ROCKY FLATS SITE REGULATORY CONTACT RECORD 2019-04

Purpose: North Walnut Creek Slump (NWCS) Area and Solar Ponds Plume Treatment System (SPPTS) Subsurface Investigation and Soil Disturbance Review Plan

Contact Record Approval Date: August 29, 2019

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Date of Consultation Meetings: May 23, 2019

Consultation Meeting Participants: Lindsay Masters, CDPHE; Scott Surovchak, Andy Keim, DOE; Vera Moritz, EPA; Linda Kaiser, David Ward, Patty Gallo, Ryan Wisniewski, Jeremy Wehner, John Boylan, George Squibb, Navarro

Related Contact Records: CR 2017-03

Introduction: DOE is proposing to conduct additional subsurface investigation activities around the Solar Ponds Plume Treatment System (SPPTS) and North Walnut Creek Slump (NWCS) area. The most recent investigation efforts conducted in this area were approved by contact record (CR) 2017-03 in response to slumping of the hillside east of the SPPTS. The proposed investigation activities will include drilling boreholes to collect samples for geotechnical analysis and installing piezometers (PZs) and nested inclinometers to evaluate groundwater availability and slope stability. Additionally, a total of three test pits will be excavated to confirm the locations and condition of subsurface trenches and former utility corridors.

Discussion: The activities associated with the proposed investigation have been grouped into four sections, based on the infrastructure involved and the investigation objective: Interceptor Trench System Sump (ITSS) area, SPPTS groundwater collection trench (eastern portion), SPPTS groundwater collection trench (western portion), and Interceptor Trench System (ITS) extension.

ITSS Area

Investigation activities in the ITSS area (Figure 1) will include drilling two boreholes, each approximately 8 inches in diameter, with a hollow stem auger. The estimated depth of the borings will be 20 to 60 feet (ft) below grade and will penetrate unweathered bedrock. The borings will allow geotechnical data to be collected. Each borehole will then be converted to a

PZ or inclinometer. The data collected will be used to analyze slope stability and identify any additional risk to infrastructure in the area.

SPPTS Groundwater Collection Trench (Eastern Portion)

Investigation activities along the eastern part of the SPPTS groundwater collection trench include using a hollow stem auger to drill one borehole, approximately 8 inches in diameter, just north of the trench (Figure 1). The estimated depth of the boring will be 20 to 60 ft below grade, and it will penetrate unweathered bedrock. The boring will be used to perform in situ hydraulic conductivity testing, collect geotechnical soil samples, and install a PZ or inclinometer. The data collected will assist in the assessment of potential flow into the SPPTS trench on the eastern end and help identify movement of the groundwater collection trench and road above the slumped area.

SPPTS Groundwater Collection Trench (Western Portion)

Investigation activities along the western part of the SPPTS trench include using a hollow stem auger to drill approximately 3 to 8 boreholes, each approximately 8 inches in diameter, and excavating one test pit. The boreholes will be located west of the SPPTS trench (Figure 1). The estimated depth of the borings will be 20 to 60 ft below grade, and each will penetrate unweathered bedrock. Geotechnical samples will be collected from the borings, and the borings will be converted to PZs and inclinometers. The data from the boreholes will be used to assess groundwater quality and quantity in evaluating a potential extension of the SPPTS groundwater collection infrastructure towards the west. Field nitrate testing of groundwater in the borehole, using test strips, will be performed to quickly check for elevated nitrate. An elevated nitrate reading in the field will cause an additional boring to be drilled west of the current borehole. Additional borings will continue until a maximum of 8 boreholes is reached, the boundary of the Preble's Meadow Jumping Mouse (PMJM) Exclusion Area is reached (Figure 2), or nitrate concentrations as indicated by field test strips are not above 10 milligrams per liter (mg/L) (indicating additional borings are no longer warranted).

One test pit will be excavated just west-southwest of the western end of the SPPTS groundwater collection trench to confirm the location and presence of a former utility corridor running north-south (Figure 1). The characteristics of this utility corridor will be evaluated to determine if it may act as a preferential pathway for contaminated groundwater to potentially bypass the existing groundwater collection infrastructure that feeds the SPPTS. The test pit will be located and aligned so as to avoid disturbing existing infrastructure (monitoring well, PZ, SPPTS trench cleanout, groundwater collection components). This pit will be approximately 5 ft wide by 15 ft in length and may be as deep as 20 ft, but the expectation is that the utility corridor will be intercepted at a shallower depth. Once the corridor is exposed and bedrock is contacted, excavation will cease. At the completion of the evaluation, a 4-inch diameter sump will be installed constructed of PVC sewer pipe with perforation. The sump will be utilized for assessing water quality and volume of flow through the corridor. The sump will be surrounded by gravel, and the pit will be backfilled to preexisting grade with the soil that was removed.

