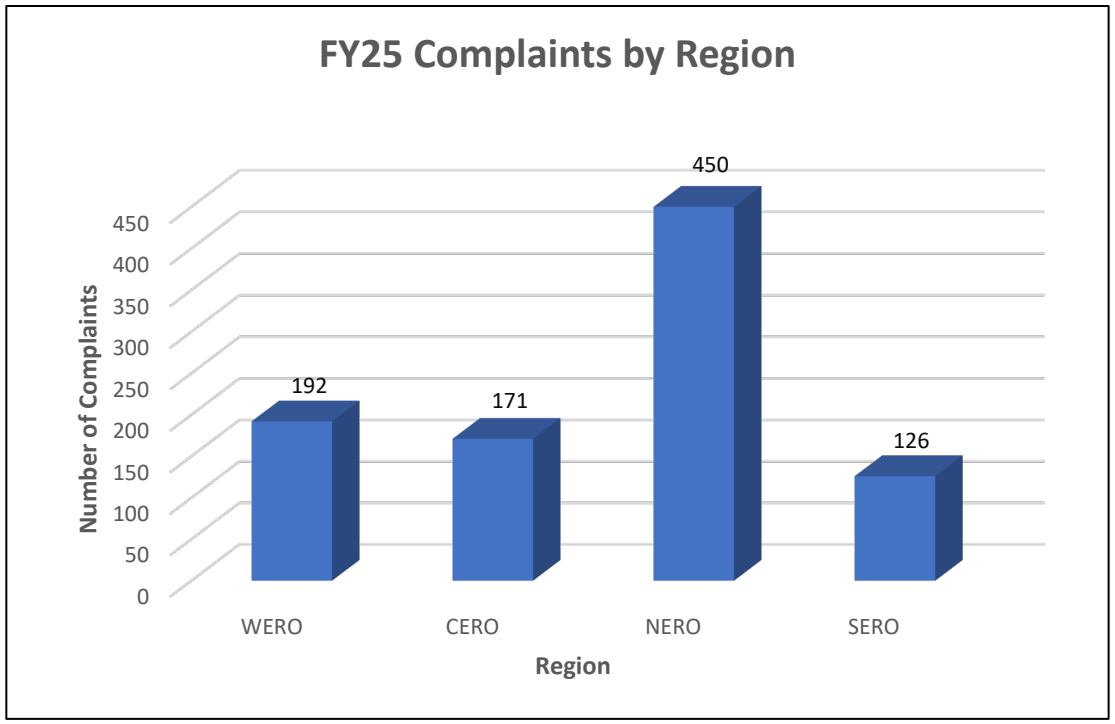
- **AFFF Take Back Program**
  - From June 2018 – April 2025, over 420,000 lbs. (over 49,000 gals) of foam have been collected from 166 fire departments and facilities in MA; 75 are in EJ communities

- **FY25 – to date: 951 Releases/939 Complaints**
  For Reference, FY24: 1,083 Releases/1,072 Complaints

