



CERCLA Process Overview at Hanford

**300-FF-5 Operable Unit Update Meeting
Wednesday August 29
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CERCLA Process

Removal Process

- Short-term actions dealing with immediate threats
- May be conducted as emergency, time-critical or non-time-critical
- Removal action may be followed by Remedial action, if necessary

Remedial Process

- Long-term process to achieve a permanent remedy
- Sites are often contaminated with several chemicals in more than one medium (e.g. soil, groundwater, surface water, sediments, etc.)

Major Phases in Remedial Process

- **Preliminary Assessment/Site Inspection (PA/SI)**
- **National Priority List (NPL) Listing Process**
- **Remedial Investigation/Feasibility Study (RI/FS)**
- **Selection of remedy**
 - Proposed Plan (public comment)
 - Record of Decision (ROD)
- **Remedial Design/Remedial Action (RD/RA)**
- **Five-year ROD Review**

Remedial Investigation and Feasibility Study (RI/FS)

RI: Determines nature and extent of contamination

FS: development, screening, and analysis of potential remedial alternatives

- **RI and FS are interdependent and, therefore, conducted concurrently**

RI/FS

RI:

- **Scoping**
 - Identify initial Data Quality Objectives (DQO)
- **Site Characterization**
 - Field Investigation and analysis of field samples
- **Baseline Risk Assessment**
 - Identification of contaminants
 - Assessment of exposure risk
 - Characterization of risk
- **Treatability Studies**
 - Support selection and implementation of the remedy

FS:

- **Development and screening of alternatives**
- **Detailed evaluation of each alternative**

Variation of Remedial Process at Hanford

- **RI/FS process at complex sites would take years to properly complete**
- **Some risks that required immediate action at Hanford were identified without a full risk assessment:**
 - **Ecological risk from hex-chrome plumes entering the river at concentrations above aquatic life standards**
- **Remove, treat, and dispose (RTD) was the most likely remedy for most waste sites in river corridor**

Interim Action ROD and Final ROD

Interim Action ROD

- Aims to mitigate known risks
- Protect human health and the environment from an imminent threat
- Stabilize a site or prevent migration
- May be of limited scope
- May focus on particular contaminants

Final ROD

- May continue or modify current remedies under IRODs
- May use new treatment technologies (eg. In-situ treatment barriers instead of pump and treatment)
- Will be based on RI/FS that looks at all contaminants

Remediation of 300 Area

- A ROD was issued for the 300-FF-5 Operable Unit in 1996 that identified interim actions for remediation:
 - Continue groundwater monitoring to determine how contaminant conditions may change over time
 - Institutional controls to limit the use of groundwater
- Uranium concentrations have not decreased at the expected rate and continue to persist above the drinking water standard (remediation goal)
- Reevaluation of the remedy *for uranium* was deemed necessary by the 5 year review and will be documented in Phase III Feasibility Study

Reevaluation of Remedy

Ultimate objective:

- Restore groundwater to highest beneficial use (drinking water standard – ARAR based)
- Reduce risk to human health and the environment

Specific objectives:

- Obtain information to refine what is known about the nature and extent of contaminated area
- Obtain information on groundwater flow patterns
- Update risk assessment using new information
- Assess technologies that can reduce the input of uranium into the groundwater
- Evaluate remediation alternatives based on new characterization

Phase III Feasibility Study

- **Limited Field Investigation**
- **Update of Risk Assessment**
- **Treatability Test - Polyphosphate Injection**
- **Update of Conceptual Model**
- **Assessment of Remediation Technologies**
- **FS Report and Proposed Plan submission**

Related Projects

- **Ongoing data collection at 618-10 and 618-11 sub-areas**
- **TCE investigation (discovered during Limited Field Investigation)**
- **Pu confirmatory sampling from field remediation**
- **PO-1 DQO/RI process (site wide tritium plume)**
- **Comprehensive RI/FS for 300 Area (all contaminants for groundwater, vadose zone, and surface sites)**