Facility Lead
Corrective Action Approaches

Flexible Risk-Based / Performance-Based Cleanups

using the

Region 6 Corrective Action Strategy

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RCRA

The CAS – What is it?

Facility Lead/Risk Management Approach *to Site Investigation and Cleanups*

- Facility-wide evaluations
- CA process that is transportable to the States (Region 6 states are authorized) and other Regulatory Agencies
- Encompasses all aspects of the CA process (from investigation to remedy performance)

The CAS – What is it?

- Administrative flexibility
- Realistic evaluation of current and future land use and ground water resource use
- Purpose driven investigation (DQOs)
- Risk-based decision making
- Prioritization and focus on worst first
- Remedial selection based on ability to achieve performance standards

CAS Policy Box

Policy Considerations

- Land use
- Groundwater classification, restoration, movement and exposure protection
- Setting POC / POE
- Level of Protection
- Risk Management options for remedies
- Public Participation

CAS Implementation

- Using Letter Agreements
- Swapping out CA module with CAS in Permit or Order!
- Suspend that portion of the permit or order and memorialize in Letter of Agreement between Administrative Authority and Facility
  - (modify permit or order at remedy completion)
  - Place in permit at renewal

CAS - Key Elements/Steps

1. Notice of Intent
2. Conduct Scoping Meeting
3. Develop Performance Standards
4. Evaluate Conceptual Site Model
5. Identify and fill data gaps (DQOs)
6. Conduct HH and Eco Screening
7. Conduct Risk Management / Cleanup
8. Performance Monitoring

RFA, RFI, CMS, CMI… not a part of the CAS process

Scoping Meeting

Let's agree on the cleanup goals at the beginning of the process

- Facility proposes performance standards
- Conceptual Site Model (CSM)
- Establishes DQOs
- Land use determinations
- Groundwater use determination
- Communication Strategy for project

Performance Standards

For each release site, the facility must propose the performance standard that applies

- Source Control
- Statutory/Regulatory Requirements
- Site-Specific Risk Goal(s)

Conceptual Site Model

What you know about a facility; the CSM guides your way through the entire process

- Facility Profile
- Physical Profile
- Land Use and Exposure Profile
- Ecological Profile
- Release Profile
- Risk Management Profile

Data Quality Objectives

Using the scientific planning process to achieve

- Better quality data
- Focused investigations
- Only the information that is needed to make a risk management decision

Land Use Determinations

Based on actual use and realistic future use

- On-site: commercial / industrial, residential or other; State / facility has option of segregating onsite land use
  - Institutional Control: required for any cleanup to other than residential or unrestricted use
- Off-site: land use based on existing use

Groundwater Use Determinations

Classification: default to states on beneficial use and non-degradation issues

- Resource Designation:
  - Drinking water or other protected use: throughout the plume cleanup
  - Non-drinking water use or other protected use: meet protective concentrations at POE
- Recognizes that not all GW resources are the same quality or require the same protection

Field Investigation

- **CAS Work Plan –** Filling Data Gaps that don't meet performance standards
  - Assess historical data
  - DQOs based on performance standards
  - Plan to collect data to meet DQOs
  - Implementation schedule
  - Public participation

HH and Eco Screening Tools

Rapid Assessment of Risk

- Human Health
  - Screening Tables - two bright line tables (BLTs) that utilize reasonable default receptor and exposure parameters specific to commercial facilities
  - Site-Specific Risk Assessment
- Ecological Risk Evaluation
  - Exclusion Criteria Worksheet
  - Checklist

CAS Human Health Risk-Based Prioritization

1×10^{-4} **High-Priority BLT**

- **First priority**

1×10^{-6} **Low-Priority BLT**

- **Second priority** (further evaluate risk?)
- **NFC** (No Federal concern)

Ecological Evaluation

- Objective:
  - To help facilities and regulators determine if a detailed ecological risk assessment is necessary for a site or a portion of a site where corrective action is being pursued

Ecological Evaluation

- Components:
  - **Exclusion Criteria Worksheet**
    - Are protected species/environments present?
    - Are significant habitat/relevant receptors present?
    - Are exposure pathways complete?

If No - then Ecological Assessment is complete
If Yes - then further evaluation is required

Managing Risk

- **Risk Management Plan**
  - Remedy identification
  - Final CSM Summary
  - Performance Monitoring
  - Public Participation

