

ROCKY FLATS SITE

REGULATORY CONTACT RECORD 2016-03

Purpose: Geoprobe Investigation of the Groundwater System Upgradient of the Original Landfill and the Soil Disturbance Review Plan

Contact Record Approval Date: July 28, 2016

Site Contact(s)/Affiliation(s): Scott Surovchak, U.S. Department of Energy (DOE); Clay Carpenter, Linda Kaiser, David Ward, Navarro Research and Engineering, Inc. (Navarro)

Regulatory Contact(s)/Affiliation(s): Carl Spreng, Colorado Department of Public Health and Environment (CDPHE); Vera Moritz, U.S. Environmental Protection Agency (EPA)

Date of Consultation Meeting: July 18, 2016

Consultation Meeting Participants: Scott Surovchak, DOE; Carl Spreng, CDPHE; Vera Moritz, EPA; Clay Carpenter, Linda Kaiser, John Boylan, George Squib, David Ward, Michelle Hanson, Navarro

Introduction: Contact Record (CR) 2015-03, May 26, 2015, approved immediate action to address areas of subsidence and the resulting standing water on portions of the surface of the Original Landfill (OLF). This subsidence was caused by several weeks of precipitation in the spring of 2015. (May 2015 has been noted as the wettest May in Colorado's recorded history.) The immediate action was successful in improving drainage of water on the surface of the OLF. In September 2015, CR 2015-06 approved an action to contour the East Perimeter Channel (EPC) and the eastern edge and western side of the OLF to reestablish surface water flow off the OLF cover towards Woman Creek, and lay back a large scarp at the top of the EPC as a short-term action. However, in the spring of 2016, the EPC and some of the surrounding area slumped, but not as significantly as in 2015. Therefore, the slope instability continues as an ongoing issue.

The slope instability has been investigated by geotechnical consultants who determined that the instability at the OLF can be attributed to three factors:

- Comparatively weak soils that naturally underlie the OLF area
- A slope angle that is sufficiently steep such that the soils can mobilize downslope
- Water is introduced into the already weak soils from one or more sources, including surface run-on and runoff, precipitation and infiltration, and groundwater

Of these three factors, groundwater appears to have the greatest potential impact on slope stabilization of the EPC and eastern edge and western side of the OLF. Moreover, unlike the other two factors, there are potential options that could be implemented to improve stability by reducing the volume of water entering the OLF. The slumping is most significant in the spring

when overall site groundwater levels are elevated; however, characteristics of the groundwater system that directly influence the OLF are not well understood. The purpose of this investigation is to provide additional information on the groundwater system in the areas that likely have the greatest contribution to the slumping in the OLF.

Discussion:

Proposed Approach: A Geoprobe (a direct push drilling rig) will be used to better identify the expected conduits of groundwater flow and to install small wells or piezometers in these areas to better understand the characteristics of groundwater. The investigation area upgradient of the OLF is identified in Figure 1. The number of potential holes will vary, depending on field results, from 10 to 50 holes that will be from 5 to 50 feet in depth. Specifically, the Geoprobe will be used to (1) confirm the expected three locations of abandoned piping/bedding materials that may be conduits for groundwater to enter the OLF; (2) install small wells in these conduits to track the movement of the water table; (3) install small wells above the eastern portion of the OLF where the most significant slumping has occurred; (4) install a small well west of the OLF near the abandoned gas line, which may be a conduit for groundwater flow entering the area; and (5) evaluate the water quality in areas that may later be disturbed or where groundwater may be removed as part of the long-term improvements. In all cases, the Geoprobe will be used on the flat bench above the OLF and outside of the waste footprint. This effort is expected to take approximately 2 weeks.

Expected Outcome/Endpoints: This effort is expected to (1) make the identification of the location of the abandoned infrastructure more accurate to better guide a potholing or water removal project that may be done in the future; (2) provide water level data targeted on the areas that likely contribute the most significant volumes of groundwater to the OLF; and (3) help DOE better understand water quality for potential future water management projects. Overall, the information gathered from this effort will be critical in determining the most effective long-term solutions for minimizing the slumping that is occurring at the OLF.