Emergency Response

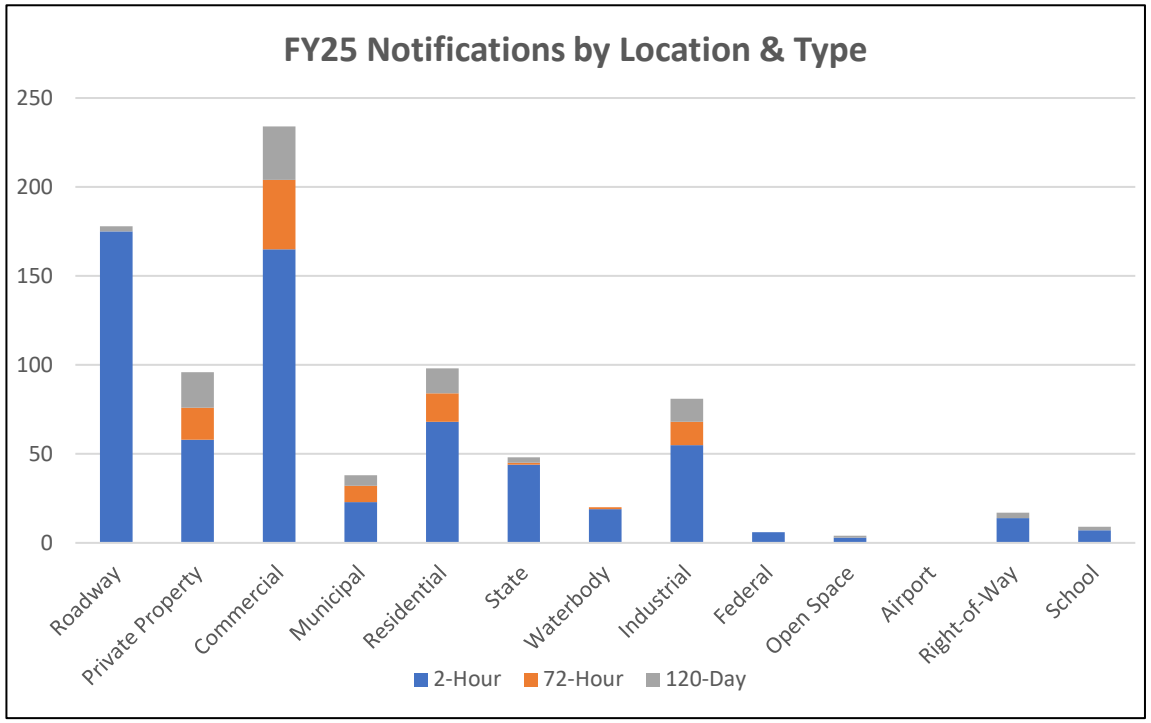
- Trends

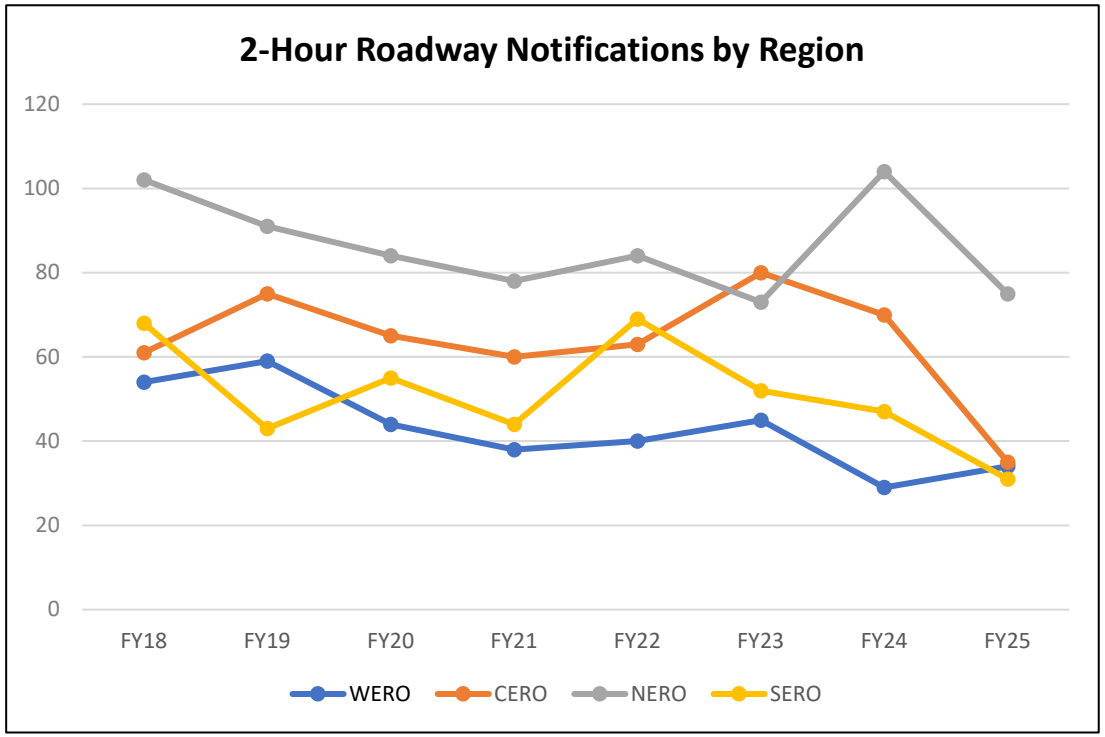




Emergency Response

- Trends





MOSPRA Program

- **Website: https://www.mass.gov/oil-spill-prevention-response**

- **MOSPRA Program Coordinator – Julie Hutcheson**
  Julie.Hutcheson@mass.gov

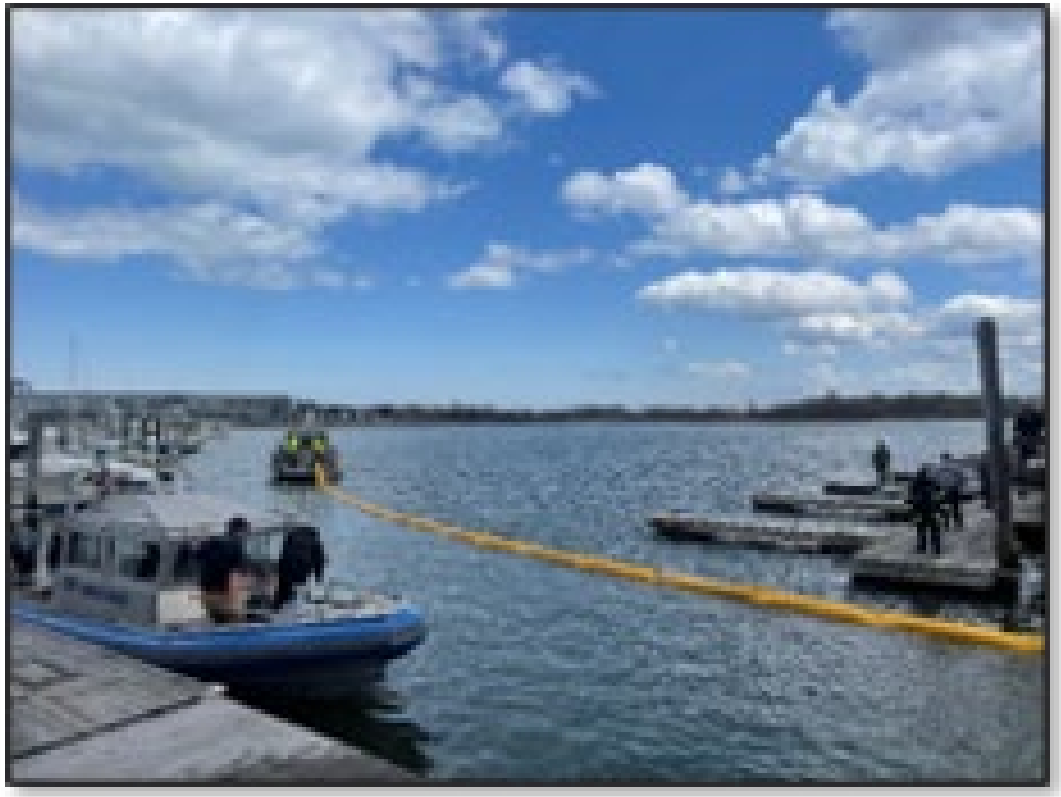
- **Participate in Area Committees with USCG**
  - Plymouth-Salisbury Area Committee (PSAC)(USCG Sec Boston)
  - Rhode Island and Southeastern MA Area Committee (USCG Sec SENE)

- **PSAC: South Shore Seminar, 5/8/2025**
  - MassDEP, USCG, and NOAA presented overview of tools/resources each agency provides for preparing/responding to oil spills affecting coastal areas. Southshore and Boston–area coastal communities.

MOSPRA Program

- **Inland Geographic Response Strategy Exercises**
  - EPA/MassDEP GRS Exercise – Merrimack River 6/2 and 6/3/2025, MassDEP ER, NERO

- **Coastal First Responder Training and GRS Testing Exercises**



MOSPRA Program

2025 Planned Exercises

Date	GRS Region	Towns
APR 29	South Shore	Kingston, Plymouth
MAY 12	North Shore	Essex, Ipswich, Rowley
MAY 14	Boston Harbor	Boston, Winthrop
MAY 15	North Shore	Newbury, Newburyport, Salisbury
JUN 9	Boston Harbor	Braintree, Quincy
TBD	Cape & Islands	C-O-MM, Cotuit, W. Barnstable
TBD	Cape & Islands	Falmouth, Mashpee
TBD	Buzzards Bay	Fairhaven, New Bedford, Acushnet
TBD	Buzzards Bay	Marion, Mattapoisett
TBD	Mount Hope Bay	Berkley, Dighton

Natural Resource Damages Program

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection

Michelle Craddock, NRD Program Coordinator
MassDEP | Bureau of Waste Site Cleanup

Natural Resource Damages Program 2025 Updates

NEW NRD SETTLEMENTS

Shpack Landfill Superfund Site

- Consent Decree filed in court in January 2025 to settle claims for injury to natural resources
- $2.1M cash out settlement – funds to be used towards habitat restoration

Gloucester Public Meeting (USFWS)

NRD RESTORATION

- **Restoration Planning** – issued 2 solicitations for project ideas for Gloucester Manufactured Gas Plant and Ocean King NRD settlements. Currently evaluating projects.
- **Restoration Design** - 10 active grants for design and permitting for habitat restoration projects using NRD settlement funds.
- **Restoration Implementation** - Kirvin Park Floodplain and Wetland Restoration (Pittsfield)

Kirvin Park, Floodplain and Wetland Restoration (Pittsfield)

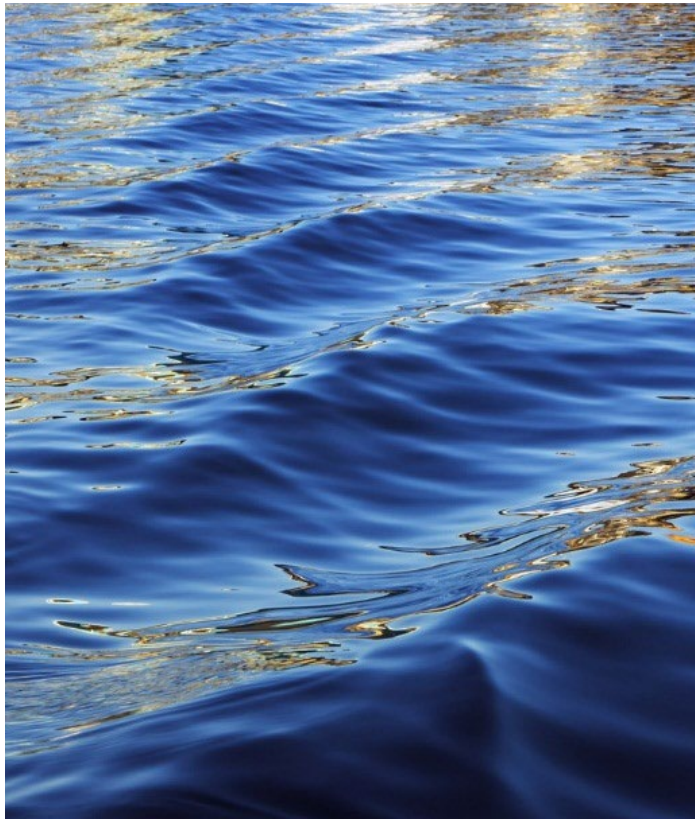
Waste Site Cleanup
Data Portal Demo

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection

Shannon Smith, Director of Enterprise Information
Matthew Cogliano, BWSC Information Technology
MassDEP

BWSC Advisory Meeting

Enterprise Information Office
May 2025



Agenda

INTRODUCTIONS

BWSC DATA PORTAL UPDATE DEMO

TOOLS FEEDBACK

Who We Are

Shannon Smith,

Director

Enterprise Information Office

Seldron Geziben,

Deputy Director Enterprise Information Office

Matthew Cogliano,

BWSC Information Technology & Purchasing

What is Enterprise Information Office?

GIS

Build mapping tools

Software & Data Solutions

Lead application development and environmental data reporting

IT Coordination

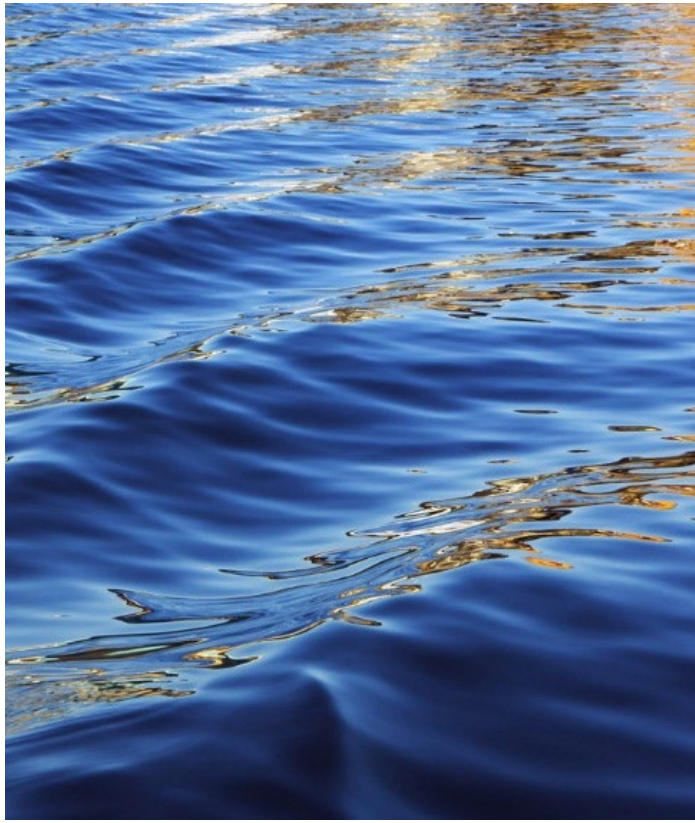
Liaison with state-level IT agencies (Energy & Environmental Affairs – EEA, Executive Office Technology Services & Security - EOTSS)

