

This document presents the work plan for the RCRA Facility Investigation (RFI)/Remedial Investigation (RI) of the Operable Unit Number 3 (OU 3) at the Rocky Flats Plant (RFP), Jefferson County, Colorado. This work plan includes a field sampling plan (FSP) that presents the investigation planned to evaluate the presence or absence of contamination at Individual Hazardous Substance Sites (IHSSs) within OU 3. The FSP presented in this work plan is based on the requirements of the Interagency Agreement (IAG) amongst the Department of Energy, Environmental Protection Agency, and the State of Colorado Department of Health. Four IHSSs, as identified in the IAG, are included in OU 3. They are IHSS 199 (contamination of the Land's Surface), IHSS 200 (Great Western Reservoir), IHSS 201 (Standley Lake), and IHSS 202 (Mower Reservoir).

Section 1.0 of this work plan presents introductory information and a general characterization of the region and plant site. In addition, the regional geology and hydrology at Rocky Flats are discussed. **Section 2.0** presents descriptions of the site physical characteristics, histories and previous investigations, available information concerning the nature and extent of contamination, and conceptual models for each of the 4 IHSSs based on existing data. This initial characterization forms the basis for establishing data needs, data quality objectives (DQOs), and developing an FSP for each IHSS. **Section 3.0** presents applicable or relevant and appropriate requirements (ARARs) developed for OU 3. **Section 4.0** outlines RFI/RI tasks to be performed. **Section 5.0** establishes data needs and DQOs considering site characteristics and conceptual models of each IHSS in OU 3. A Field Sampling Plan, based on the requirements of the IAG, is presented in **Section 6.0** to satisfy the data needs and DQOs identified in Section 5.0. The Human Health Risk Assessment Plan and Environmental Evaluation Plan are presented in **Sections 7.0** and **8.0**, respectively. **Section 9.0** presents the general schedule for the RFI/RI tasks. A Quality Assurance Addendum and Standard Operating Procedure Addenda are presented in **Sections 10.0** and **11.0**, respectively. A list of references is presented in **Section 12.0**.

The IAG also required preparation of separate historical information summaries and preliminary human health risk assessments for IHSS 199 and IHSSs 200 to 202. The Final Past Remedy Report Operable Unit No. 3-IHSS 199 (DOE, 1991a) and the Historical Information Summary and Preliminary Health Risk Assessment Operable Unit No. 3 IHSS 200 to 202 (DOE, 1991b) were submitted to EPA in April 1991. The two reports currently are undergoing final review by EPA and CDH (DOE, 1991a; DOE, 1991b). These reports describe OU 3 site physical and chemical

characteristics, provide synopses of environmental investigations conducted to date at OU 3, formulate conceptual models for contaminant fate and mobility, provide preliminary human health risk assessments based upon existing data, and identify additional data needed to support a detailed site characterization and the Baseline Risk Assessment (Human Health Risk Assessment and the Environmental Evaluation) for OU 3. The information in these preliminary OU 3 reports was used to support the Site Characterization (Section 2.0) and development of DQOs (Section 5.0) in this Work Plan.

DQOs have been developed for this RFI/RI investigation. DQOs are qualitative and quantitative statements that describe the quality and quantity of data required by the RFI/RI. The DQO process is divided into three stages. Through application of the DQO process, site-specific RFI/RI goals are established and data needs are identified for achieving these goals.

The following objectives of the OU 3 RFI/RI have been identified:

- Characterize the physical features and ecological characteristics
- Characterize the nature and extent plutonium and americium contamination at each IHSS in each media that is a potential pathway
- Assess the presence or absence of other chemicals that may be in OU 3 in sediments and surface waters
- Collect data to support the Human Health Risk Assessment
- Collect data to support to Environmental Evaluation

Within these broad objectives, site-specific data needs have been identified based on the conceptual models and preliminary identification of contaminant-specific ARARs for OU 3 and data needs for the Baseline Risk Assessment. The FSP is briefly summarized below.

SOIL

Surface soil samples will be collected within a 1,000-meter grid east of Indiana Street. Vertical profile soil samples will also be collected in undisturbed areas. Soil samples will be analyzed for radionuclides, total organic carbon (TOC), bulk density, and grain size.

SEDIMENT

Sediment samples will be collected in the OU 3 drainages and in the three reservoirs. Sediment samples will also be collected along the shores of each of the reservoirs. Sediment samples will be analyzed for radionuclides, target compound list (TCL) volatiles, target analyte list (TAL) metals, TOC, bulk density, and grain size.

SURFACE WATER

Surface water samples will be collected in the OU 3 drainages and in the three reservoirs. The samples will be analyzed for radionuclides, TCL volatiles, TAL metals, cations/anions, dissolved oxygen, pH, and specific conductance.

GROUNDWATER

Two groundwater monitoring wells will be installed near Great Western Reservoir and two groundwater monitoring wells will be installed near Standley Lake. The groundwater samples will be analyzed for radionuclides and cation/anions.

AIR

Air samples will be collected in low-lying areas along the shores of Great Western Reservoir and Standley Lake. The air samples will be analyzed for plutonium and americium.

TERRESTRIAL BIOTA

Qualitative and quantitative field surveys will be conducted. Vegetation, wildlife/habitat types, and wetlands/riparian zones will be identified as part of the qualitative surveys. Vegetation

(aboveground biomass), wetlands vegetation, and small mammals will be sampled as part of the quantitative surveys and analyzed for radionuclides and TAL metals.

AQUATIC BIOTA

Benthic macroinvertebrates, periphyton, and fish will be sampled and analyzed for radionuclides and TAL metals.

Data collected during the OU 3 RFI/RI will be incorporated into the existing Rocky Flats Environmental Database System (RFEDS) database. These data will be used to better define site characteristics, source characteristics, and the nature and extent of contamination; and to support the Baseline Risk Assessment (Human Health and Environmental Evaluation). An RFI/RI Report will be prepared summarizing the data obtained during the field investigation program and containing the Baseline Risk Assessment.

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