

**ROCKY FLATS SITE  
REGULATORY CONTACT RECORD**

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**Purpose:** Targeted soil sampling at the Original Landfill (OLF) to evaluate residual contamination levels in relation to the Colorado Department of Public Health and Environment's (CDPHE's) August 2008 Policy, *End of Post-Closure Care*.

**Contact Record Approval Date:** January 20, 2010

**Site Contact(s) / Affiliation(s):** Scott Surovchak, U.S. Department of Energy (DOE); Linda Kaiser, S.M. Stoller; Rick DiSalvo, S.M. Stoller; John Boylan, S.M. Stoller; George Squibb, S.M. Stoller

**Regulatory Contact(s) / Affiliation(s):** Carl Spreng, CDPHE

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**Discussion:** The OLF was closed in accordance with the March 10, 2005, *Final Interim Measure/Interim Remedial Action for the Original Landfill* (OLF IM/IRA). While the OLF was not a hazardous waste landfill, the OLF IM/IRA identified certain Colorado Hazardous Waste Act (CHWA) hazardous waste landfill closure regulatory requirements as Comprehensive Environmental Response, Compensation, and Liability Act's (CERCLA) Applicable or Relevant and Appropriate Requirements. Under CHWA regulatory requirements, the generally applicable post-closure care period is 30 years, but this period may be shortened or extended.

Under the OLF IM/IRA, a 2-foot-thick soil cover was selected for closure. To enhance slope stability, the existing slopes and hummocky features were regraded before the soil cover was placed, and a buttress consisting of fill with a subsurface rock/geotextile drain was installed at the OLF toe. Subsurface rock/geotextile drains were also installed to minimize the expression of historical seeps on the cover surface. East and west OLF perimeter drainage channels and diversion berms on the cover were also constructed to control surface water run-on and runoff around the OLF cover. One upgradient and three downgradient wells were installed for groundwater monitoring. (Surface water quality is monitored upstream and downstream of the OLF in Woman Creek.)

The OLF Monitoring and Maintenance Plan (M&M Plan) describes the procedures to be used to maintain the integrity and effectiveness of the final cover, including conducting inspections and evaluations and making repairs as necessary. The OLF M&M Plan is incorporated by reference as an enforceable requirement of the Rocky Flats Legacy Management Agreement (RFLMA) (see RFLMA Attachment 2, "Legacy Management Requirements," Section 5.3.1). RFLMA Attachment 2 also requires that OLF groundwater well and surface water is monitored and evaluated.

CDPHE's *End of Post-Closure Care* policy discusses criteria to be evaluated to determine when post-closure care of hazardous waste landfills is no longer necessary, based on a demonstration that the closed unit does not significantly threaten human health or the environment. The CDPHE criteria include whether a closed unit may meet "clean closure" standards, or whether a performance-based evaluation shows that the closed unit does not pose a threat for which post-closure care is needed. The "clean closure" standards are based on CDPHE-specified residential- and unrestricted-use soil-screening levels.

Note that under the CDPHE policy, ending post-closure care would not necessarily mean that post-closure controls for the OLF would end. However, certain monitoring and maintenance requirements may be reduced, given that the Rocky Flats Site will remain subject to land use restrictions under an existing Environmental Covenant.

On December 14, 2009, DOE, CDPHE, and S.M. Stoller staff discussed sampling, to determine OLF residual soil contamination, because the data can indicate whether the CDPHE clean closure standards (based on screening levels) might be achieved and can address some of the CDPHE policy performance-based criteria.

DOE proposes to develop a targeted Sampling and Analysis Plan (SAP) based on a review of the pre-closure OLF residual soil contamination data. The pre-closure residual soil contamination data are between 15 and 19 years old. Natural attenuation and the impacts of regrading the surface of the OLF for closure are believed to have reduced the residual contamination levels. Also, removing small areas of radionuclide contaminated surface soil at the OLF (called "hot spots"), just before the soil cover was installed, reduced radionuclide contamination levels.

Analytical results can provide data to characterize any reduction in contaminant levels over time. The data can help establish a baseline for current conditions and make it easier to surmise when certain OLF post-closure maintenance requirements might be phased out. DOE will consult with CDPHE on the development of the SAP and the proposed sampling locations. The SAP will also address the disposal of investigation-derived materials (IDM) (drill cuttings, excess soil, equipment decontamination waste, and personal protective equipment) in designated locations within the OLF. The 2-foot-thick soil cover material will be removed before the soils under the cover are drilled, and will be replaced after the drilling to keep the cover material free from possible subsurface contamination.