Online Services

Develop online permitting, reporting, and data portals

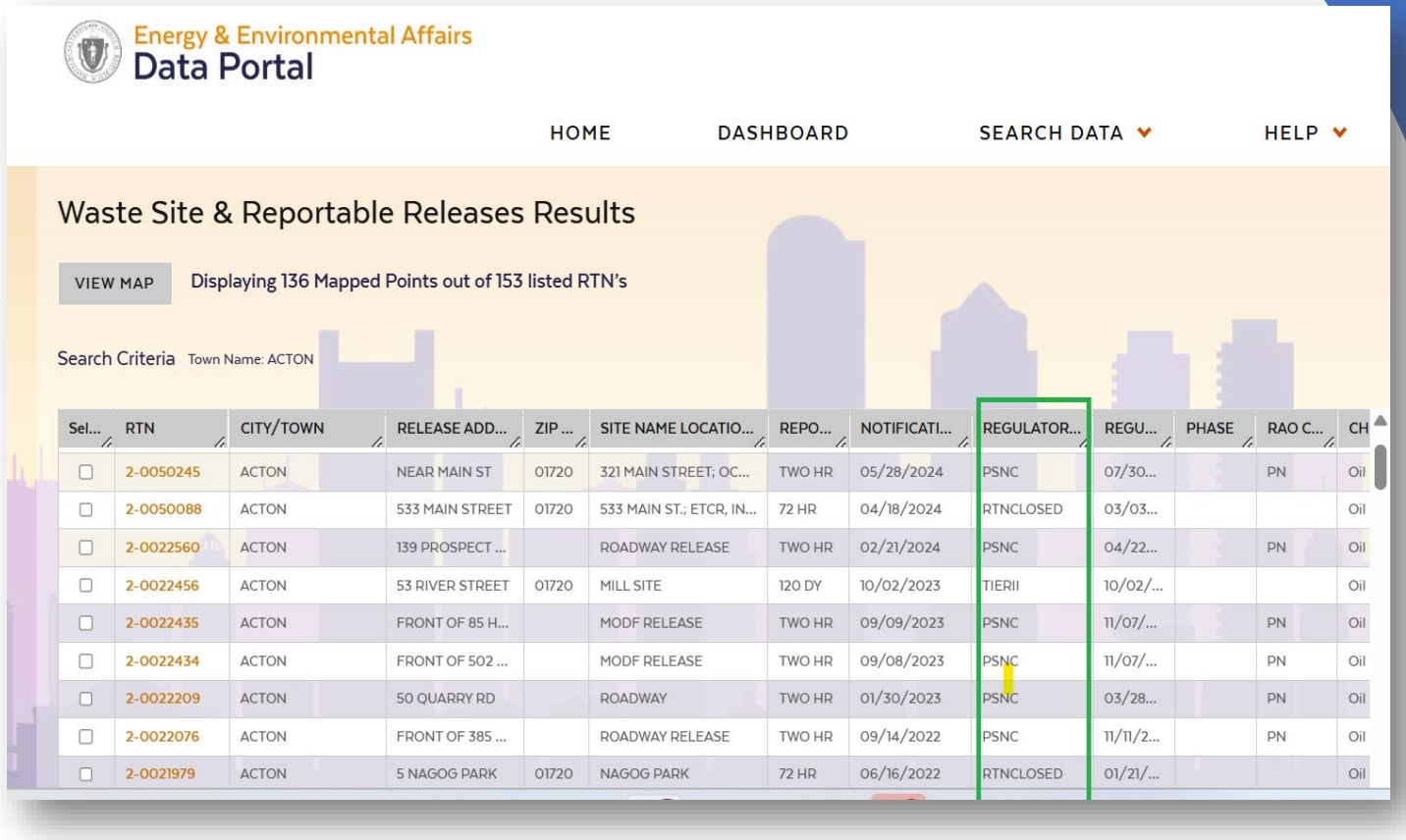
BWSC Data Portal Demo

Matt Cogliano



WSC Data Portal Updates

- ✓ **Permanently** resolved Regulatory Status becoming null at random times
- ✓ **2 Minute daily** refresh time (was 4-12 hours!)
- ✓ **New Search Fields**



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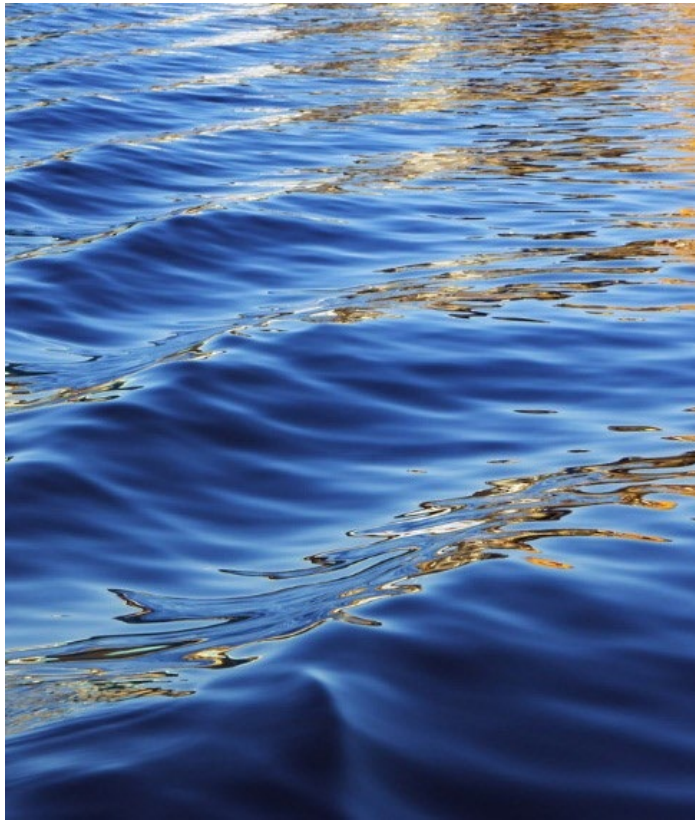
☐	2-0050245	ACTON	NEAR MAIN ST	01720	321 MAIN STREET; OC...	TWO HR	05/28/2024	PSNC	07/30...		PN	Oil
☐	2-0050088	ACTON	533 MAIN STREET	01720	533 MAIN ST.; ETCR, IN...	72 HR	04/18/2024	RTNCLOSED	03/03...			Oil
☐	2-0022560	ACTON	139 PROSPECT ...		ROADWAY RELEASE	TWO HR	02/21/2024	PSNC	04/22...		PN	Oil
☐	2-0022456	ACTON	53 RIVER STREET	01720	MILL SITE	120 DY	10/02/2023	TIERII	10/02/...			Oil
☐	2-0022435	ACTON	FRONT OF 85 H...		MODF RELEASE	TWO HR	09/09/2023	PSNC	11/07/...		PN	Oil
☐	2-0022434	ACTON	FRONT OF 502 ...		MODF RELEASE	TWO HR	09/08/2023	PSNC	11/07/...		PN	Oil
☐	2-0022209	ACTON	50 QUARRY RD		ROADWAY	TWO HR	01/30/2023	PSNC	03/28...		PN	Oil
☐	2-0022076	ACTON	FRONT OF 385 ...		ROADWAY RELEASE	TWO HR	09/14/2022	PSNC	11/11/2...		PN	Oil
☐	2-0021979	ACTON	5 NAGOG PARK	01720	NAGOG PARK	72 HR	06/16/2022	RTNCLOSED	01/21/...			Oil

Tools Feedback



BWSC Data Portal

Can you find the data you need?

What's easy?