As described above, this excavation work will exceed the 3-foot depth limit specified in the Rocky Flats Legacy Management Agreement (RFLMA) institutional control (IC) 2 (RFLMA, Attachment 2, Table 4, Control 2) as shown in Table 1 below, and the required Soil Disturbance Review Plan is submitted with this contact record for regulatory approval.

Table 1. IC 2 from RFLMA, Attachment 2, Table 4, “Institutional Controls for the Central Operable Unit”

Controls	Use Restrictions
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.
	<p>Objective: Prevent unacceptable exposure to residual subsurface contamination.</p> <p>Rationale: Contaminated structures, such as building basements, exist in certain areas of the Central OU [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.</p>

The required Soil Disturbance Review Plan is in Attachment 1.

Resolution: Carl Spreng, CDPHE, reviewed the information regarding the proposed soil disturbance and excavation and, has approved this contact record. CDPHE has determined that the proposed activity will not compromise or impair the function of the remedy or result in an unacceptable release or exposure to residual subsurface contamination. CDPHE has also determined that the proposed project meets the rationale and objectives of IC 2.

DOE will not begin the approved soil disturbance until 10 calendar days after this contact record is posted on the Rocky Flats site public website and stakeholders are notified of the posting in accordance with the RFLMA Public Involvement Plan.

After completing the approval process and incorporating any required changes, CDHPE approved this contact record.

Closeout of Contact Record: Initial information from the Geoprobe investigation will be presented in the OLF path forward analysis and reported by DOE in the appropriate quarterly and annual reports of surveillance and maintenance. This contact record will be closed when the field investigation is complete in November 2017 and the area revegetated as needed.

Contact Record Prepared by: David Ward and Clay Carpenter, Navarro

Distribution:

Carl Spreng, CDPHE

Vera Moritz, EPA

Scott Surovchak, DOE

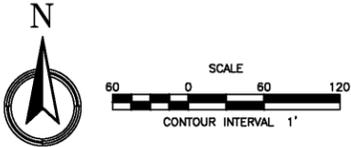
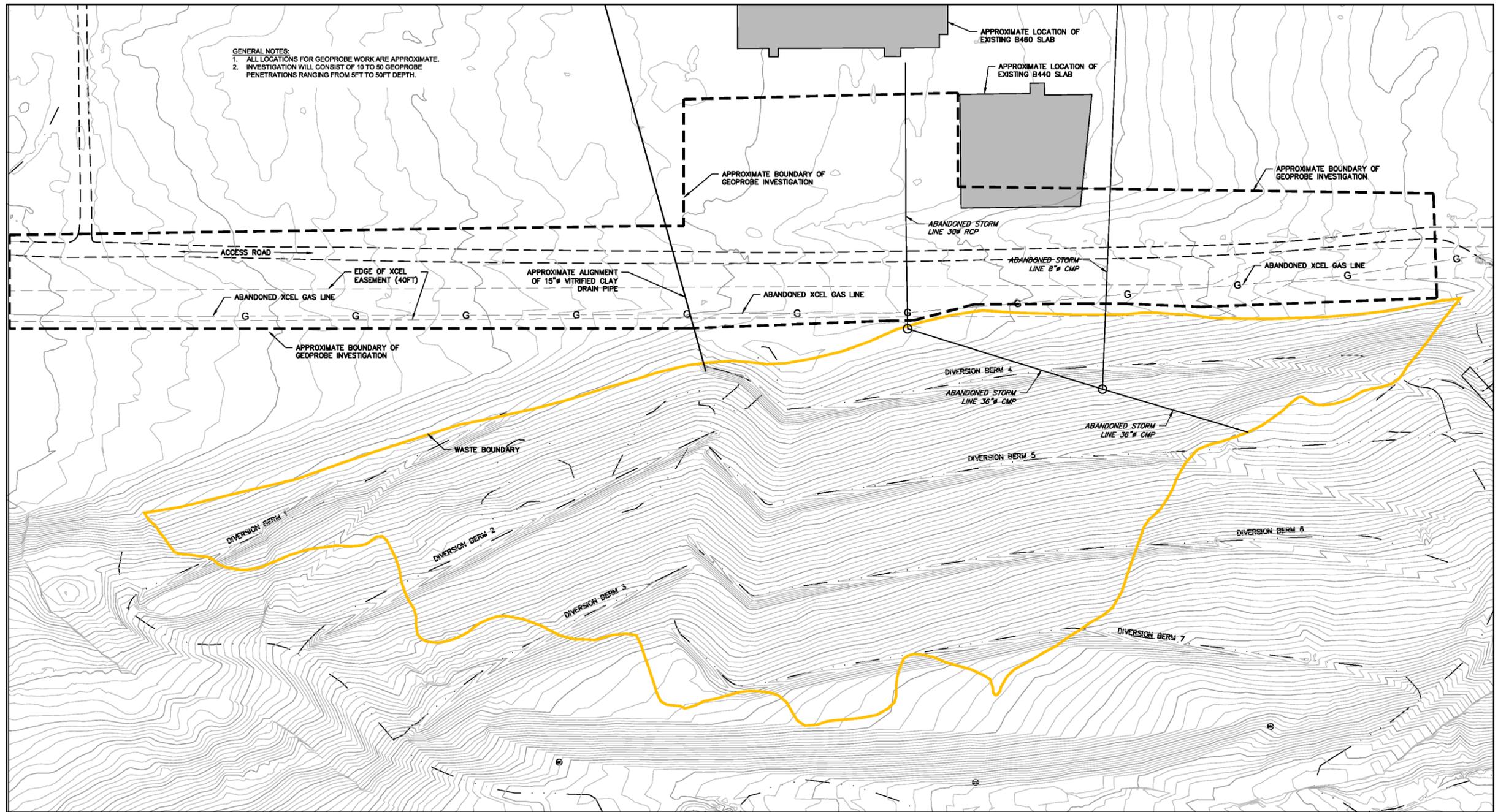
Clay Carpenter, Navarro

