

EPA Region 6

CORRECTIVE ACTION STRATEGY

**Flexible Risk-Based / Performance-Based
Cleanups**

Risk In Remediation Session

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The Corrective Action Strategy

What is it?

The CAS – What is it?

Framework Strategy that promotes site-specific Activities;

- Facility-wide approach
- CA process that is transportable to the States (Region 6 states are authorized) and other Regulatory Agencies
- Encompasses all aspects of the CA process (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 - Key Elements

- Scoping Meeting
- Identifying and filling data gaps
- HH and Eco Screening Tools
- Risk Management
- Performance Monitoring

Scoping Meeting

Let's agree on the cleanup goals (performance standards) at the beginning of the process

- Conceptual Site Model (CSM) & DQOs
- Land use determinations with public participation
- Groundwater use determination
- Communication Strategy

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

CAS Land Use Determinations

- Based on actual use and realistic future use
- On-site: commercial / industrial or residential; 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
 - Institutional Control: required for any cleanup to other than residential or unrestricted 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

CAS Groundwater Plume Management

- On-site: not allowed if beneficial resource
- On-site Movement: allowed utilizing a plume management zone concept; must be protective at the point of exposure
- Off-site Movement: not allowed if beneficial resource

Performance Standards

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

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

Source Control

- Weigh site-specific factors against the criteria of implementability, cost, and effectiveness to determine what action(s) will be taken:
 - Remove the source (removal / treatment)
 - Control the source (engineering controls)
 - Contain the source (institutional controls)

Regulatory and Statutory

- May dictate media-specific contaminant levels that must be achieved, such as MCLs in drinking water
- Other applicable Federal, state and local laws and regulations

Site-Specific Final Risk Goal(s)

- The level of protectiveness to be achieved and maintained by the facility
- Established by the Administrative Authority (with facility input) based on land use, special sub-populations, or other factors
- Will generally fall within the 10^{-4} and 10^{-6} risk range

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

HH and Eco Screening Tools

Risk-Based Prioritization

- Human Health
 - Screening Level BLTs
 - Identify High Priority Sites **Do Now**
 - Identify Low Priority Sites **Do Later**
 - Site-Specific Risk Assessment
- Ecological Risk Evaluation
 - Exclusion Criteria Worksheet
 - Checklist

Human Health Risk-Based Prioritization

- Purpose:
 - To quickly identify the highest risk releases at a facility
 - Focus limited resources (time and money) to achieve maximum risk reduction in the shortest time frame

Human Health Risk-Based Prioritization

- **Consists of:**
 - **Two bright line tables (BLTs)** that utilize reasonable default receptor and exposure parameters specific to commercial/industrial facilities

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

Ecological Evaluation

- Components:
 - **Assessment Checklist**
 - General site description information
 - Habitat/receptor information
 - Receptor/pathway information

Bonus - Provides additional information to assist in conducting a more detailed ecological assessment if warranted

Managing Risk

- **Risk Management Plan**
 - Remedy identification
 - Propose remedy
 - Final CSM with selected remedies
 - Performance Monitoring
 - Public Participation

Level of Protection

- Contaminant concentrations based on facility specific objectives and circumstances
- Consider state groundwater use, land use, exposures, and cross media transfer
- Use statutory or regulatory levels where appropriate
- Cleanups should fall within the EPA risk range at the point of exposure (higher or lower could be appropriate)
- Protect ecological receptors

Risk Management Options for Remedies

- **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