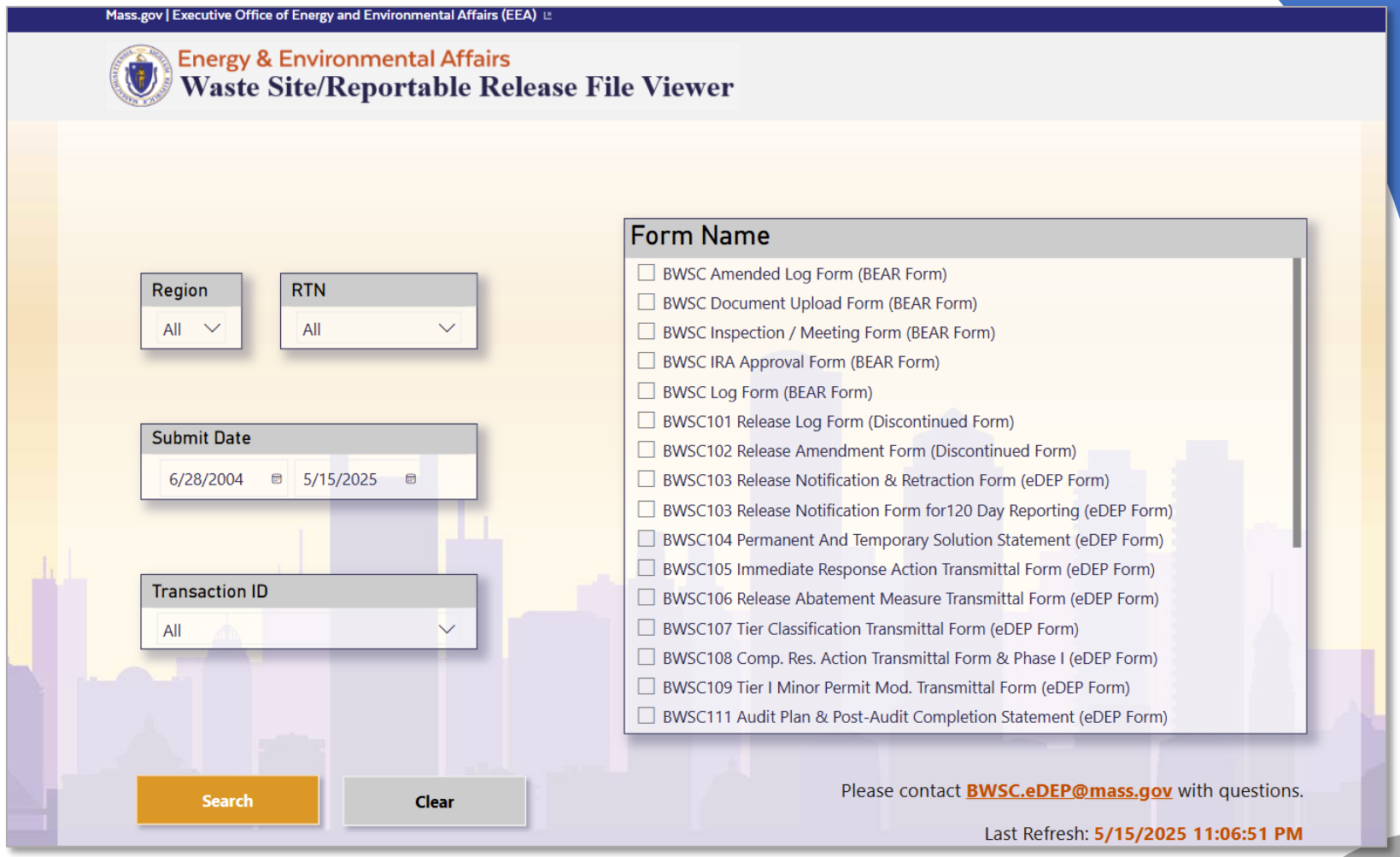
What's confusing?

BWSC Data Portal

Waste Site File Viewer

Is it helpful?

What additional search fields do you wish it had?



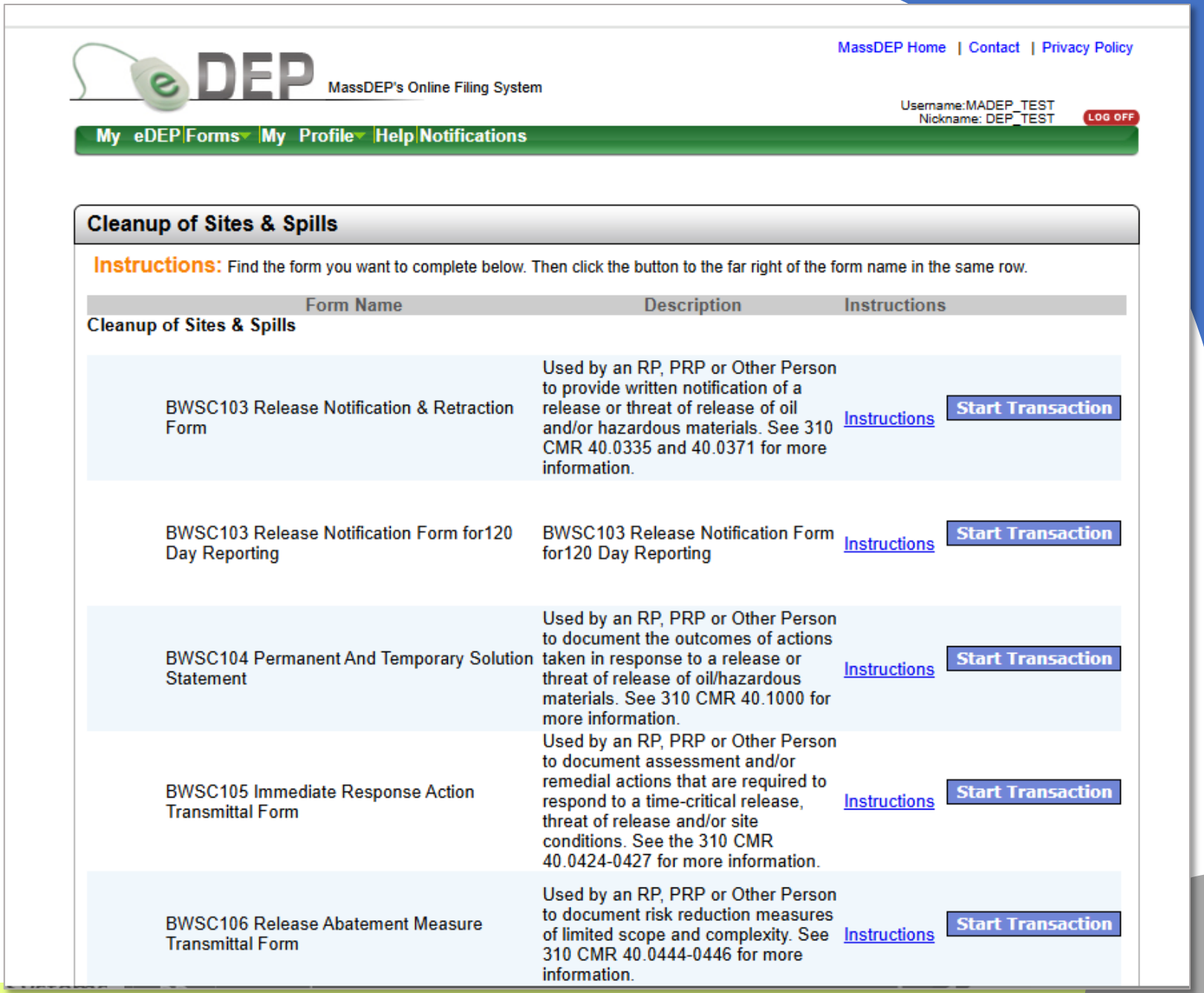
[Waste Site / Reportable Release File Viewer]

eDEP

Massachusetts Department of Environmental Protection

What feature do you love?

What problems have you had?

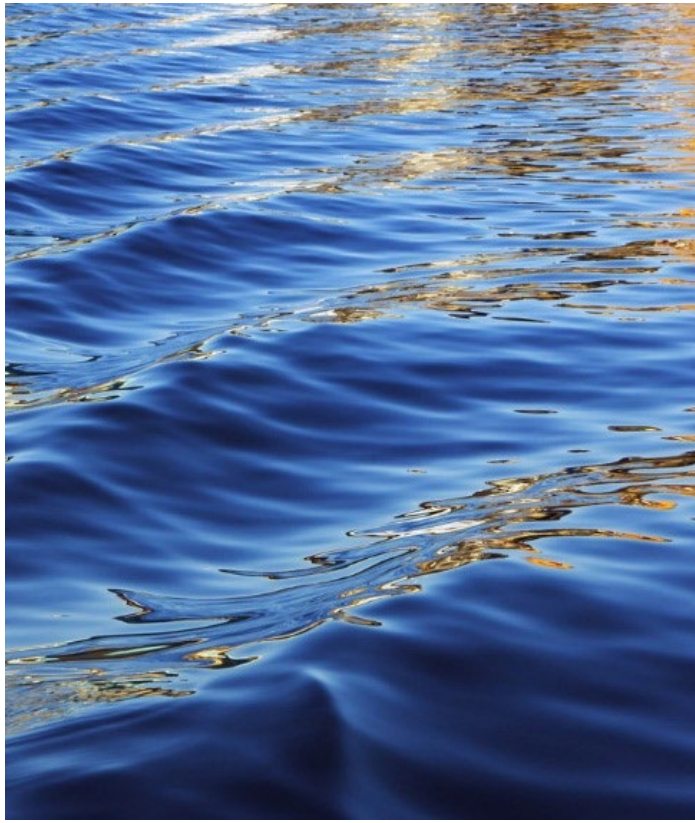


Thank you!

Contact Us:
Shannon Smith:
Shannon.smith4@mass.gov

Seldron Geziben
Seldron.D.Geziben@mass.gov

Matthew Cogliano
matthew.cogliano@mass.gov



Licensed Site Professional Board Report Out

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection

Terry Wood, Executive Director
MA Licensed Site Professional Board (LSPB)

Licensed Site Professional Association Report Out

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection

Joe Roman, LSPA Board of Directors
MA Licensed Site Professional Association (LSPA)

assess.
advise.
restore.

