

DOE 618-11 Burial Ground -  
Project Status

October 14, 2009

# AGENDA

- Purpose
- Overview / Review
- Analysis Methodology
- Regulatory Review
- ENW 618-11 Project Schedule

# PURPOSE

- Provide NRC Staff an overview of the 618-11 Project, and related ENW activities
- Identify questions/issues

# OVERVIEW / REVIEW

## 618-11 BURIAL GROUND

- Operated from 1962 – 1967
- Approximately 8.6 acres in size
- ~50,000 yd<sup>3</sup> Waste Found in:
  - 3 trenches
  - 50 vertical pipe units (VPUs)
  - 5 caissons

# OVERVIEW (cont.) / WASTE FORMS / POTENTIAL HAZARDS

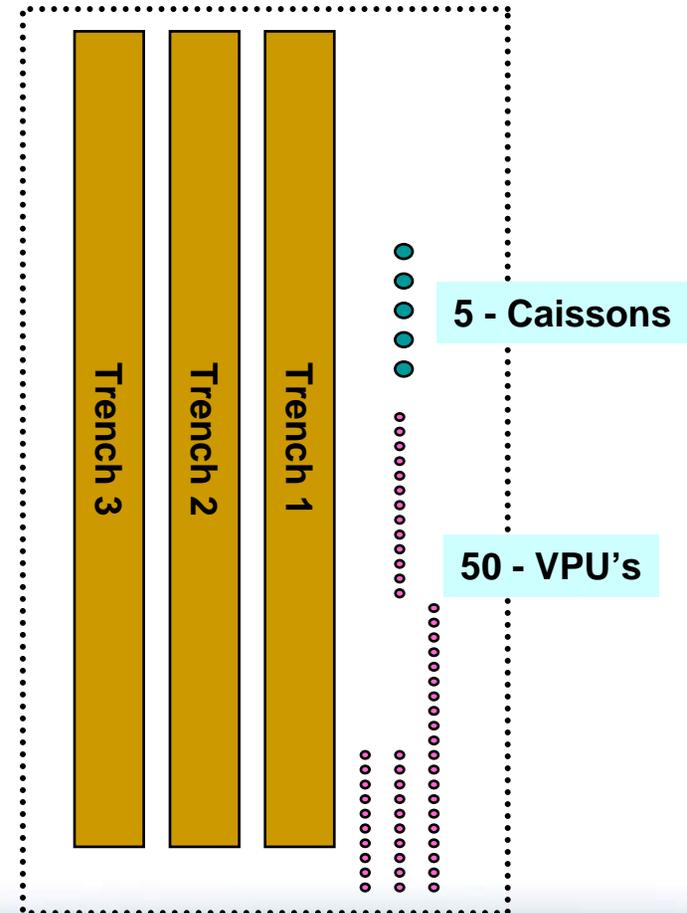
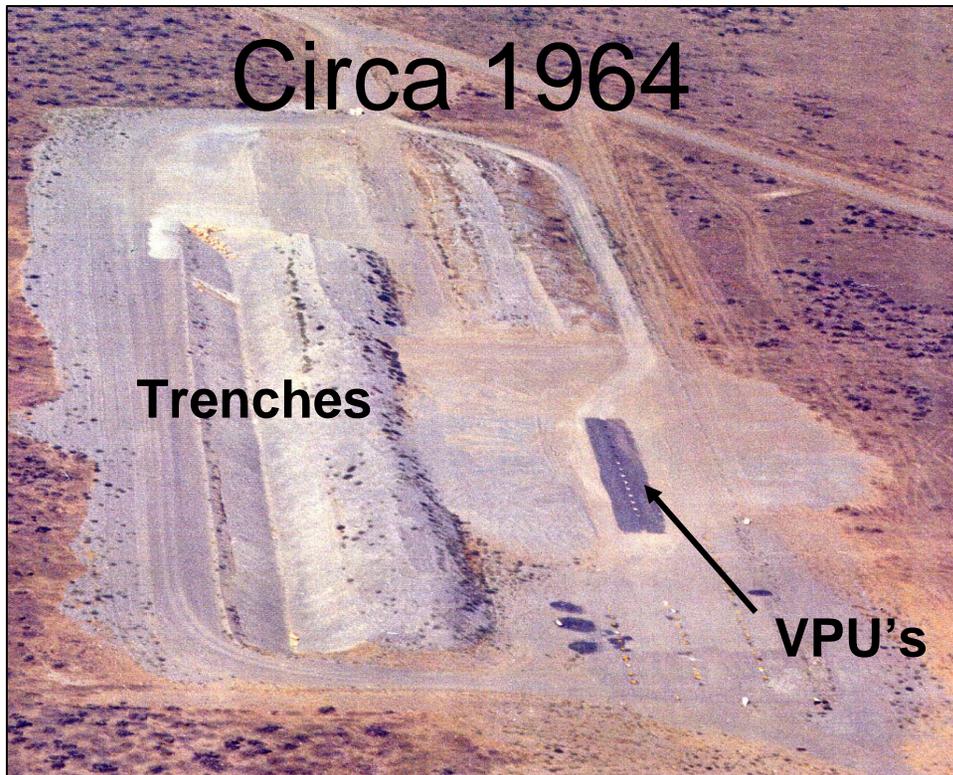
- Irradiated fuel fragments
- Uranium dioxide powder samples
- High activity liquid laboratory waste/plutonium contaminated liquids concreted in barrels
- Cyanide
- Beryllium contaminated waste
- Thorium waste
- Contaminated lab/shop equipment, construction debris
- Sodium Potassium

