

Section 2. Remedial Action Objectives, Design Criteria, and Constraints

The overall objective of the RD at OU-1 is to protect humans and wildlife while allowing for reuse of the property in accordance with the LUC RD Report (see [Appendix A](#)) and the Forest Plan ([Forest Service, 1988](#)). To achieve this goal, (1) a new cap system for the landfill will be installed to minimize infiltration through the waste, control surface water runoff, and control potential erosion from the cap; (2) a new French drain will be installed; and (3) a passive LFG control system will be installed at the site. A summary of the evaluation of removal action alternatives and the selection of this alternative (on-site containment) is presented in the Supplemental RI/FS Report ([Weston, 2007](#)).

The specific RAOs for OU-1 are as follows ([Forest Service, 2007](#)):

- Landfill area: Protect humans and wildlife from exposure to landfill refuse and soil contamination by eliminating exposure pathways and contaminant migration.
- Source area groundwater: Minimize the effects of landfill refuse and soil contaminants on groundwater quality (e.g., rainwater infiltration) and rainwater runoff.
- LFG: Protect humans and wildlife by minimizing exposure pathways and gas migration.

2.1. SITE CLEANUP GOALS AND CONFIRMATION SAMPLING APPROACH

Site cleanup goals for groundwater were established during previous investigations and are based on vinyl chloride as the primary COC at the site ([Weston, 2007](#); [Forest Service, 2007](#)). However, no soil or LFG cleanup goals have been established for this site.

For any areas where waste is to be excavated, soil confirmation sampling and comparison with industrial soil screening levels (the lower of EPA RSLs for industrial reuse [[EPA, 2008](#)]) or California human health screening levels [CHHSLs] [[California Environmental Protection Agency, 2005](#)]) are appropriate (see [Appendix F](#) for sampling requirements). In addition, where screening levels are below site-specific background values, then background values should be used for comparison. A summary of site-specific background data for metals in soil is presented in [Table 2](#). To ensure protection of wildlife, ecological cleanup goals for the primary site COC (vinyl chloride) should also be evaluated in the development of final site cleanup goals. Although no formal risk assessment was completed for vinyl chloride in soil, results of the screening-level ecological risk assessment for vinyl chloride in groundwater indicated that “the risk to ecological receptors from exposure to vinyl chloride in groundwater is considered negligible” ([Weston, 2007](#)). As a result, a site-specific soil cleanup goal for vinyl chloride was not established for

protection of wildlife. The industrial RSL for vinyl chloride in soil (1.7 mg/kg [EPA, 2008]) is considered a conservative value for this site (there is no CHHSL for vinyl chloride).

One confirmation sample will be collected for every 1,000 square feet of excavation area, or as specified in the Remedial Action Work Plan (to be completed by the contractor conducting the selected remedy)¹. Sample concentrations will be compared with applicable industrial screening levels and with available background data. A complete soil confirmation sampling strategy, along with final cleanup goals, will be presented in the Remedial Action Work Plan prior to implementation of this RD.

Concentrations of LFG COCs (vinyl chloride, methane, and hydrogen sulfide) should be compared with appropriate air quality standards. Air quality standards established in Title 27 California Code of Regulations (CCR) Section (§) 20921 and CCR Title 17 § 70200 (note, these are consistent with the “Ambient Air Quality Standards” of the El Dorado County Air Quality Management District) and the EPA industrial RSLs (EPA, 2008) are appropriate for this project. Specifically, laboratory analytical results for vinyl chloride and hydrogen sulfide will be compared with EPA industrial RSLs for air, which are more stringent than those established by Title 17 § 70200. Since EPA has not established an RSL for methane, methane monitoring must ensure that no more than 5 percent methane by volume in air will migrate off the site, in accordance with Title 27 CCR § 20921. Appendix H summarizes sampling requirements for LFG monitoring, current air quality values and data evaluation to be conducted during the operation and maintenance phase of the project. The LFG sampling strategy may be revised following completion of the RD and incorporated into the final OM&M Plan for the site.

2.2. APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

ARARs are identified on a site-by-site basis for all on-site response action where CERCLA is the basis for cleanup. A detailed description of CERCLA and National Oil and Hazardous Substances Pollution Contingency Plan (NCP) requirements for ARARs is provided in Section 2.8.1 of the ROD (Forest Service, 2007). EPA has developed three categories of ARARs to assist in the identification of site requirements (EPA, 1992). The three categories are (1) chemical-specific, (2) location-specific, (3) and action-specific ARARs. EPA guidance recognizes that some requirements do not fall neatly into this classification; however, the following definitions provide a general guideline for each of these categories (EPA, 1992):

- **Chemical-Specific ARARs** are usually health- or risk-based numerical values or methodologies that, when applied to site-specific conditions, establish the acceptable amount or concentration of a chemical that may remain in or be discharged to the ambient environment. When more than one requirement addressing a chemical is identified as an ARAR, the most stringent requirement should be used. In some cases, however, a less stringent requirement is better suited to circumstances at a site and the more stringent requirement is not the most relevant and appropriate under the circumstances.

¹ This sampling frequency is based on a very conservative grid size of approximately 30 feet by 30 feet. This grid size may be expanded during development of the Remedial Action Work Plan, if site-specific conditions so warrant.

- **Location-Specific ARARs** are restrictions placed on the concentrations of chemicals or on activities because of geographical or land use concerns. Location-specific ARARs relate to the geographical or physical position of the site (e.g., presence of wetlands, endangered species, land use, flood plains, etc.).
- **Action-Specific ARARs** are activity-based restrictions on activities or technologies taken with respect to hazardous substances. For example, regulations that dictate design, construction, and operating characteristics of incinerators, air stripping units, or a landfill are action-specific ARARs.

The RD was developed to meet all the RAOs and chemical- and location-specific ARARs specified in the ROD (Forest Service, 2007). The RD also includes measures to ensure that action-specific ARARs are met during and following implementation of the RD. Section 3 describes the design elements incorporated into the RD to address each RAO and ARAR.

2.3. COMPATIBILITY WITH FUTURE LAND USE

As discussed in Subsection 1.5, the site is located within the Tahoe Valley Management Area in zones designated as Developed Recreation and Reduced Timber Harvest areas (Forest Service, 1988). The area is currently closed to public access, subsequent to an area closure order placed in 1999 by the Forest Service to implement removal actions under CERCLA. Although the area is officially closed, recreational off-highway vehicles (OHVs), including snowmobiles, dirt bikes, and all-terrain vehicles, are known to use the surface of the current landfill cap throughout the year. The Forest Service expects to maintain closure status on the property; however, it is understood that without significant additional enforcement resources (or fencing), the area will likely remain popular for unauthorized OHV recreational use. Access restrictions are inconsistent with the Forest Plan and conflict with community input received during the RI/FS, which indicated interest in reusing the site as public space (Forest Service, 2007).

For these reasons, and to comply with CERCLA requirements that the final remedy be compatible with "reasonably anticipated future land use," the multilayer cover system was designed to accommodate OHV traffic, while maintaining the integrity of the cover system. Also, on-site structures, such as monitoring wells and gas vents, were designed to minimize vandalism and damage by trespassers. Specific design elements (discussed in Section 3) that were affected included cap construction (slope stability, erosion, and loading), and on-site structures (monitoring wells and gas vents).