ITS Extension

Investigation activities along the ITS extension include the excavation of two test pits located at connection points between the extension and the rest of the ITS (Figure 1). The test pits will be

utilized to assess the condition of the connection points and, if needed, reestablish the connection to aid in the delivery of groundwater to the ITS. The test pits will be approximately 5 ft wide by 15 ft in length and could be as deep as 20 ft; however, the expectation is that these ITS connections will be located at a much shallower depth. Once the connection points are identified, excavation will cease. After the connection points are confirmed to be functioning, the test pits will be backfilled with the soil that was removed and returned to preexisting grade. Based on the conditions observed, sumps may be installed in these test pits. The sumps would be 4 inches in diameter and constructed of PVC sewer pipe with perforation. The sumps would be utilized for assessing water quality and volume of flow around these connection points.

Preble's Mouse Habitat and Wetland Impacts

Some of the proposed work will occur in the Preble's meadow jumping mouse (*Zapus hudsonius preblei*) (Preble's) habitat (Figure 2). For the test pit excavation and borehole installation at the SPPTS Groundwater Collection Trench (Western Portion), a notification was sent to the U.S. Fish and Wildlife Service (USFWS) on May 13, 2019. This notification stated that all work would take place inside the exclusion area around the SPPTS. If work is conducted outside this area, an additional consultation will be conducted. The ITSS Area is also within Preble's habitat. The ITSS Area is covered under the original NWCS consultation for the project that was approved by USFWS on March 29, 2017. The SPPTS Groundwater Collection Trench (Eastern Portion) is outside the habitat but is also within the original NWCS consultation construction boundary. The ITS Extension area is outside Preble's habitat, though not far from the boundary of the habitat. Access to this area and all work activities will remain outside Preble's habitat.

Some impacts to wetlands may occur at the West Area and ITS Extension Area. Because this activity is part of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remedy for the Site, it is covered under Nationwide Permit 38, Cleanup of Hazardous and Toxic Waste. DOE will follow the substantive requirements of Title 10 *Code of Federal Regulations* Section 1022 (10 CFR 1022), "Compliance with Floodplain and Wetland Environmental Review Requirements," to achieve compliance with applicable or relevant and appropriate requirements (ARARs) for wetlands, listed in Table 21 of the 2006 *Corrective Action Decision/Record of Decision*.

Institutional Control (IC) Evaluation: The soil disturbance work is subject to IC 2, which is shown in Table 1. The required Soil Disturbance Review Plan (SDRP) for IC 2 is in Attachment 1.

Table 1. Institutional Controls

IC 2	Excavation, drilling, and other intrusive activities below a depth of three feet are prohibited, without prior regulatory review and approval pursuant to the Soil Disturbance Review Plan in RFLMA Attachment 2.
	Objective: Prevent unacceptable exposure to residual subsurface contamination. Rationale: Contaminated structures, such as building basements, exist in certain areas of the Central OU (Central Operable Unit), and the Comprehensive Risk Assessment did not evaluate the risks posed by exposure to this residual contamination. Thus, this restriction eliminates the possibility of unacceptable exposures. Additionally, it prevents damage to subsurface engineered components of the remedy

The *Erosion Control Plan* for Rocky Flats Property Central Operable Unit (DOE-LM/1497-2007), approved by CDPHE and EPA, provides erosion control best management practices that will be implemented for this project.

Resolution: CDPHE, after consultation with EPA, has approved the activities described in this CR. CDPHE has determined that the proposed activities (1) will not compromise or impair the function of the remedy or (2) result in an unacceptable release or exposure to residual subsurface contamination. CDPHE has also determined that the proposed activities meet the rationale and objectives of IC 2.

The work will be conducted after approval of this CR, but DOE will not conduct the approved soil disturbance until 10 calendar days after this CR is posted on the Rocky Flats website and stakeholders are notified of the posting in accordance with the *Rocky Flats Legacy Management Agreement* (RFLMA) Public Involvement Plan.

Progress and the completion of the work will be reported by DOE in RFLMA quarterly and annual reports of surveillance and maintenance activities for the period(s) in which these activities occur.

Action Complete: The activities approved in this CR will be complete when the boreholes are drilled, PZs and inclinometers have been installed, test pits have been filled back to grade, post-disturbance reseeding has been performed, and post-disturbance soil erosion controls are in place.

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Figure 1 Proposed Subsurface Investigation at North Walnut Creek Slump (NWCS) and Solar Ponds Plume Treatment System (SPPTS)



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Figure 2 Preble's Meadow Jumping Mouse Habitat, Protection Area and Exclusion Area

Attachment 1

Rocky Flats Legacy Management Agreement Soil Disturbance Review Plan

Proposed Project: Soil Disturbance Review Plan (SDRP) for the North Walnut Creek Slump (NWCS) Area and Solar Ponds Plume Treatment System (SPPTS) Subsurface Investigation

This SDRP provides information required by RFLMA Attachment 2, "Legacy Management Requirements," Section 4.1, "Soil Disturbance Review Plan," regarding the work proposed by DOE.

Description of the proposed project, including the purpose, the location, and the lateral and vertical extent of excavation.