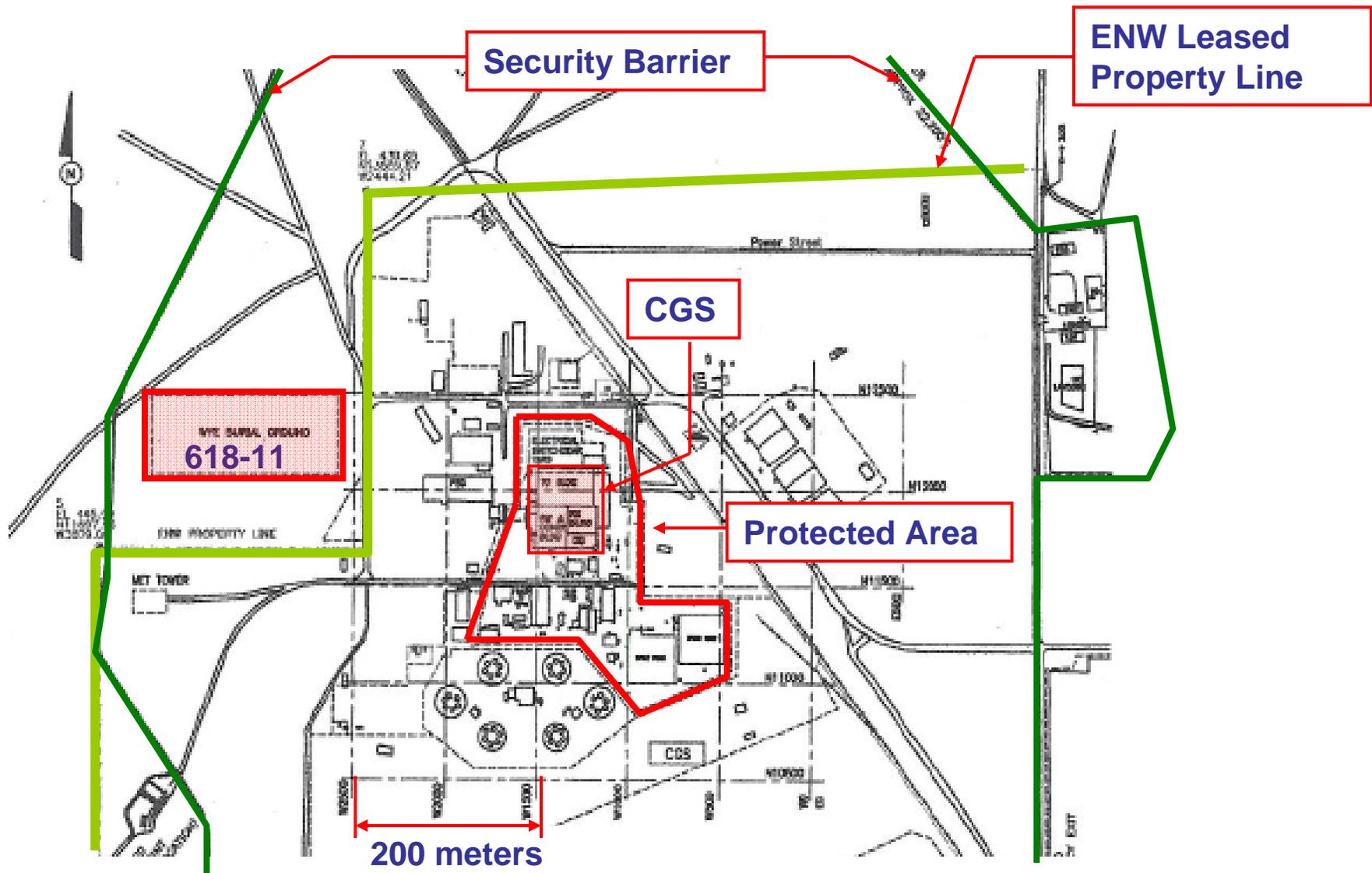
# OVERVIEW / REVIEW

## 618-11 PROJECT DRIVERS

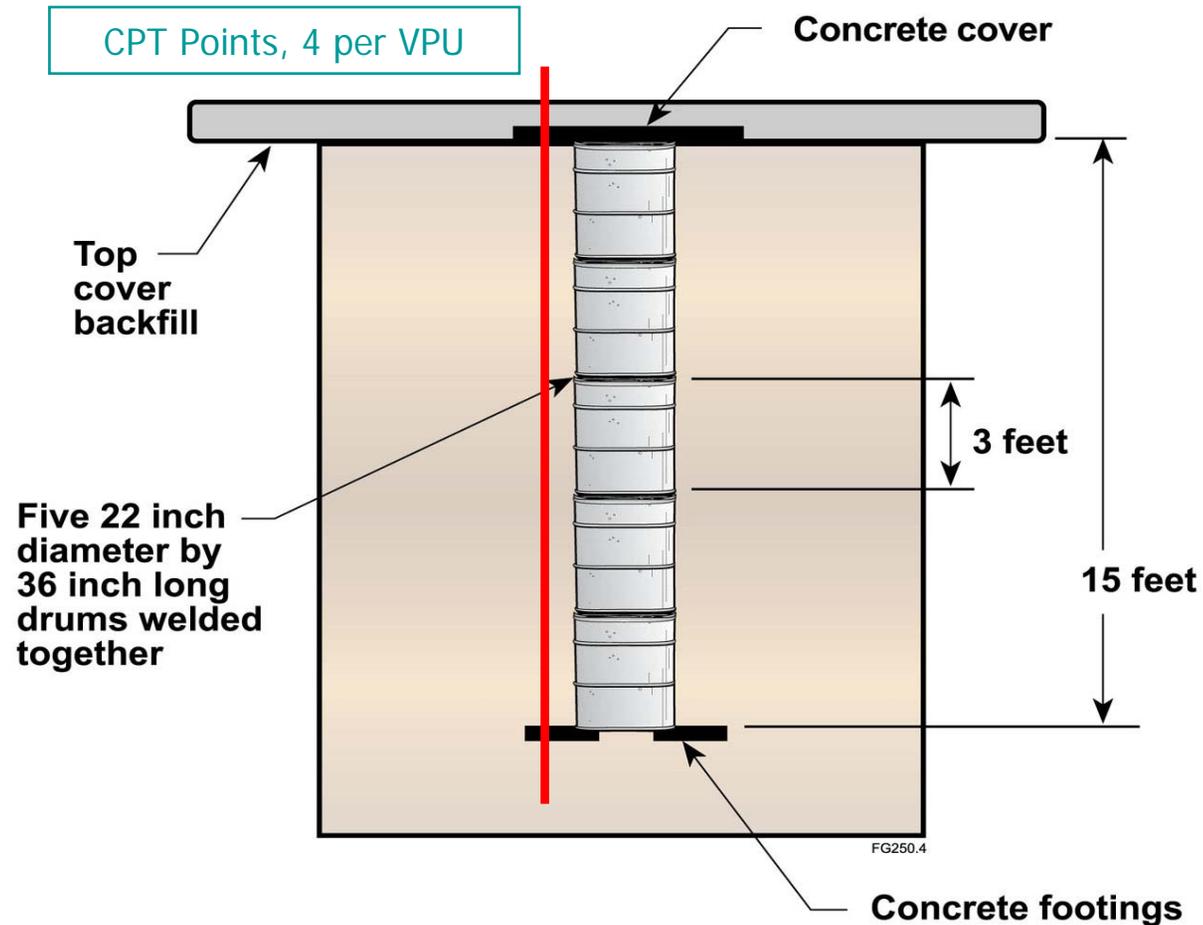
- CERCLA Record of Decision for 300-FF-2 Op Unit signed in 2001
  - Remove waste from trenches, VPUs, and caissons; treat as necessary and dispose
  - Cap / leave in place option evaluated but not selected
- Hanford Federal Facility Agreement and Consent Order
  - Tri-Party Agreement between State of Washington, EPA, and the DOE
  - Legally binding agreement with enforceable milestones
    - Complete all 300 area remedial actions (including 618-10 and 618-11 Burial Grounds) by Sept. 2018

