



## **Welcome to the CLU-IN Internet Seminar**

### **CEC Training for OSCs...RCRA for OSCs**

Sponsored by: EPA Office of Superfund Remediation and Technology  
Innovation

Delivered: September 25, 2013, 1:00 PM - 3:00 PM, EDT (17:00-19:00 GMT)

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# Seminar Homepage

The image shows a screenshot of a seminar homepage for the EPA. The page title is "Site Characterization for Military Installations: Characterization of Federal Facilities Forum & ERAC". The page is organized into several sections:

- Join the seminar online:** A callout box points to the "Join the seminar" button in the top left navigation menu.
- Download Slides:** A callout box points to the "Download slides in PowerPoint format" and "Download slides in Adobe PDF format" options in the top right.
- Feedback:** A callout box points to the "Feedback" button in the bottom right navigation menu.

The main content area includes a "Presentation Overview" section with the following text:

The Federal Facilities Forum is a group of USEPA Scientists and Engineers who represent EPA Regional Program Offices and are responsible for the identification and resolution of technology issues regarding the characterization and remediation of Federal Facility Superfund, Resource Conservation and Recovery Act (RCRA) and Base Realignment and Closure sites. In January 2012 the Federal Facilities Forum with support of the U.S. Army Corps of Engineers using an Interagency Agreement completed and published a technical report, "Site Characterization for Military Installations: Characterization of Federal Facilities Forum & ERAC". The project was done in order to provide federal, state and private consultants and cleanup managers with detailed information on the nature of energetic residues on OGD training ranges, sampling strategies and provide representative samples, and the most current analytical methods that are used to characterize these samples. The issue paper is 149 pages and includes detailed discussions on residues of various types of OGD ranges (generally, ordnance, artillery, tank, bombing, and small arms), soil sampling, multielemented protocols, and a review of other contaminants of concern. This document also includes a glossary of common terms, figures, tables, photographs, site specific case studies, and references.

The document will review and highlight specific information found in the issue paper and focus on the following items:

1. Explain background information on the types of military ordnance and the munitions and components associated with them.
2. Describe sample preparation issues specific to energetic ordnance.
- Richard Meyer, Federal Facilities Forum Co-Chair, USEPA, Region 4 (rmyer\_richard@epa.gov)
- John Smith, U.S. EPA, Technology Innovation and Field Services Division (jsmith.john@epa.gov)

Participation Time and Registration: View job and suggestions for registrants

Site Characterization: Access the "Go to Seminar" button to view the seminar. Please be at this location at the beginning of the conference call.

Download Session Files: The seminar is available for download in both PDF and PowerPoint and audio/visual formats. Both formats include the instructor's notes. These may open in a pop-up window. You may need to turn off pop-ups for the file to open. Following your file download after the seminar.

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URL: <http://www.epa.gov/officeofpublicaffairs/technologyinnovation/>

Produced by the U.S. EPA, Technology Innovation and Field Services Division  
Contact: [John.Smith@epa.gov](mailto:John.Smith@epa.gov) | Technical address:

# Housekeeping

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  - participants can listen and watch as the presenters advance through materials live
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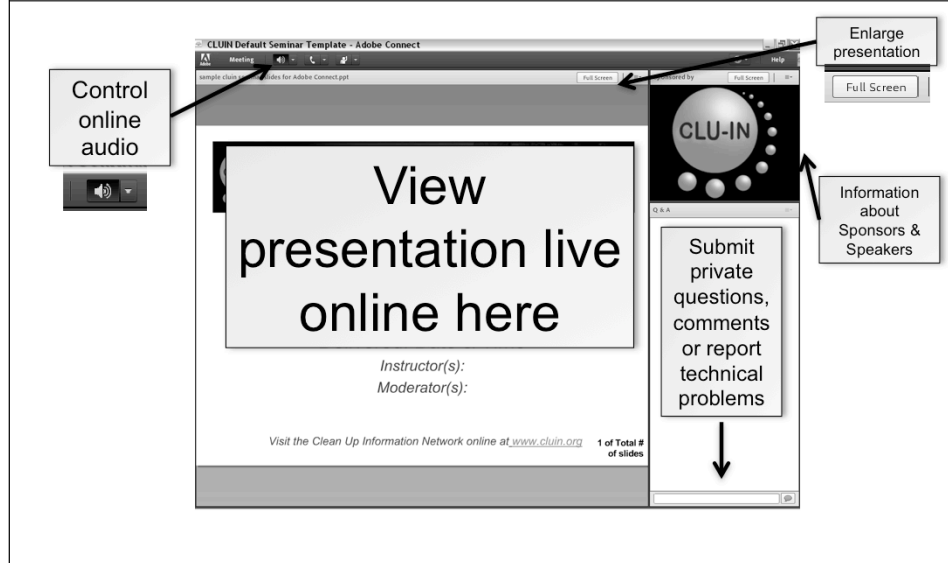
Although I'm sure that some of you have these rules memorized from previous CLU-IN events, let's run through them quickly for our new participants.