CAS Public Participation

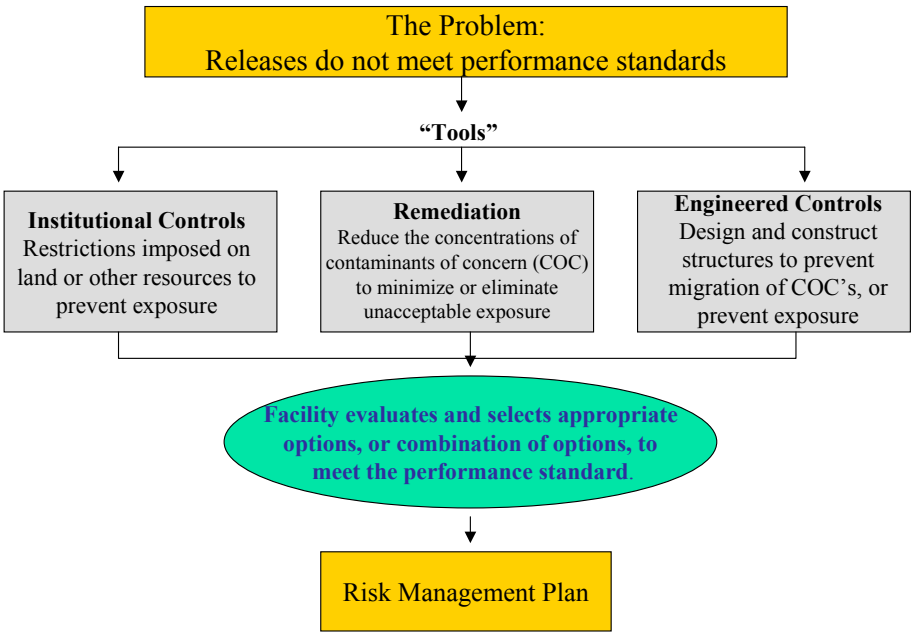
- Promotes early and continued involvement of stakeholders
- Encourages states to implement their own established procedures as long as they provide public participation at key decision making stages
  - Agreement on performance standards
  - Remedy proposals
  - Closeout

Risk Management Options

Balance remedial option selected based on effectiveness, performance and cost

- **Active Remediation** (source control, pump & treat, SVE) to meet health-based goals for final remedy, including ecological issues
- **Engineering Control** (barrier that limits exposure and/or controls migration)
- **Institutional Control** (legal mechanism to prevent exposure)

Risk Management Activity Evaluation and Selection



Corrective Action Strategy in Arkansas

RCRA and Voluntary Cleanup Programs

The CAS in Arkansas

- Nov. 2000 - Discussions with Region 6
- January 2001 - Arkansas has the first CAS pilot
- Incorporating CAS concepts into the ADEQ RCRA cleanup program
- ADEQ using CAS as a template for parts of their voluntary cleanup program

CAS Pilots in Arkansas

- State / EPA Projects
  - Remington Arms, Lonoke
  - Koppers/Beazer, N. Little Rock
  - Great Lakes Chemical, El Dorado
  - Emerson Motors, Rogers
- State Projects
- Voluntary Corrective Action Projects

Remington Arms CAS Project

A Facility Perspective

Sporting Ammunition Manufacturing Facility

Lonoke, Arkansas

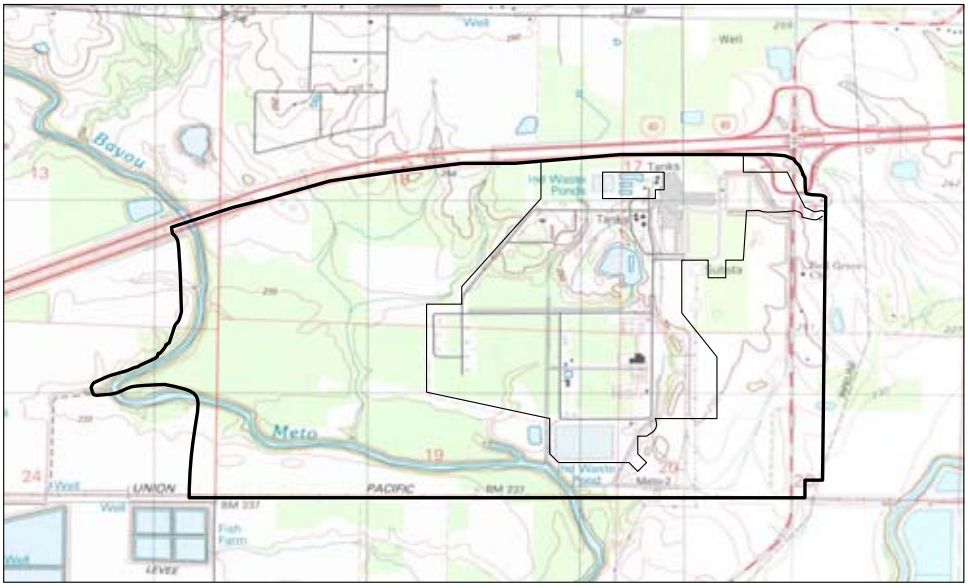
Objectives

- Present first-hand report on Region 6 CAS from Owner-Operator view
- Discuss positive aspects of Facility Lead process using CAS for the Remington Site

Remington Lonoke Background Information

- Site is 20 miles east of Little Rock, AR
- Began operations in 1969 (sporting ammunition)
- Operations include metal finishing, electroplating, primer manufacturing
- Site divested by DuPont in 1993 (RCRA liability retained)
- Region 6 GPRA Baseline Facility
- No RFI history before 2001

