

Table 4-1
Data Quality Objectives for AOC 18 (World War II Landfill)

Problem Statement

AOC 18, a World War II disposal site, is located about 300 feet south of IRP site LF01 and 400 feet northwest of Waimanalo Stream. The history of waste disposal operations at the site is unknown, but based on information presented in the *Historical Review* (CH2M HILL, September 25, 1998), it was operated from 1942 to 1943. With the exception of a pre-survey visual reconnaissance completed in July 1998 for the Bellows OU1 EE/CA, vegetation clearing, and a non-invasive geophysical survey completed in October 2001, there have been no previous investigations.

Following vegetation clearing, the floor of AOC 18 was observed to consist of mounds of rock and earth, some large rusted pieces of scrap metal, glass bottles, cans, electrical wire, and concrete. No signs of hazardous materials (such as drums, solvent cans, stressed vegetation, or electrical equipment) were observed within the depression. The geophysical survey identified buried metallic debris under the southern and northeastern portions of the AOC.

Decisions to be Made

Landfill Materials: Does the AOC contain landfill materials that could present an unacceptable risk to possible human and ecological receptors? If so, the need for further site characterization and possible remedial action needs to be determined.

Soil: Does site surface soil present an unacceptable risk to possible human and ecological receptors? Specifically, do constituents exist in surface soil and do they pose a threat to terrestrial wildlife or human receptors? If so, the need for further site characterization and possible remedial action needs to be determined.

Groundwater: Have chemicals from the landfill (if any) infiltrated to groundwater beneath the AOC to possibly present an unacceptable risk to surface water aquatic life in Waimanalo Stream? A risk assessment recently completed for Waimanalo Stream determined no unacceptable risk to human or ecological receptors from chemicals present in the stream or in fish tissue. However, if significant groundwater contamination is discovered beneath the AOC, the need for further site characterization and possible remedial action needs to be determined.

Inputs to the Decision

Landfill Materials:

- Trench observations
- Subsurface soil analytical results

Soil and Groundwater:

- Soil and groundwater analytical results
- Conceptual site exposure model
- Comparison of analytical results for soil and groundwater to screening criteria

Boundaries to the Study

- For groundwater contaminants (and soil contaminants that may potentially leach to groundwater), data will be evaluated to determine whether analytical results exceed screening criteria that are protective of surface water aquatic life (HDOH Tier 1 Soil and Groundwater Action Levels and AWQC).
- For surface soil, human health risks will be evaluated for direct-contact exposure and will be compared to acceptable levels (HDOH Tier 1 Soil Action Levels and EPA Region IX PRGs).
- NFRAP guidance criteria or technology screening will be used as necessary.

Decision Rules

- If data for soil and groundwater do not exceed screening criteria, proceed toward designation of No Further Response Action Planned (NFRAP).
- If soil and/or groundwater data do exceed screening criteria, determine whether additional data or refinement of evaluation assumptions would support a NFRAP designation or whether the site should be investigated further under the IRP.
 - If additional data or refinement of evaluation assumptions might support a NFRAP designation, identify and recommend additional data needs or specific refinements to the evaluation assumptions.
 - If the AOC requires further investigation under the IRP, identify and recommend additional data needs to support the further investigation.

Specify Limits of Uncertainty

- Analytical data must meet the project specifications for precision, accuracy, representativeness, completeness, and comparability as prescribed by the IWQAPP (CH2M HILL, August 1998b).
- AFCEE reporting limits will be compared to screening criteria to evaluate data usability.

Optimize the Design

Landfill Materials:

- Excavate trenches where the buried metallic debris was identified during the geophysical survey to characterize and define the source of the anomalies. Also excavate trenches to characterize and define the extent of landfilled materials. Collect soil samples within the trenches at locations to be determined in the field based on field screening and visual observation for contamination. Analyze trench soil samples for TPH, VOCs, pesticides, herbicides, PCBs, PAHs, and metals.

Subsurface Soil:

- Drill three soil borings within the AOC and log continuously to delineate the vertical extent of the landfill, assess the nature of contaminants in the landfill, and assess the potential impact of landfilled materials on groundwater. Collect one sample of native materials below the landfilled materials (generally at the capillary fringe of the local water table) from each boring to determine potential impacts from the landfill on soil which may leach to groundwater.
- Analyze subsurface soil samples for TPH, VOCs, pesticides, herbicides, PCBs, PAHs, and metals.

Surface Soil:

- Collect five surface soil samples (zero to 0.5 feet bgs) to evaluate potential risks to human health and ecological receptors.
- Analyze surface soil samples for TPHs, pesticides, herbicides, PCBs, PAHs, dioxins/furans, and metals.

Groundwater:

- Complete three groundwater monitoring wells within AOC 18 to characterize groundwater.
- Analyze groundwater samples for TPH, VOCs, PAHs, pesticides, herbicides, PCBs, and metals.