Association

LSPA Update

MassDEP BWSC Advisory Committee

May 22, 2025

LSPA Leadership Updates

Mariellen Morris
LSPA Executive Director

Wendy Rundle
Outgoing LSPA Executive Director

Katherine Kudzma, LSP
Director, Site Investigation & Remediation, VHB
Incoming LSPA President

LSP Association
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LSPA Continues Environmental Justice (EJ) Grant Program

- Supports and celebrates environmental and natural resource projects in EJ populations in Massachusetts.
- Distribute a total of $5,000 in 2025 to one or more grantees serving EJ populations in Massachusetts.
- Applications due to the LSPA **by July 1, 2025**; grant awards announced **by August 31, 2025.**
- Visit www.lspa.org for more information, details, and grant guidelines.
- **Questions?** Contact us at EJGrant@lspa.org.

LSP Association
assess.
advise.
restore.

LSPA September 2025
Kick-Off Meeting

September 17, 2025 | Westborough, MA

Featured **Speakers:**

Millie Garcia-Serrano
MassDEP BWSC
Assistant Commissioner

John Beling
MassDEP
Deputy Commissioner

LSP Association
assess. advise. restore.

LSPA Fall Programming

- Ideas for speakers and topics for fall programming are welcome!
- Email Mariellen Morris, LSPA Executive Director, mmorriss@lspa.org.

LSP Association
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ORS Updates

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection

Greg Braun, Chief, Risk Analysis Division
MassDEP | Office of Research and Standards

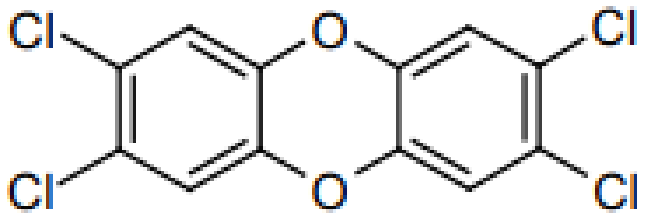
Dioxin Toxic Equivalency Factors (TEFs)

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection

Greg Braun, Chief, Risk Analysis Division
MassDEP | Office of Research and Standards

Dioxin TEFs

- Late 2024: materials on MassDEP website needed updating
- TEFs are based on toxicity relative to 2,3,7,8-TCDD
- Discussions with toxicologist about which TEFs to use
  - 1998 TEFs
  - 2005 WHO TEFs (VanDen Berg et al., 2006)
  - 2022 WHO TEFs (DeVito et al., 2024)
  - Other approaches
- Analytical issues



2,3,7,8-TCDD

Dioxin – Analytical

- USEPA Method 8290A:
  - Quantifies 7 of the 75 potential dioxin congeners
  - Also reports total values for the 4-, 5-, 6-, and 7-chlorinated homologs
- Early applications of the dioxin TEFs (circa 1990s) relatively small TEF were included for these “Total homologs” to account for the uncertainty
- ORS had discussions with dioxin researchers about how to address the homologs reported in Method 8290A

Dioxin – Analytical

- The 4-, 5-, 6-, and 7-chlorinated homologs:
  - Are less commonly detected
  - Do not appear to bioaccumulate
  - Do not appear to activate transcription via the aryl hydrocarbon receptor (AhR)
  - Have insufficient data to appraise their potential toxicity
- ORS is unaware of any guidance or recommendation as to what risk, if any, these additional “Total homolog” data may pose

Dioxin TEFs

- ORS has concluded the 2005 Dioxin TEFs are the most appropriate TEFs to use at this time
- ORS is unaware of any other state regulatory agency that does not use the 2005 WHO dioxin TEFs
- An April 17, 2025 memo recommending the use of the 2005 WHO TEFs (Van den Berg et al., 2006): https://www.mass.gov/doc/dioxin-toxicity-equivalency-factors-final-policy-memo-april-17-2025
- ORS recommends reporting any total homolog data reported in Method 8290A but not including those values in the TEF calculation

PFAS in Septic Systems

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection

Greg Braun, Chief, Risk Analysis Division
MassDEP | Office of Research and Standards

Published studies assessing septic PFAS signatures

1. Cape Cod - Septic system as sources PFAS in drinking water wells (2016)
2. Wisconsin - Statewide survey of private wells with information our potential sources (2023)
3. New York - Community assessment of septic and wastewater signatures in groundwater (2024)
4. Ohio - Composite grab samples of septic pump outs (2025)
5. New Hampshire - Wastewater sampling from a residential community septic system (2023 – ongoing)

Cape Cod Study (Schaider, et al., 2016)

- Twenty houses with septic systems were selected for the study
- Analyzed for five PFAS:
  - PFBS, PFHxS, PFHxA, PFOS & PFHpA,
- PFAS detected 55% of wells
- Acesulfame is a sensitive marker of wastewater compounds in groundwater
- Septic systems are a likely PFAS source

Wisconsin Study (Silver, et al., 2023)

- 450 shallow (i.e., <40 ft.) private wells sampled for PFAS
- 71% of samples had at least one PFAS
- PFOA & PFBA most common (45%, 46%)
- “Effluent discharged from septic systems likely a major source of PFAS in groundwater.”
- Insufficient information to derive a “septic” signature
- ~30% of wells have acesulfame detections suggesting a wastewater contribution.

New York Study (Raup, et al., 2024)

- Community assessment of PFAS groundwater signature
- Consumer product use and discharge to septic systems in a densely developed residential area resulted in the widespread presence of PFAS in water supply wells
- Pumping of PFAS-impacted groundwater from water supply wells and discharge to shallow septic systems results in vertical mixing/homogenization of the PFAS signatures throughout the area
- Authors emphasize the presence of septic tracer compounds as a line of evidence for septic system contributions

Ohio Study (Penrose, et al., 2025)

- 32 composite grab samples collected from septic pump out hauler trucks during discharge at Cincinnati WWTP
- Analyzed solids for PFAS using Method 537 and Total Oxidizable Precursor (TOP) Assay
- Post TOP assay median [PFAS] roughly 8-fold greater than median [PFAS] with Method 537
- Septage likely contains significant concentrations of PFAS precursors
- Notable finding of dialkyl perfluoroalkyl phosphates (diPAPs), frequently used in consumer products & known to degrade to terminal PFAS

New Hampshire Study - NHDES in progress

- Wastewater sampled from a 24-unit community septic system
- Monthly grab samples of wastewater effluent collected between Jan 2023 – Oct 2024
- Effluent flows to three separate settling tanks
- PFAS signature from the 3 tanks significantly different
- Preliminary data from 12/24 had mean PFOA = 90.2 ng/L

Conclusions

- Septic systems are potential sources of PFAS to groundwater
- Septage likely contains significant concentrations of PFAS precursors
- Septic tracer compounds (e.g., acesulfame) detected in groundwater may indicate a septic or wastewater contribution
- This is an active area of research with multiple unresolved questions

References

- Harfmann Jennifer, Presence of PFAS in Domestic Wastewater and Potential Sources, NEWMOA Webinar, December 11, 2024
- Penrose, M. et al., Elevated PFAS Precursors in Septage and Residential Pump Stations *Environ. Sci. Technol. letters* 2025, v.12:4
- Schaider L.A., Ackerman J.M. and Rudel R.A., Septic systems as sources of organic wastewater compounds in domestic drinking water wells in a shallow sand and gravel aquifer, Science of the Total Environment 547 (2016) 470–481
- Raup, et al., A Conceptual Site Model for Per- and Polyfluoroalkyl Substance Water Supply Impacts in a Residential Community, Remediation Journal 2024, v.35:1
- Silver, et al., Prevalence and Source Tracing of PFAS in Shallow Groundwater Used for Drinking Water in Wisconsin, USA *Environ. Sci. Technol.* 2023, 57, 17415−17426

Risk Characterization Guidance

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection

Greg Braun, Chief, Risk Analysis Division
MassDEP | Office of Research and Standards

Risk Characterization Guidance

- Total of 17 chapters
- Received comments on the first 10 chapters up to Method 2 risk
- Chapter 11 (Method 3 risk) under internal review
- Chapters 12, 13 & 17 are ready for internal review
- Chapters 14 -17 cover ecological risk
- Multiple appendices across 17 chapters

Risk Characterization Guidance

- Environmental Risk Characterization: Chapters 14 -17
  - Ch.14: General Considerations
    - Nearly ready for internal review
  - Ch. 15 Aquatic Environmental Risk Characterization
    - Under development
  - Ch. 16 Terrestrial Environmental Risk Characterization
    - Nearly ready for internal review
  - Ch. 17 Wetland Environmental Risk Characterization
    - Ready for internal review