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File: RFS 0025.02

RF Contact Record File



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Attachment 1

Rocky Flats Legacy Management Agreement (RFLMA) Soil Disturbance Review Plan (SDRP)

Proposed Project: SDRP for Geoprobe Investigation of the Groundwater System Upgradient of the Original Landfill

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.

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

A Geoprobe (a direct push drilling rig) will be used to better identify the expected conduits of groundwater flow and to install small wells or piezometers in these areas to better understand the characteristics of groundwater. The investigation area upgradient of the OLF is identified in Figure 1. The number of potential holes will vary, depending on field results, from 10 to 50 holes that will be from 5 to 50 feet in depth. Specifically, the Geoprobe will be used to (1) confirm the expected three locations of abandoned piping/bedding materials that may be conduits for groundwater to enter the OLF; (2) install small wells in these conduits to track the movement of the water table; (3) install small wells above the eastern portion of the OLF where the most significant slumping has occurred; (4) install a small well west of the OLF near the abandoned gas line, which may be a conduit for groundwater flow entering the area; and (5) evaluate the water quality in areas that may later be disturbed or where groundwater may be removed as part of the long-term improvements. In all cases, the Geoprobe will be used on the flat bench above the OLF and outside of the waste footprint. This effort is expected to take approximately 2 weeks.

(2) Information about any remaining subsurface structures in the vicinity of the proposed project.

As indicated in Figure 1, the slab foundation for Building 460, Consolidated Non-Nuclear Manufacturing Building, lies to the north of the investigation area. The southern edge of the foundation for Building 440, Modification Center Non-Nuclear Building, lies just inside the investigation area. The following abandoned or removed utilities cross through the investigation area: sanitary sewers, electrical power lines, alarm lines, raw water lines, and culverts and storm water drains. It is anticipated that these abandoned utilities may be encountered during the Geoprobe investigation; in fact it is one of the intentions of the investigation to Geoprobe into the storm water drains as appropriate. There is an Xcel Energy abandoned gas line in the investigation area and the Geoprobe investigation near that line will be coordinated with Xcel Energy.

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

IHSS 400-157.2, Radioactive Site South Area, lies to the north and outside of the investigation area; therefore, there will be no material from that area in the investigation area. The Industrial Area volatile organic compound plume lies below portions of the Geoprobe investigation area. The investigation will not affect this plume.

(4) Resurvey any new surface established in subsurface soil, unless sufficient existing data is available to characterize the surface (or state that the excavated soil will be replaced and the original contours restored).

The surface around any wells will be left at the existing grade and construction areas will be returned to the original grade.