Probabilistic Performance Assessment Contract Update

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Probabilistic Performance Assessment (PPA) Contract Objectives

Develop a probabilistic model to support Phase 2 decision making for the WVDP, SDA, and WNYNSC

- Assist in developing Phase 2 alternatives to be evaluated in the Supplemental Environmental Impact Statement (SEIS)
  - Evaluate effectiveness of proposed source term removals and engineered barriers
  - Enable the evaluation of the proposed Phase 2 alternatives to the NRC’s License Termination Rule (LTR) Criteria for the WVDP

- Perform PPA of the Phase 2 alternatives evaluated in the SEIS
  - Evaluate how site contamination will disperse into the surrounding environment
  - Evaluate the consequences (doses) to human health
PPA Contract Completed Activities

- FEPS Analysis for the West Valley Site
  - Features, Events, Processes, and Scenarios (FEPS)
  - Revision 2 on www.wv.doe.gov
- Conceptual Site Model (CSM) for the West Valley Site
  - Revision 3 on www.wv.doe.gov

PPA Contract Current Activities

PPA Model Development
- Model Structure
  - Waste Management Areas (WMA’s), Facilities, Decision Units
  - Site Geology and Hydrogeology
  - Engineered Barriers – covers, barrier walls
- Input Parameter Distributions
  - Inventory – radiological and chemical
  - Material Properties – geological, hydrological, species, fluids, waste

Groundwater Modeling
- FEHM – 3D groundwater flow and contaminant transport
- Geological Framework Model – 3D structure through which FEHM runs
- Engineered Barriers – covers, barrier walls
PPA Contract Current Activities

Erosion Modeling
- Gully and hillslope erosion
- Rates - EWG field studies/modeling, site studies, LiDAR, literature, aerals
- Timing of facility encroachment

Human Dose and Risk (HDR) Modeling
- Stepwise approach – initial HDR and HDR model
  - IHDR defines the appropriate scope and complexity of the HDR model
  - Screening evaluation of importance of chemical and radiological risks
  - Are risks associated with facilities negligible or unacceptable
- Human exposure scenarios
- Radionuclide/chemical exposure concentrations – air, soil water, foodstuffs

PPA Website
- PPA reference documents
- PPA model

PPA Model Overview
• Calculations are organized by Waste Management Area (WMA), Facilities within each WMA, and Decision Units within those Facilities.
• Off-Site modeling includes creeks and Lake Erie.
SDA Decision Units (South Trenches)

Selection of SDA Facilities and Decision Units: South Disposal Area

Instructions:
In order to make selections of individual SDA Trenches and Lagoons (Facilities) and SDA Units (Decision Units) using this dashboard, make sure that the SDA Facilities are non-selectable across the task box control at the upper left corner. This control may be activated or de-activated by selecting the check box to the right of the task box. Checkboxes are used for user selection. Checkboxes are marked on the left side of the dashboard.

SDA South Disposal Area Lagoon

User req. Inst.

NDA Inactive Lagoon

WMA 7 - NDA Facilities

Map of NDA Facilities and containers for contaminant transport calculations:

- Integrated NDA Facilities
- Deep Wells
- Special Wells West
- Special Wells North
- Special Wells East
- WTP Inlet
- Calcom 1
- Calcom 2, 3, and 4
- NDA other Facilities (as a group)
- Former NDA Lagoon
- Intermediate Transfer Line
- Leachate Transfer Line

Facility and creek locations are approximate.
NDA Decision Units – Deep Holes

PPA Model - Geology/Hydrogeology
QUESTIONS?