# OVERVIEW (cont.)/618-11 SITE

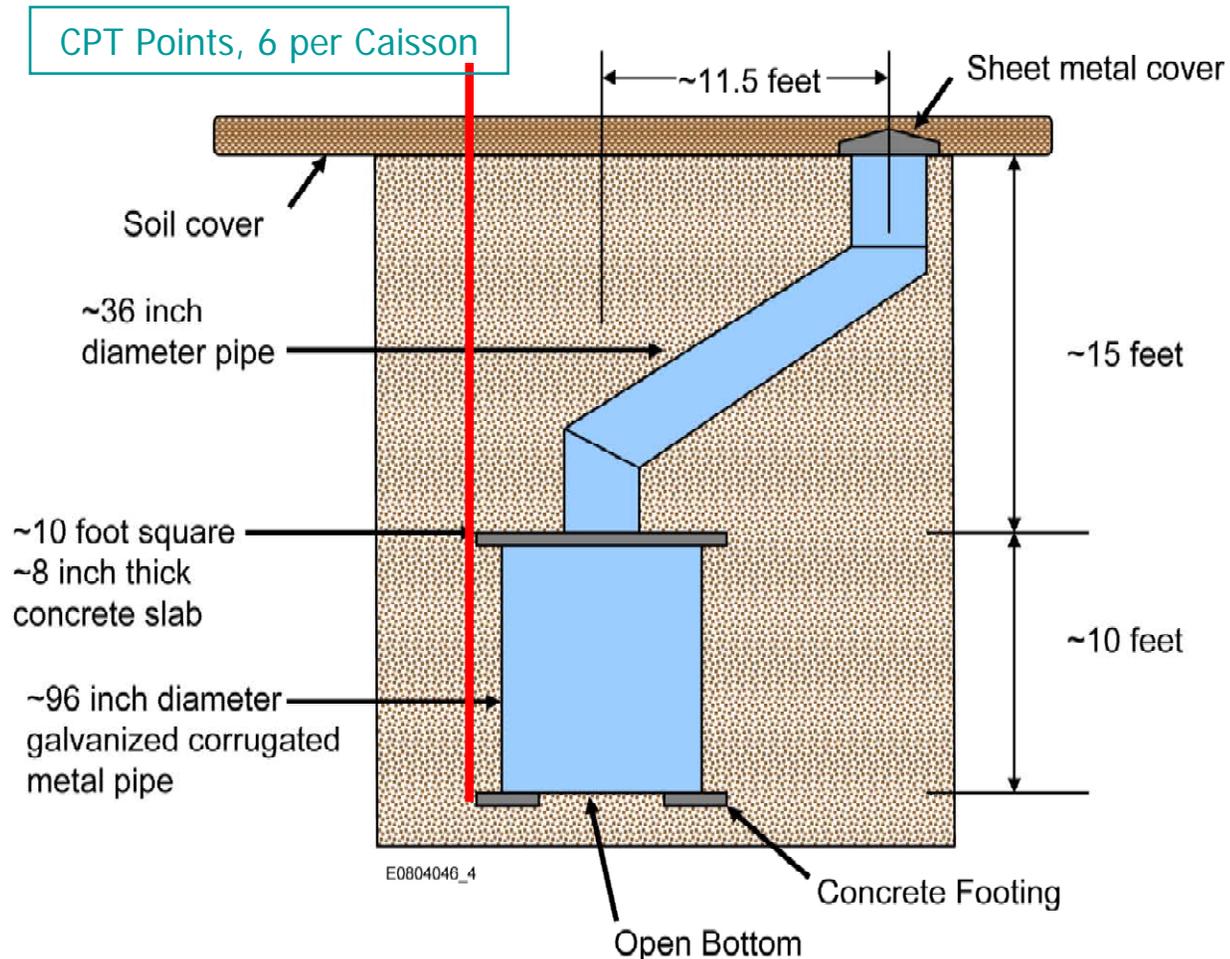




# OVERVIEW (cont.) / WASTE FORMS / VPU'S



# OVERVIEW (cont.) / WASTE FORMS / CAISSONS



# OVERVIEW / REVIEW

## Current Plan / Scope

- DOE to start with 618-10 to gain experience
- 618-11 Phase I – Non-intrusive Characterization
  - Radiological characterization of trenches, caissons and VPUs
  - Geophysical surveys including ground penetrating radar and EMI to locate VPUs and caissons
  - Drive Cone Penetrometers (CPTs) around perimeter of each VPU and caisson and along centerline of each trench (~350 Total)
  - In-situ radionuclide characterization using multi-detector probe inserted in CPTs
  - Soil samples adjacent to and below base elevations of the waste units

# OVERVIEW / REVIEW

## Current Plan (cont.)

- 618-11 Phase II – Intrusive Sampling Activities  
(Not yet approved in DOE SER, not within scope of the RLA)
  - Caisson or VPU breached with CPT, solid sample extracted, and video camera or radiation monitor inserted
  - Split spoon core drilling system to remove a measured amount of soil/waste from trenches, VPUs, or caissons
  - Pits excavated by backhoe in trenches to remove a sample
  - Backhoe excavation of VPUs or caissons has not been evaluated
- 618-11 Phase III – Remediation  
(Not within scope of the RLA)

# OVERVIEW – LONG TERM SCHEDULE

- Phase I (Non-Intrusive Characterization)
  - 618-10 Characterization – August 2009 to March 2010
  - ENW Agreement to Proceed (Phase I) at 618-11 – February 2011
  - 618-11 Characterization (Phase I) – February 2011 to February 2012
  - Analysis of Phase I Results – Feb 2012-April 2012
- Phase II (Intrusive Characterization)
  - Development of Plan for Phase II and Safety Analysis Feb – Sept. 2012
  - Submit Path Forward to DOE/RL and EPA – Sept. 2012
  - ENW Agreement to Proceed (Phase II) at 618-11 – TBD
- Phase III (Remediation)
  - Must be completed by 2018