Please mute your phone lines during the seminar to minimize disruption and background noise. If you do not have a mute button, press \*6 to mute #6 to unmute your lines at anytime. Also, please do NOT put this call on hold as this may bring delightful, but unwanted background music over the lines and interrupt the seminar.

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With that, please move to slide 3.

# New online broadcast screenshot





## Module 1: RCRA Overview



## Why RCRA Requirements are Important to OSCs

- ◆ Define what are hazardous and non-hazardous wastes
- ◆ Establish many action-specific applicable or relevant and appropriate requirements (ARARs) for on-site waste management
- ◆ Establish applicable requirements for off-site waste management
- ◆ Affect your strategy and costs for characterizing, treating, storing, and disposing wastes generated during response actions

## Overview of RCRA

- ◆ Enacted in 1976 to address problems with improper management of solid and hazardous waste
- ◆ Goals:
  - Protect human health and environment from hazards posed by waste disposal
  - Conserve energy and natural resources through recycling and recovery
  - Reduce the amount of waste generated
  - Ensure wastes are properly managed

## **Statutory Framework of RCRA**

- ◆ Amended the Solid Waste Disposal Act
- ◆ Major amendments have included the:
  - Hazardous and Solid Waste Amendments of 1984 (HSWA)
  - Federal Facilities Compliance Act of 1992 (FFCA)
  - Land Disposal Program Flexibility Act of 1996
- ◆ Includes 10 subtitles; created three major regulatory programs
  - Solid waste (Subtitle D)
  - Hazardous waste (Subtitle C)
  - Underground storage tanks (Subtitle I)

## **Regulatory Framework for Implementing Subtitle C of RCRA**

- ◆ Subtitle C provides the statutory framework for the hazardous waste regulatory program
- ◆ EPA is authorized to issue regulations on hazardous waste identification, management, and corrective action
- ◆ Regulations are set forth in 40 CFR Parts 260-279

## **Applicability of State Hazardous Waste Laws and Regulations**

- ◆ States may be delegated authority to implement RCRA requirements
- ◆ Regulations promulgated by EPA under RCRA and HSWA authorities have different effective dates in authorized states
- ◆ If the state is authorized, the state's RCRA regulations are applicable
- ◆ Other state environmental laws and regulations may be applicable to non-hazardous wastes



## Module 2: Hazardous Waste Determination



## Hazardous Waste Determination Basics

- ◆ An issue that almost always must be addressed during CERCLA responses
- ◆ A prerequisite for RCRA applicability
- ◆ The basic process involves four steps
- ◆ Answer three questions first
- ◆ Be careful of words or terms with special definitions

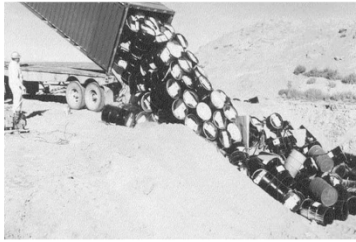


## **Major Regulations Used to Identify Hazardous Waste**

- ◆ Exclusions from definition of solid waste
- ◆ Definition of solid waste
- ◆ Exclusions from definition of hazardous waste
- ◆ Definition of hazardous waste
- ◆ Variances and rule-making petitions