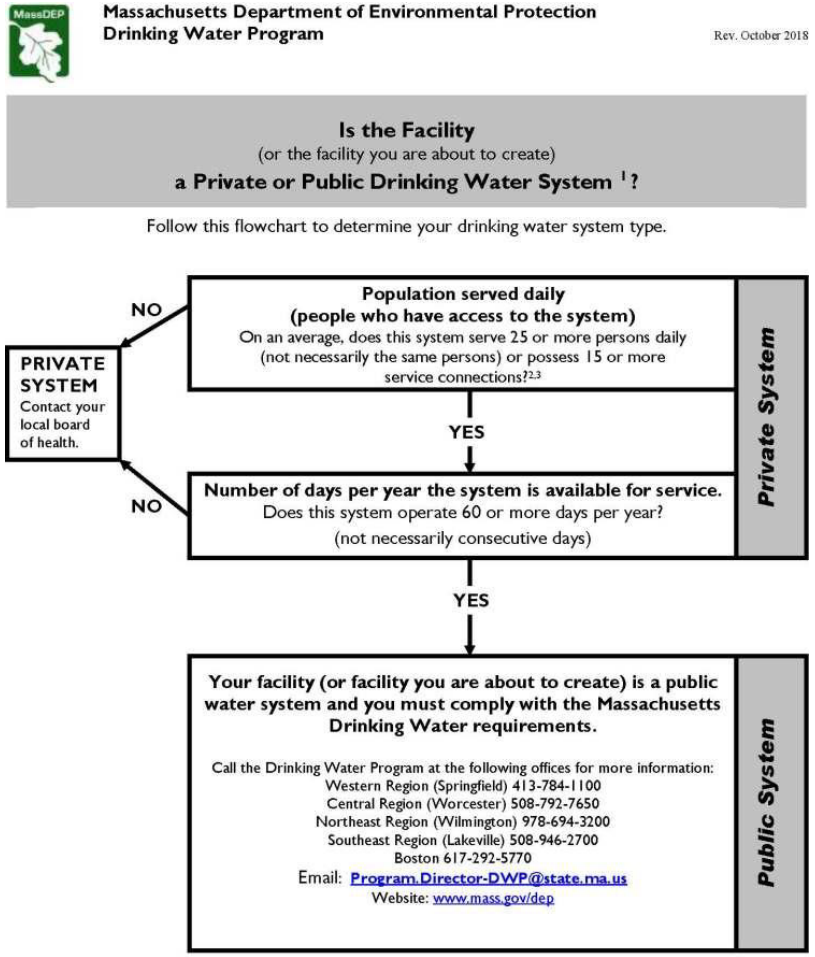
PFAS Updates

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection

John Ziegler, LSP
PFAS Coordinator
MassDEP | Bureau of Waste Site Cleanup
John.Ziegler@mass.gov, 617-874-6733

BWSC's Approach to PFAS in Private Wells and Public Water Systems

- **Private Wells**
  - Regulated by local Boards of Health
  - PFAS sampling not required by MassDEP (Board of Health bylaw ***may*** require sampling)
  - Sampling may require notification under the MCP
  - MCL does not apply but MCP GW-1 standard does
- **Public Water Systems (based on population served & number of days)**
  - Regulated by MassDEP's DWP
    - COM (e.g., large Town systems)
    - NTNC (e.g., workplace)
    - TNC (e.g., restaurant, motel, campground, park)
  - Sampling for PFAS required by MassDEP
  - Exempt from MCP notification requirements
  - MCL applies (except TNCs – may require individual health risk assessment)

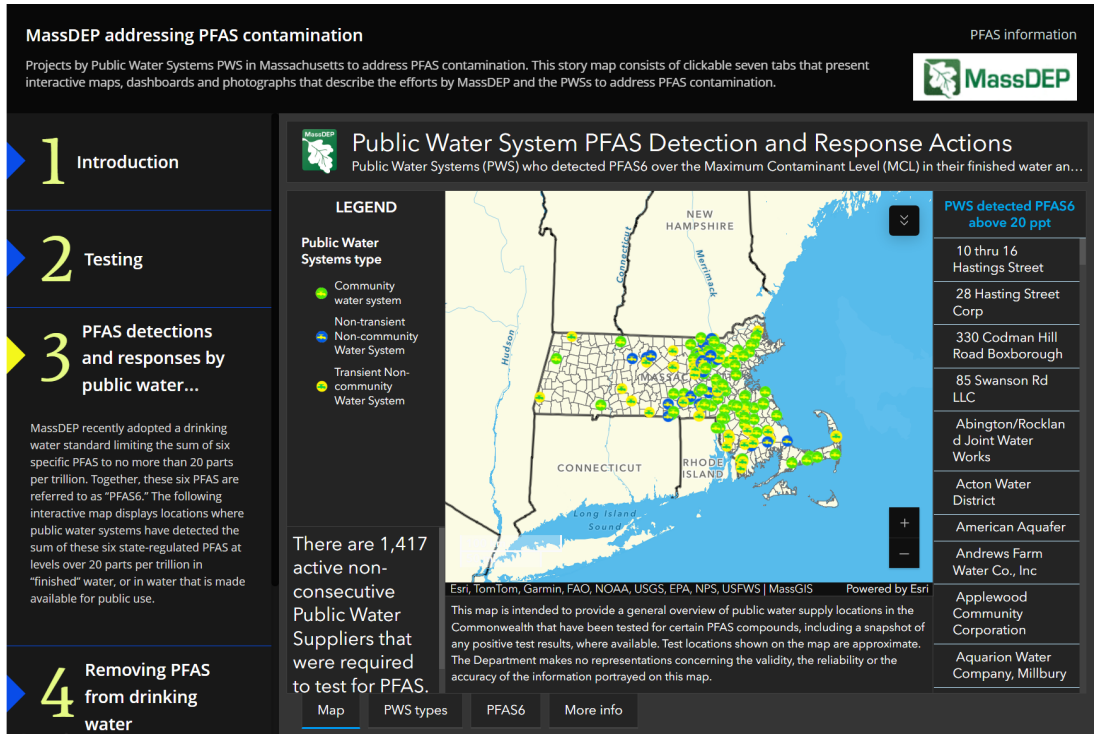


BWSC's Approach to PFAS in Private Wells

- **Receive Notification**
  - 2-Hour (≥ 20 ppt)
    - MassDEP/UMass Private Well Sampling Program 2020 - 2022
    - Homeowner
    - Board of Health/informs homeowner
  - 72-Hour (GW > 20 ppt w/in 500 feet)
    - Landfill sampling
- **Mitigate Imminent Hazards - ≥ 90 ppt (no RP/PRP)**
  - Provide Bottled Water and install POET system
  - Sample surrounding private wells to discover IH conditions
  - MassDEP has installed 60 POET systems and provides bottled water at additional 32 sites
- **Conduct Source Discovery**
  - Desktop review of potential sources
  - Requests for Information to potential source properties
  - Sampling

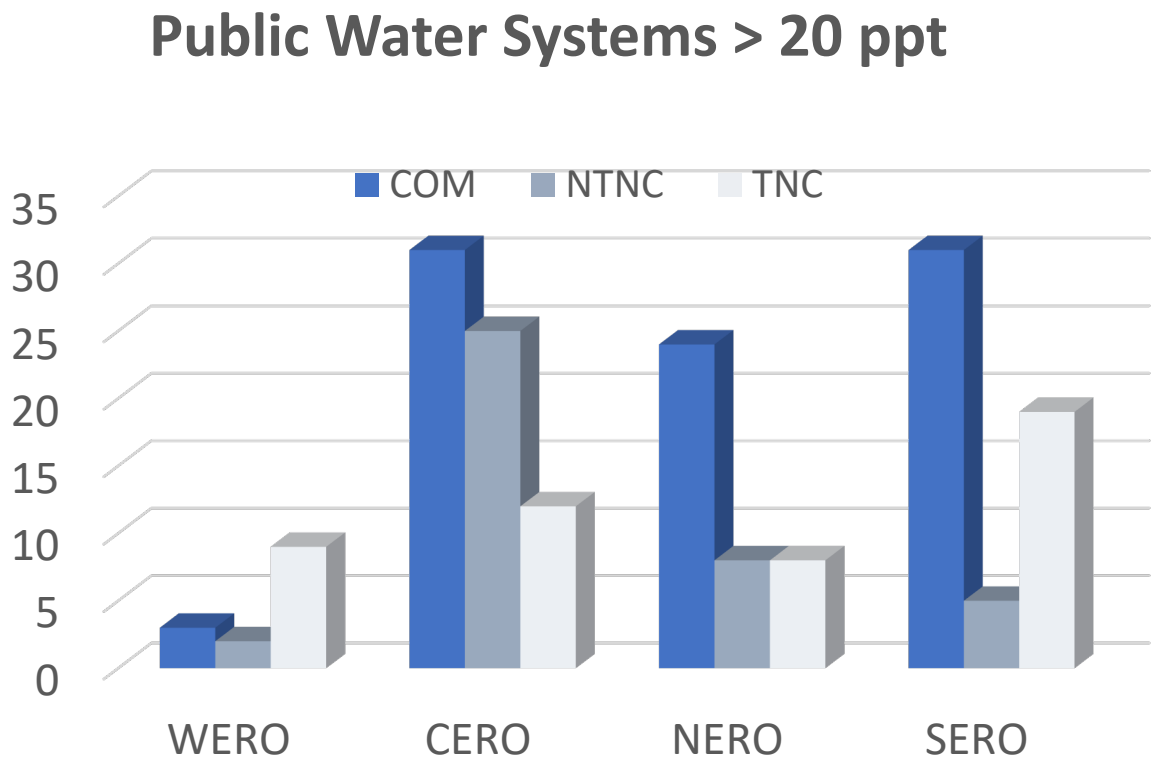
BWSC's Approach to PFAS in Public Water Systems