# ANALYSIS METHODOLOGY

- Regulatory requirements/guidance review
  - 10 CFR, RIS, RG, precedent
  - Developed Requirements/Guidance Matrix
- DOE document review
  - Safety Analysis
    - Basis for Interim Operation (BIO)
    - DOE Safety Evaluation Report (SER)
    - Technical Safety Requirements (TSRs)
  - Emergency Preparedness Evaluation
    - Emergency Planning Hazards Analysis (EPHA)
    - 618-11 Emergency Plan (pending)

# ANALYSIS METHODOLOGY

- Gap analysis
  - Physical Security Plan
  - FSAR
  - Emergency Plan
  - ISFSI
  - Radiation Protection
  - Environmental Monitoring
  - Industrial Safety
  - Operations/Work Control
- Developed Gap Matrix with actions

# DOE REGULATIONS AND GUIDANCE

- 10 CFR 830, Nuclear Safety Management
- 10 CFR 835, Occupational Radiation Protection
- DOE-STD-1027-92, Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23 Nuclear Safety Analysis Reports
- DOE-STD-3011-2002, Guidance for Preparation of Basis for Interim Operation (BIO) Documents

# COLUMBIA REGULATORY REVIEW

- 10 CFR 50.54(q) - Emergency Plan
- 10 CFR 50.54(p) - Physical Security Plan
- 10 CFR 50.59
  - FSAR Change (e.g., Industrial Hazards)
  - Control Room Habitability (Radiological and Non-radiological)
- 10 CFR 72.48 (Dose Limits at ISFSI Boundary)
- 10 CFR 50.90
- 10 CFR 51 (Environmental Review)
- 10 CFR 100 (Exclusion Area Control)
- Potential Radiological Effluent Monitoring Program Impacts

# COLUMBIA REGULATORY REVIEW

- Licensing Basis Results (Phase 1)
  - Physical Security Plan – No impact
  - FSAR – Revision needed; No NRC approval (preliminary)
    - 618-10 and 618-11 evaluated
    - Control Room Habitability
    - Operational impacts
  - Emergency Plan – New EALs proposed for NRC approval
  - ISFSI – No impact (preliminary)
  - Radiation Protection – No impact
  - Environmental Monitoring – No impact
  - Industrial Safety – No impact

# COLUMBIA REGULATORY REVIEW

- Change Management Actions Identified (Phase 1)
  - Physical Security Plan – “Blue Badge” DOE workers
  - FSAR – Document only design change documenting all impacts
  - Emergency Plan – Revision with associated procedure revisions
  - ISFSI – Evaluate additional monitoring (preliminary)
  - Radiation Protection – Additional monitoring
  - Environmental Monitoring – Additional monitoring
  - Industrial Safety – No impact
  - Operations/Work Control
    - Memorandum of Understanding (MOU) with DOE Contractor
    - Communications plan
    - Training

# COLUMBIA REGULATORY REVIEW

- Regulatory analysis will be repeated for each Phase of project
- Approach, schedule, evaluation results, and conclusions will be discussed with NRC staff as desired or applicable

# ENW 618-11 PROJECT SCHEDULE

- WCH prepare and provide to ENW: Aug. 2009
  - Emergency Preparedness Hazards Assessment
  - Safety Analysis (Basis for Interim Operation)
- Finalize Memorandum of Understanding (MOU) Oct. 2009
- ENW Submittal of EAL/EP Change to NRC Dec. 2009
- ENW Design Change Issued Dec. 2009
- NRC Approval Dec. 2010
- ENW Agreement to Proceed Feb. 2011
- Perform Surface Geophysical delineation Feb. - March 2011
- Perform Phase I Characterization March - Sept. 2011
- Evaluate Results / Conduct Workshop Oct – Dec. 2011
- WCH Submit path-forward to RL and EPA March 2012