The sampling work involves drilling activities prohibited by the institutional controls (ICs) incorporated into RFLMA. Drilling below the 3-foot-depth limit specified by ICs (RFLMA Attachment 2, Table 4, IC 2), and drilling and vehicular traffic on the cover of the OLF are prohibited, except for remedy-related purposes (RFLMA Attachment 2, Table 4, IC 6) and in accordance with approved procedures. The sampling will involve the presence of vehicular traffic (a drill rig and support vehicles) on the OLF cover and drilling into soil below a depth of 3 feet on the OLF cover.

DOE will submit the SAP to CDPHE for approval to conduct the drilling work.

The objective of IC 2, regarding excavations with a depth that exceeds 3 feet, is to maintain the current depth between ground surface and any subsurface contamination or contaminated structures. This IC also results in achieving compliance with the CDPHE risk management policy of ensuring that residual risks to the site user are at or below  $1 \times 10^{-6}$ . As discussed below, the proposed work achieves the objective and risk management policy goal.

The objective of IC 6 is to ensure the proper functioning of the landfill cover. The soil sampling data will provide information to evaluate the post-closure care period and are consistent with this objective. RFLMA ICs prohibit these activities unless CDPHE approves them.

CDPHE has requested that the following information be included in Contact Records that involve soil excavation:

*1 - Provide information about any remaining subsurface structures in the vicinity so that the minimum cover assumption won't be violated (or state that there are none if that is the case).*

There are no remaining subsurface structures in the vicinity, so minimum cover assumptions will not be violated. An Xcel Energy natural gas line is buried north of the OLF. Utilities will be located, and the location of the gas line will be marked before vehicular traffic and drilling work commence.

*2 - Provide information about any former Individual Hazardous Substance Sites (IHSSs)/Potential Areas of Concern or other known soil or groundwater contamination in the vicinity (or state that there is no known contamination).*

This OLF is former IHSS 115. The drilling will take place in the OLF waste footprint. The OLF is not a hazardous waste unit because it was not used for waste disposal after the effective dates of the various hazardous waste regulations. However, the OLF's historical use is typical of solid waste dumps of the time, and the wastes disposed of were plant trash and construction debris that, based on sampling, likely contained some chemicals that subsequently were regulated as CERCLA hazardous substances. The OLF IM/IRA describes the history of the OLF and the types of wastes disposed of.

The OLF was not a radioactive contaminated waste disposal area. However, there is a documented instance of placing a smoldering depleted uranium (DU) slab in the OLF to allow it to "burn out." When the burned slab was recovered, not all of the DU mass was recovered. Surface soil monitoring at the OLF also located several hot spots. Before the soil cover was placed on the OLF, the hot spots were removed (see OLF IM/IRA Appendix E.)

Use of the OLF for dumping trash and debris ended in 1968, and an unknown amount of soil was used to cover the waste. The OLF IM/IRA states that soil was used to cover the waste dumped in the OLF area during its use, and that the waste and soil are fairly well commingled.

The OLF IM/IRA contains environmental media analytical results, including results from 57 surface soil locations and 22 subsurface soil (to bedrock) borehole locations. A review of the OLF IM/IRA residual soil contamination data shows that concentrations of all analytes are below the Wildlife Refuge Worker subsurface soil Preliminary Remediation Goals, which are based on  $1 \times 10^{-6}$  risk from activities involving occasional exposure to subsurface soils, such as drilling.

Pre-closure groundwater samples from within the OLF footprint indicated localized contamination consistent with the presence of contaminated soils, but the soil sampling is not expected to result in direct contact with, or the removal of, groundwater. Post-closure groundwater sampling at the downgradient sampling wells does not indicate any anthropogenic contamination above RFLMA surface water standards.

*3 - 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 final ground contours will approximate the contours that existed prior to the drilling activities.

**Closeout of Contact Record:** This Contact Record will be closed out when the soil sampling work, including IDM disposal, is completed.

**Resolution:** The proposed drilling work to obtain soil samples at the OLF is approved as described in this Contact Record, and may commence upon CDPHE's approval of the SAP.

**Contact Record Prepared by:** Rick DiSalvo

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