Property & Fenced Boundary



CAS Implementation at Remington

- Prior to CAS, pace of activity had been slow
  - Lack of permit driver for CA
  - Multiple rounds of facility/regulator negotiations
- ADEQ approached Remington/DuPont in 2000 to pilot the CAS
- Letter of Agreement signed in November 2000
- "Notice of Intent" submitted in December 2000

CAS Implementation
Owner/Operator Perspective

- CAS accelerates pace of activity and agency interaction:
  - **1/23/2001 - CAS Scoping Meeting** held at facility
  - **4/24/2001 - CAS Work Plan** finalized
  - **5/1/2001 - Eco screening evaluation** walk through
  - **6/27/2001** - **Phase 1 field work** completed
  - **9/7/2001** - **CA-725/CA-750 determination** made
  - **1/15/2002** - **CAS Summary Report** issued
  - **1/22/2002** - **Progress Meeting** at facility
  - **2/14/2002** - **Work Plan Addendum** Letter
  - ***3/21/2003- Complete field work, prepare/public notice RMP***
  - ***8/2003 - Implement RMP – begin cleanup***
  - ***10/03 – Cleanup complete*** issue RfR

CAS Implementation at Remington

- "Scoping Meeting" held at plant in January 2001
  - Remington, DuPont, ADEQ and EPA participants
  - Key upfront discussions and agreements:
    - Site conceptual model and land use (current and future)
    - Constituents and media of interest
    - Remedial objectives (i.e., "performance standards")
    - Data quality objectives
    - Investigation strategy
  - Additional issues identified:
    - Need to address ecological assessment

CAS Implementation at Remington

- CAS facilitates early critical decisions
  - Key agreements in Scoping Meeting
    - CSM data gaps agreed on (GW, eco, etc.)
    - Industrial land use deemed appropriate (Residential for undeveloped portions of site)
    - Performance standards settled
      - Region 6 industrial SSLs for human health soil screen
      - MCLs at fence line/production wells for GW
      - State water quality criteria for SW

CAS Implementation at Remington

- CAS facilitates early critical decisions
  - Key agreements in Scoping Meeting (cont.)
    - Investigation approach, DQOs, screening tools agreed upon
      - SPLP for soil leaching potential
      - Surface geophysics to better define LF boundaries
      - XRF for field screen of metals (Pb) in soil
      - Metals hold time to reserve samples for efficient delineation
      - Use of on-site plant lab for explosive primer screen

CAS Implementation at Remington

- CAS facilitates early critical decisions
  - Ecological risk screening tools and site walkthrough (May 2001)
    - Exclusion checklist used to screen out 10 of 14 SWMUs
      - unattractive habitat and/or de minimus impacted area
    - Critical receptors and pathways identified at remaining units
      - input used to guide data collection

Progress to Date

- Two phases of investigation completed
  - Letter approval of sampling effort
  - NFA at 9 of 14 SWMUs after Phase I
    - met performance standards (Region 6 industrial SSLs)
  - Delineation completed at remaining SWMUs
    - exceeded performance standards (metals, esp. Pb, in surface soil)
  - Groundwater/surface water pathways not impacted
  - Ecological concerns addressed (no exposure pathways or de minimus areas)

Progress to Date

- Determinations complete for GPRA EIs
  - Yes for CA-725 and CA-750 supported by data and impacted SWMU use survey
- Cleanup plans underway for 2003
  - Soil stabilization/removal to begin in August
  - Field work expected to be complete in October
  - Corrective Action Completion and Ready for Reuse Determination in December

CAS Program Innovations

O/O Perspective

- **Streamlined admin process to conduct CA**
  - LOA/NOI vs. permit/order
  - a lot of work in a short time
- **Cooperative/results based partnership**
  - face-to-face meetings and conference calls
  - gained trust helps streamline review/oversight
  - builds on existing information
- **Early agreement on critical issues**
  - CSM (including land use, pathways, receptors, etc.)
  - DQOs and Performance Standards
  - Screening Criteria and Methods

CAS Program Innovations

O/O Perspective

- **Flexibility to achieve results**
  - Sampling Programs
  - Screening Approaches
  - Focus on What's Important / Worst First
  - Recognizes Changes will be Necessary as Data is Collected
  - Appropriate Public Participation Needs
- **Resources utilization can be better predicted**
  - $, personnel
  - time

Other Advantages

- **Gives O/O responsibility to manage site program**
  - develop CSM
  - develop targeted data collection and DQO plan
  - conduct risk screening
  - utilize a risk management approach
- Acknowledges cost as a function of remediation
- Remedial selection balanced between treatment, engineering controls and institutional controls
- Recognizes and promotes phased remediation

More Information on CAS / Facility Lead Cleanups

- *See our Web site:*
- www.epa.gov/earth1r6/6pd/rcra_c/pd-o/riskman.htm

- *ADEQ Web Site:*
- www.adeq.state.ar.us/hazwaste