DOE is proposing to conduct additional subsurface investigation activities around the SPPTS and NWCS areas. Investigation activities will involve the excavation of test pits and installation of boreholes, which will be converted to PZs or nested inclinometers/PZs. The test pits will be used to locate and identify characteristics of subsurface features. The boreholes will be used to evaluate the geotechnical properties of soils; the PZs will be used to collect groundwater samples and water levels; and the inclinometers will monitor slope movement. These activities will take place within four small, distinct areas referred to herein as the ITSS area, SPPTS groundwater collection trench (western portion), and ITS extension.

Information about any remaining subsurface structures in the vicinity of the proposed project (or state that there are none if that is the case).

Remaining subsurface structures in the project area include:

- ITS lines
- SPPTS groundwater collection trench and associated components (e.g., PZs and cleanouts)
- ITSS collection sump, transfer lines, and electrical lines
- Monitoring wells P210089 and B210489
- PZs near the eastern portion of the SPPTS groundwater collection trench

Information about any former Individual Hazardous Substance Sites (IHSSs), Potential Areas of Concern (PAC), or other known or potential soil or groundwater contamination in the vicinity of the proposed project.

IHSS 101, Solar Evaporation Ponds. A large area south of the SPPTS is located within former IHSS 101, Solar Evaporation Ponds. This IHSS was closed with No Further Accelerated Action in 2003. A closure summary is provided below.

In accordance with Environmental Restoration RSOP Notification #02-08, soil was removed from six hot spot locations. Confirmation sampling was conducted in the excavations to confirm that sufficient soil had been removed. All contaminant concentrations and activities were less than Rocky Flats Cleanup Agreement (RFCA) Tier II Soil Action Levels (SALs), except for one beryllium concentration, which was slightly greater than the RFCA Tier II SAL (1.10 milligrams per kilogram [mg/kg] versus 1.04 mg/kg). None of the results exceeded the wildlife refuge worker (WRW) SALs.

Fourteen surface and 25 subsurface soil samples were collected and analyzed for radionuclides and metals. Some of the samples were also analyzed for nitrate. All contaminant concentrations and activities in the sampled areas were below RFCA Tier II SALs, except for one beryllium concentration and 16 arsenic concentrations. The beryllium concentration that exceeded the Tier II SAL was 1.10 mg/kg, and the SAL was 1.04 mg/kg. The arsenic concentrations that exceeded the Tier II SAL ranged from 13.0 to 36.3 mg/kg, and the SAL was 2.99 mg/kg. All contaminant concentrations and activities were less than the WRW SALs, except for one subsurface manganese concentration and 8 arsenic concentrations (in surface and subsurface soil). The manganese concentration that exceeded the WRW SAL was 5900 mg/kg, and the WRW SAL is 3480 mg/kg. The arsenic concentrations that exceeded the WRW SAL is 3480 mg/kg, and the WRW SAL is 22.2 mg/kg.

After completion of accelerated actions, No Further Action was recommended for IHSS 101 based on the following:

- Contaminant concentrations and activities were less that RFCA Tier II SALs, with minor exceptions. No Tier I SALs were exceeded.
- Results of an evaluation indicated additional action was not necessary.

After review of the Closeout Report for IHSS Group 000-1 by the regulatory agencies, DOE received approval from CDPHE for the No Further Accelerated Action status for the Solar Evaporation Pond Area of Concern (IHSS 101) on July 25, 2003.

Building 308D. Two of the geotechnical boreholes will be drilled near the ITSS, which is located east/southeast of the former Interceptor Trench Pump House (ITPH) known as building 308D. The building was removed as documented in the September 22, 2003 Type 1 Facility Closeout Report for Buildings 308B and 308D. The closeout report indicates that utilities were disconnected and capped 3 feet below grade.

PAC NE-1409. Former PAC NE-1409 is also in the vicinity of the ITSS. This was the location of a fully contained spill of hazardous waste in 1993. No release to the environment was known to have occurred from the incident. However, soil samples were collected around the containment structure. Results indicated all analyte concentrations were less than the soil action levels and PAC NE-1409 was closed with No Further Action in 2002.

Additional information on the closure of these areas may be found in the FY2005 Final Historical Release Report, which is Appendix B to the RCRA Facility Investigation – Remedial Investigation/Corrective Measures Study – Feasibility Study Report for the Rocky Flats Environmental Technology Site. This document is available on the LM Rocky Flats website.

There is a potential for contaminated groundwater to be encountered during drilling activities. The proposed borehole locations overlie parts of the Solar Ponds Plume, which contains groundwater contaminated with nitrate and uranium. Groundwater from the Solar Ponds Plume is treated at the SPPTS. Groundwater encountered during the project will be field-screened using nitrate as a contamination indicator. If excess water is generated during these activities, and that water is contaminated with nitrate, it will be dispositioned upgradient of SPPTS collection trench as previously approved in CR 2008-06. Contamination control and worker protection are addressed in the project planning documents.