- **Receive Notification**
  - Referral to BWSC from DWP for PWS > 20 ppt PFAS6
  - Exempt from MCP notification; reporting to MassDEP's DWP
- **MassDEP's DWP assists PWS with necessary treatment**
  - Technical assistance
  - Zero Percent Interest Loans
  - Grants
- **Conduct Source Discovery**
  - Desktop review of potential sources
  - Requests for Information to potential source properties
  - Sampling

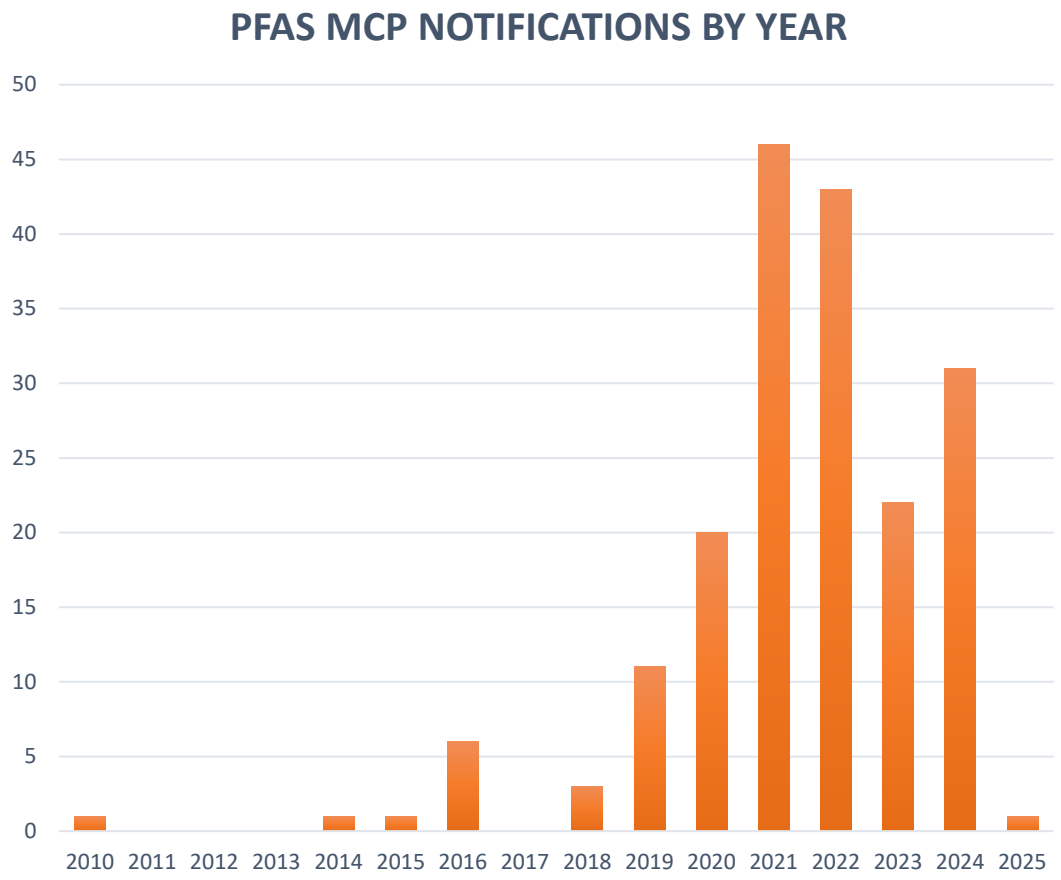


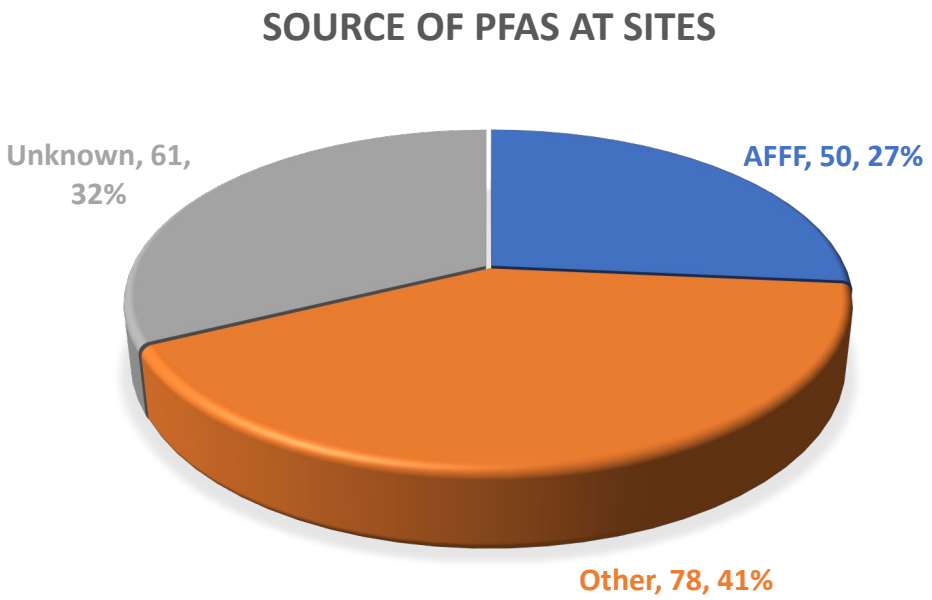
Private Wells and Public Water Systems with PFAS

- **Private Wells**
  - Estimated 200,000 private wells
  - 6% of private wells exceed drinking water standard of 20 ppt and 1% exceed IH concentration of 90 ppt (MassDEP/UMass Study, 2023)
- **Public Water Systems**
  - Currently there are 1,557 active PWS in the state of which 1,418 were required to test for PFAS (have their own water source).
  - **177 PWS (approx. 12%) detected PFAS above the MCL in one or more of their sources.**
  - PWS PFAS testing results are available to the public on the web in the EEA data portal. Search under the chemical name: “PFAS6” or to see all the PFAS chemicals, search under the contaminant group “PFAS”.
  - 53 Projects received 0 percent interest loans for projects totaling $530+ M
  - 74 Towns awarded grants totaling $45.1 M



PFAS MCP Notifications Through April 30, 2025





Engineered Barriers and Financial Assurance Mechanisms (310 CMR 40.0998)

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection

Millie Garcia-Serrano, Brian Roden
MassDEP | Bureau of Waste Site Cleanup
Eric Fahle, Erica Judd
MassDEP | Bureau of Administrative Services

EBs & FAMs: *Current State of Affairs and Proposed Path Forward*

BWSC is looking to:

- Clarify and update BWSC's *Guidance on the Use, Design, Construction and Monitoring of Engineered Barriers* (Public Comment Draft, 11/2002)
- Promote correct and consistent application of relevant regulatory requirements and provisions
- Clarify and centralize EB FAM review
- Bring additional information and some proposals to the next WSC AC meeting (8/21/25)

What is an Engineered Barrier?

310 CMR 40.0006(12) – Engineered Barrier means a permanent cap with or without a liner that is designed, constructed and maintained in accordance with the requirements of **310 CMR 40.0998** and 310 CMR 40.0000

Prior to Implementing an Engineered Barrier?

- An Engineered Barrier shall be limited to disposal sites where there are no other feasible alternative as documented in a Phase III (310 CMR 40.0859(4))
- An evaluation of the feasibility of reducing the concentrations of OHM in soil to levels at or below the Method 3 Ceiling Limit shall be conducted before implementing an Engineered Barrier (310 CMR 40.0860(4))

When is an Engineered Barrier Required?

310 CMR 40.0996(6) For a disposal site at which the concentrations of one of more OHM in soil exceeds a M3CL, a level of NSR of harm to public welfare and to the environment exists or has been achieved for both current and future conditions if a finding of NSR of harm to public welfare and the environment has been made pursuant to 310 CMR 40.0994 and 40.0995, respectively, an AUL is implemented as required in 310 CMR 40.1012(2) and the soil with concentrations exceeding a M3CL:

(a) has been permanently immobilized or fixated as part of a remedial action;

(b) is located at a depth greater than 15 feet from the ground surface; or

(c) **is located beneath an Engineered Barrier implemented pursuant to the requirements at 310 CMR 40.0998**

An Engineered Barrier shall….

- Prevent direct contact with contaminated media
- Control vapors or dust emanating from contaminated media
- Prevent erosion and infiltration of precipitation of run that could jeopardize integrity
- Be comprised of materials resistant to degradation
- Be consistent with technical standards of RCRA Subpart N, 40 CFR 264.300, 310 CMR 30.600
- Include defining layer that visually identified barrier
- Be appropriately monitored and maintained with a plan including a **FAM**
- Not include an existing building, structure or cover material unless it is designed and constructed to serve as an engineered barrier pursuant to the requirements of 310 CMR 40.0998.

BWSC 104 Transmittal Form

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

PERMANENT AND TEMPORARY SOLUTION STATEMENT
Pursuant to 310 CMR 40.1000 (Subpart J)

BWSC 104

Release Tracking Number
[ ] - [ ]
For sites with multiple RTNs, enter the Primary RTN above.