## Exclusions From the Definition of Solid Waste

- ◆ Congress and EPA have excluded certain materials from regulation under RCRA by not defining them as “solid waste”
- ◆ A list of materials excluded from RCRA regulation is set forth in 40 CFR 261.4(a)



## The Definition of Solid Waste

- ◆ The definition of solid waste is set forth in 40 CFR 261.2
- ◆ Solid wastes are “discarded” materials
- ◆ “Discarded” includes materials that are:
  - “Abandoned”
  - Recycled in certain ways
  - Considered “inherently waste-like”
  - “Military Munitions”

## Exclusions From the Definition of Hazardous Waste

- ◆ Congress and EPA have excluded certain solid wastes from the definition of hazardous waste
- ◆ A list of solid wastes excluded from RCRA regulation is set forth in 40 CFR 261.4(b)



## **Definition of Hazardous Waste 40 CFR 261.3**

- ◆ Includes solid waste that:
  - Is listed as hazardous waste by EPA (“listed waste”)
  - Exhibits any of four characteristics of hazardous waste (“characteristic hazardous waste”)
  - Is a mixture of solid waste and a listed hazardous waste (“mixture rule”)
  - Is derived from the treatment, storage, or disposal of other hazardous waste (“derived-from rule”)

## Listed Hazardous Wastes

- ◆ Wastes from non-specific sources (40 CFR 261.31, F-codes)
- ◆ Wastes from specific sources (40 CFR 261.32, K-codes)
- ◆ Discarded commercial chemical products (40 CFR 261.33, P- and U-codes)

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## Listed Hazardous Wastes

- ◆ Differences between listed and characteristic hazardous wastes
- ◆ Determination whether a waste is listed at CERCLA sites
- ◆ Basis for listing wastes
- ◆ Acutely hazardous wastes



## **Characteristics of Hazardous Wastes**

- ◆ Ignitability (40 CFR 261.21)
- ◆ Corrosivity (40 CFR 261.22)
- ◆ Reactivity (40 CFR 261.23)
- ◆ Toxicity (40 CFR 261.24)
- ◆ Determination whether a waste exhibits any characteristic

## **Definition of Hazardous Waste Mixture and Derived-From Rules**

- ◆ Legal history
- ◆ Mixture rule
- ◆ Derived-from rule

## **The Contained-In Policy**

- ◆ Requires contaminated environmental media, such as contaminated soils, to be managed as hazardous waste if it contains listed hazardous wastes or exhibits a characteristic of hazardous waste
  - Is an ARAR at CERCLA responses
- ◆ Occurs on a case-by-case basis
- ◆ Lacks definitive federal guidance or regulations determining appropriate contained-in levels

## **Variations and Petitions**

- ◆ “Delisting” listed hazardous waste
- ◆ “Contained-out” determination

## **Alternative Regulatory Program for Certain Hazardous Wastes**

- ◆ “Universal wastes” are hazardous waste subject to an alternative regulatory program set forth in 40 CFR Part 273
- ◆ Universal wastes include:
  - Batteries
  - Pesticides
  - Mercury-containing equipment
  - Lamps

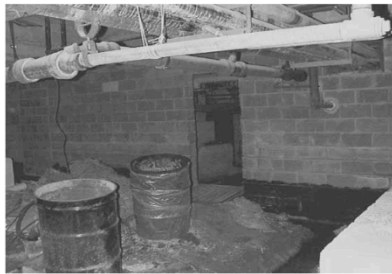


## Module 3: Land Disposal Restrictions



## Land Disposal Restrictions Basics

- ◆ Purpose of the LDRs
- ◆ Definition of land disposal for purposes of the LDRs
- ◆ LDRs “attach” to the hazardous waste at the point of generation



## **Land Disposal Restrictions**

- ◆ Major regulations involved (40 CFR Part 268):
  - Identification of restricted wastes
  - Determination of treatment standards
  - Prohibitions against dilution and storage
  - Compliance with tracking and recordkeeping requirements
  - Variances and petitions from the LDR treatment standards