C. DESCRIPTION OF RESPONSE ACTIONS: (check all that apply; for volumes, list cumulative amounts)

- ☐ 1. Assessment and/or Monitoring Only
- ☐ 2. Temporary Covers or Caps
- ☐ 3. Deployment of Absorbent or Containment Materials
- ☐ 4. Treatment of Water Supplies
- ☑ 5. Structure Venting System/HVAC Modification System
- ☐ 6. Engineered Barrier
- ☐ 7. Product or NAPL Recovery
- ☐ 8. Fencing and Sign Posting
- ☐ 9. Groundwater Treatment Systems
- ☐ 10. Soil Vapor Extraction
- ☐ 11. Remedial Additives
- ☐ 12. Air Sparging
- ☐ 13. Active Exposure Pathway Mitigation Measure(AEPMM) System
- ☐ 14. Passive Exposure Pathway Mitigation Measure
  - ☐ i. AEPMM to address vapor intrusion
  - ☐ ii. AEPMM to address drinking water exposure
- ☐ 15. Monitored Natural Attenuation
- ☐ 16. In-Situ Chemical Oxidation

Example 1 – BWSC104 Indicates Engineered Barrier

- Method 1 Risk Characterization
- No OHM in soil above GW-3 CLs or Method 1 S-3 Standards
- A condition of NSR does not exist for human health due to EPC for lead above Method 1 S-1 Standards
- AUL used to eliminate residential use, and maintain Protective Cover
- "The Engineered Barrier consists of pre-existing asphalt pavement, pre-existing concrete pavement, and the concrete foundation and lower level floor of the existing Site building, plus newly installed asphalt pavement to permanently cover former unpaved areas outside of the building"

Not an Engineered Barrier

Example 2 – BWSC104 Indicates Engineered Barrier

- Concentrations of lead detected in soil above M3CL
- AUL filed for RTN **Is an Engineered Barrier**
  - eliminates future use of property for residence, school or daycare
  - Requires the Engineered Barrier to be maintained in accordance with the Engineered Barrier Post-Construction Monitoring and Maintenance Plan
  - Requires Financial Assurance Mechanism for long-term monitoring and maintenance of the Engineered Barrier

MassDEP Bureau of Administrative Services, Fiscal Group - Financial Assurance Section

- The Financial Assurance Section of the Fiscal Group reviews, maintains and administers Financial Assurance Mechanisms (FAMs) for:
  - Solid Waste Facilities
  - Decommissioning of Solar Arrays at Solid Waste Facilities
  - RCRA Hazardous Waste Treatment, Storage, and Disposal Facilities
  - Bureau of Waste Site Cleanup (BWSC) Sites
- BWSC FAMs Points of Contact
  - Eric Fahle, Financial Assurance Specialist (eric.fahle@mass.gov)
  - Erica Judd, Financial Assurance Analyst (erica.judd@mass.gov)

Goals of the BAS/BWSC Collaborative Effort

- Assist BWSC with their review of sites with an Engineered Barrier which require a FAM
- Provide guidance on the establishment of BWSC FAMs
- Review BWSC FAMs to ensure compliance with the applicable regulations and provisions
- Provide ongoing administration of BWSC FAMs
- Provide more feedback at future BWSC AC meetings

Q&A

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection

Millie Garcia-Serrano, MPH, Assistant Commissioner
MassDEP | Bureau of Waste Site Cleanup

Appreciation Awards

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection

Commissioner Bonnie Heiple
Assistant Commissioner Millie Garcia-Serrano
MassDEP

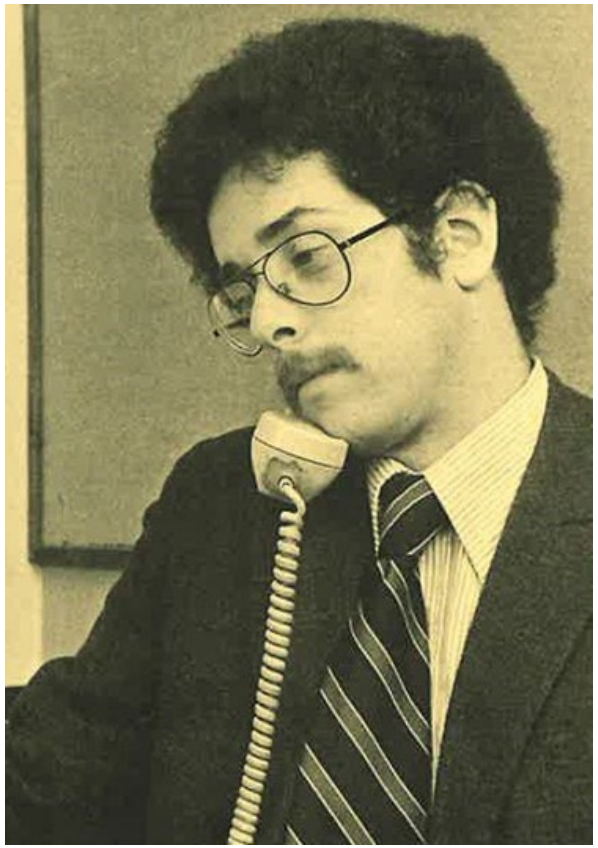
Wendy Rundle

LSPA Executive Director (2010-2025)

MassDEP

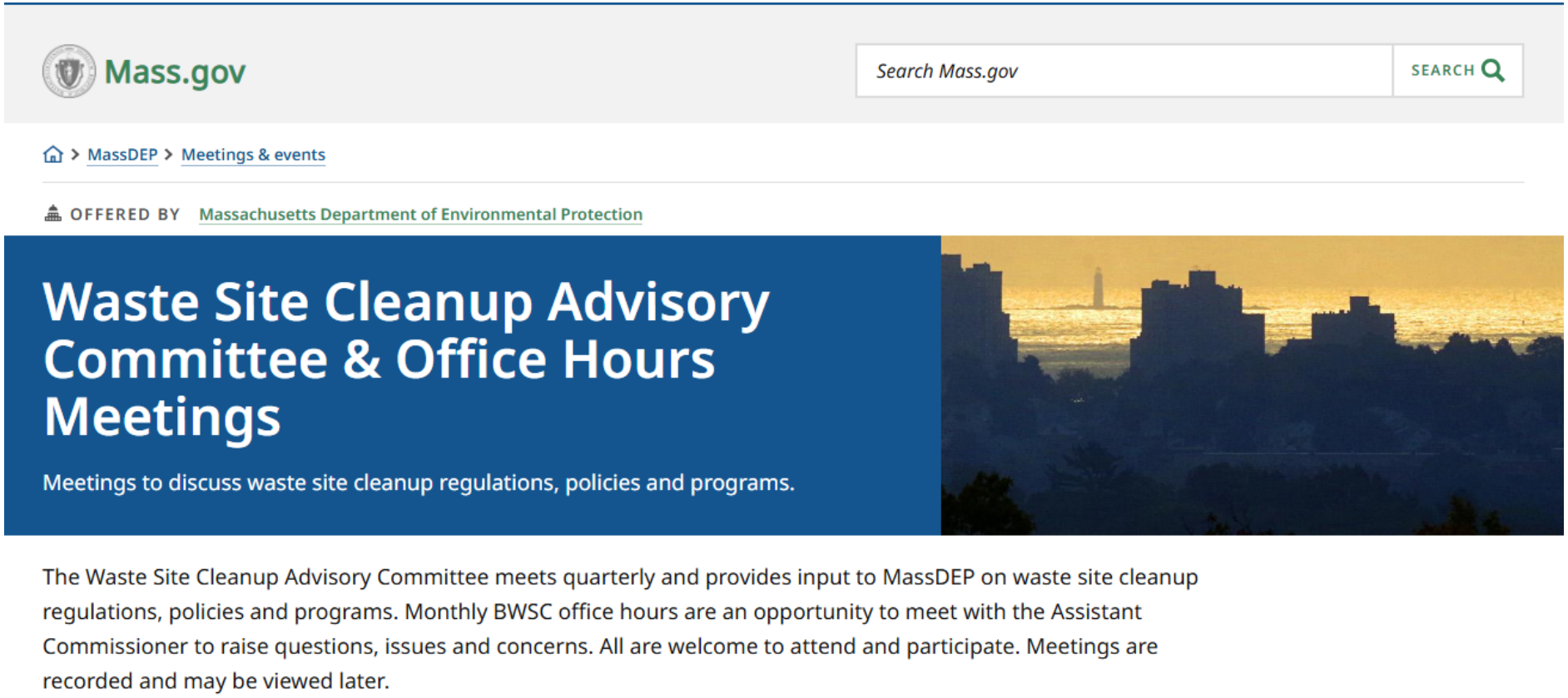
Larry Feldman, Ph.D.

Advisory Committee Member (1993-2024)



Next WSC Meetings & Wrap Up

- Office Hours Meeting: ***6/26/25*** *(Virtual)*
- WSC Advisory Committee Meeting: ***8/21/25*** *(Virtual)*



Thank you from your BWSC Team!