## Identification of Restricted Wastes

- ◆ Hazardous wastes subject to the LDR program are identified under 40 CFR Part 268 Subpart C
- ◆ Hazardous wastes subject to the LDR program are referred to as “restricted wastes,” and wastes that cannot be land disposed are called “prohibited wastes”
- ◆ Most hazardous wastes are covered under the LDR program

## Treatment Standards

- ◆ Generators must determine whether the waste must be treated before it can be land disposed
- ◆ Definition of treatment standard
- ◆ Treatment standards are established based on BDAT and expressed in several manners
- ◆ “Treatability groups” and “treatment subcategories”
- ◆ Treatment standards are set forth at 40 CFR Part 268 Subpart D

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## Treatment Standards

- ◆ Universal Treatment Standards (UTS)
- ◆ Treatments standards for Underlying Hazardous Constituents (UHC)
  - Applicable to characteristic hazardous wastes
- ◆ Alternative treatment standards are available for:
  - Lab packs
  - Hazardous debris
  - Contaminated soils



## **Determination of Treatment Standards**

- ◆ Identify each applicable RCRA hazardous waste code for the waste
- ◆ Determine the waste's treatability group, subcategory (if applicable), and alternative treatment standard (if applicable)
- ◆ Determine the regulated constituents if the waste is F001-F005 and F039
- ◆ Determine if UHCs require treatment for characteristic wastes

## **Alternative Treatment Standards for Contaminated Soil**

- ◆ Creates a new treatability group: contaminated soils
- ◆ Provides the option of meeting LDR standards for contaminated soil versus the standard established for existing industrial wastes
- ◆ Treatment standard requires that the concentrations of hazardous constituents be reduced by 90 percent, capped at 10 times the UTS

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## **Alternative Treatment Standards for Contaminated Soil**

- ◆ Measurement of the 90 percent reduction must be consistent with UTS
- ◆ A treatability variance for soils is not required
- ◆ Treatment required for UHCs present at 10 times their respective UTS

## Prohibitions Against Dilution and Storage

- ◆ Dilution prohibition (40 CFR 268.3)
- ◆ Storage prohibition (40 CFR 268 Subpart E)



## **Variations and Petitions From the LDR Treatment Standards**

- ◆ Treatability variance
- ◆ Alternative treatment method petition
- ◆ No-migration petition
- ◆ Delisting

## **Treatability Variance**

- ◆ Allowance for treatability variance from treatment standard
- ◆ Requirement that waste be physically or chemically different
- ◆ Applicability to waste mixtures, derived-from residues, and environmental media

## **Tips on Treatability Variances**

- ◆ Authority to grant a treatability variance is delegated to EPA regional offices
- ◆ No public comment period is required for removal actions, but the variance should be included in the Administrative Record
- ◆ A variance can be a stand-alone document or can be included in an Action Memorandum or Record of Decision
- ◆ A concurrence memorandum issued by the RCRA program usually is required



**Module 4: Common RCRA  
Requirements for Managing Hazardous  
Waste On-Site and Off-Site**



## **On-Site and Off-Site Management of Hazardous Waste**

- ◆ Typical RCRA requirements or policies that apply to the on-site management of hazardous waste and hazardous remediation waste, include:
  - Container standards
  - Temporary unit
  - Area of Contamination (AOC)
  - Corrective Action Management Unit (CAMU)
  - Staging pile
  - ReInjection of hazardous ground water
  - Closure and post-closure care requirements
- ◆ Off-site requirements include:
  - Pre-transport standards
  - Manifests
  - EPA identification numbers
  - LDR tracking requirements
  - Biennial reports

## Containers

- ◆ Standards are in 40 CFR Parts 264 and 265 Subpart I
- ◆ Containers must be in good condition, compatible with the waste, closed during storage, and provided with secondary containment
- ◆ Special regulations apply for managing ignitable, reactive, and incompatible wastes
- ◆ Spilled or leaked waste must be removed as needed
- ◆ Residues, remaining containers, liners, bases, and contaminated soil must be decontaminated or removed at closure

## Temporary Unit

- ◆ Accommodates the non-land-based storage of remediation waste
  - Allows alternative standards to requirements for hazardous waste tank systems or containers
- ◆ Time of operation is limited



## **Area of Contamination Concept**

- ◆ Discrete area of contamination that equates to a single RCRA land-based unit
- ◆ Movement of wastes within an AOC does not trigger LDRs or minimum technology requirements (MTR)
- ◆ AOC concept is only applicable to remediation wastes

## Corrective Action Management Unit

- ◆ A special type of land-based unit created for the management of remediation waste
- ◆ Only certain wastes are eligible for management in CAMUs
- ◆ Design standards for CAMUs where waste will remain after closure include:
  - Liner requirements
  - Caps
  - Corrective action for any releases



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## **Corrective Action Management Unit**

- ◆ Principal hazardous constituents (PHCs) in wastes must meet treatment standards before placement in a CAMU
- ◆ CAMUs that are used for treatment or storage only are subject to requirements for staging piles
- ◆ A CAMU must be designated in an AM or ROD

## **Differences Between an AOC and CAMU**

- ◆ Waste may be treated ex-situ and placed in a CAMU
- ◆ A CAMU may be located in an uncontaminated area
- ◆ Wastes may be consolidated in CAMUs from areas not contiguously contaminated
- ◆ The recent CAMU rulemaking does not affect use of AOCs

## Staging Pile

- ◆ A staging pile is a new unit for managing remediation waste created by the HWIR-Media rule
- ◆ Waste managed in a staging pile is not subject to LDRs or MTRs
- ◆ Mixing, sizing, blending, or other physical operations are allowed, but no “treatment”
- ◆ Requirements



## Reinjection of Contaminated Ground Water During Cleanups

- ◆ Underground injection of ground water contaminated with hazardous waste frequently occurs as part of CERCLA response actions
- ◆ Underground injection is defined as “land disposal” for purposes of the LDR program
- ◆ Section 3020 of RCRA addresses the underground injection of hazardous waste in the context of RCRA and CERCLA cleanups



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## **Reinjection of Contaminated Ground Water During Cleanups**

- ◆ Under EPA policy, reinjected ground water is exempt from compliance with LDRs provided:
  - It is treated before reinjection (both ex-situ and in-situ)
  - The cleanup is protective of human health and the environment
  - The injection is part of response action under CERCLA 104 or 106 or RCRA corrective action

## **Closure and Post-Closure Care Requirements**

- ◆ Apply to RCRA hazardous waste management units at facilities that operated under a RCRA permit or interim status (TSDFs)
- ◆ Two approaches to closure:
  - Clean closure
  - Closure with waste in place
- ◆ Post-closure care applies to units that close with waste in place


## **Off-site Management of Hazardous Waste**


- ◆ RCRA pre-transport regulations
  - Refer to and require compliance with the Department of Transportation (DOT) hazardous material regulations
- ◆ Hazardous Waste Manifest
- ◆ EPA identification numbers
- ◆ LDR tracking requirements
- ◆ Biennial Reports

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# Resources & Feedback

- To view a complete list of resources for this seminar, please visit the **Additional Resources**
- Please complete the **Feedback Form** to help ensure events like this are offered in the future

The screenshot shows a feedback form titled "Seminar Feedback Form" from the EPA Technology Innovation Program. The form includes a header with the EPA logo and "United States Environmental Protection Agency". The main heading is "U.S. EPA Technical Support Project Engineering Forum" with a subtitle "Green Remediation: Opening the Door to Field Use Session C (Green Remediation Tools and Examples)". A message states: "We would like to receive any feedback you might have that would make this service more valuable. Please take the time to fill out this form before leaving the site." The form contains several input fields: "First Name:" (with "Jen" entered), "Last Name:", "Daytime Phone Number:" (with "703-603-9924" entered), and "Email Address:" (with "jenet.pand@epa.gov" entered). A checkbox is labeled "Please send a copy of my feedback confirmation as a record of my participation to this address." The date of the seminar is listed as "December 15, 2009". A "Delivery Media" section is partially visible at the bottom.

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