



**APPENDIX E
VOLUME ESTIMATES**

for

**Laboratory for Energy-related Health Research/
Old Campus Landfill Superfund Site
University of California, Davis**

prepared for

University of California, Davis
One Shields Avenue
Davis, CA 95616

prepared by

Weiss Associates
2200 Powell Street, Suite 925
Emeryville, CA 94608

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ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
COC	constituent of concern
DOE	United States Department of Energy
ET	Eastern Trenches
FS – Volume 1	<i>Final Feasibility Study for the University of California, Davis Areas Volume 1: Soil/Solid Waste and Soil Gas</i>
HFSDA	Hopland Field Station Disposal Area
LCRS	leachate collection and removal system
LEHR	Laboratory for Energy-related Health Research
LFU	landfill unit
LLRW	low-level radioactive waste
LTW	low threat waste
OCL	Old Campus Landfill
PCG	preliminary cleanup goal
PTW	principal threat waste
RCRA	Resource Conservation and Recovery Act
Site	Laboratory for Energy-related Health Research/Old Campus Landfill Superfund Site
ST	Southern Trenches
STLC	soluble threshold limit concentration
TCLP	toxicity characteristic leaching procedure
TEV	total excavated volume
UC Davis	University of California, Davis
VOC	volatile organic compound
WBH	Waste Burial Holes

E1. Introduction and Definitions

This appendix provides the basis for the assumed total excavated volumes (TEV) and waste category percentages used for estimating the cost for each of the alternatives being evaluated for the University of California, Davis (UC Davis) Laboratory for Energy-related Health Research (LEHR)/Old Campus Landfill (OCL) Superfund Site (Site), as described in the *Final Feasibility Study for the University of California, Davis (UC Davis) Areas, Volume 1: Soil/Solid Waste and Soil Gas* (FS – Volume 1). Geophysical data, exploratory trench logs, chemical analytical data, historical aerial photographs, and historical accounts from former laboratory personnel were evaluated to establish excavation volumes for each land disposal unit identified in FS – Volume 1. These land disposal units are the Eastern Trenches (ET), Landfill Unit (LFU) No. 1, LFU-2, LFU-3, the Southern Trenches (ST), and the Waste Burial Holes (WBH). The Hopland Field Station Disposal Area (HFSDA) is also considered in FS – Volume 1 as an area potentially containing buried waste. Although it is not considered a distinct land disposal unit, it is treated as such in this appendix. Within each land disposal unit, subareas and excavation depths were defined based on the description of the remedial alternatives presented in Section 5 of FS – Volume 1. TEVs for each area were then calculated.

TEVs were divided into two categories: solid waste and soil. Solid waste was further divided into three solid waste stream categories: low threat waste (LTW), principal threat waste (PTW), and biological waste. Soil and the three solid waste stream categories (LTW, PTW, and biological waste) comprise the four waste streams that make up the TEV. Once TEVs were partitioned into soil, LTW, PTW, and biological waste, each was further divided into five additional waste characteristic types based on waste characterization: non-hazardous, Resource Conservation and Recovery Act (RCRA) hazardous, non-RCRA hazardous waste as defined by California state regulations, low-level radioactive waste (LLRW), and mixed waste. Percentages of each of these five waste characterization types were assigned based on review of analytic data, when available. If data were not available for use in assigning these percentages, qualitative assessments were performed to assign waste characterization percentages. TEVs were used to estimate the cost of excavation; volumes of soil/solid waste characterization types were used to estimate transportation and disposal costs.

Section E2 describes the process of calculating TEVs. Section E3 describes the assignment of percentages of soil, LTW, PTW, and biological waste streams, as well as how analytical data were used to characterize soil and solid waste types.

The following list provides definitions used in this appendix:

Biological waste: Organic waste that is biological in origin (e.g., animal carcasses, feces, and bones).

Contact soil: Soil surrounding the sides and base of a waste cell or trench, potentially containing constituents of concern (COCs) with concentrations above the FS – Volume 1 preliminary cleanup goals (PCGs). For costing purposes, the contact soil was assumed to be two-feet thick.

Disposal cell/trench: Area where solid waste was placed for disposal within the LEHR/ OCL.

Exploratory trench: A trench excavated to assess the vertical and lateral extent of solid waste, as well as to characterize the contents and chemical/radiological composition of the material.

Geophysical survey: An investigation performed using ground-penetrating radar, magnetometry, and/or other geophysical survey methods to evaluate the characteristics of the subsurface (i.e., identify the locations of potential solid waste disposal cells/trenches).

Low-level radioactive waste (LLRW): Waste containing radioactive materials generated through industrial and/or research related activities. There is no activity threshold which categorizes waste as LLRW. For the purposes of the FS – Volume 1, LLRW is considered material with activities exceeding background.

Low threat waste (LTW): A subset of waste that is neither principal threat waste nor biological waste. The majority of waste will be considered LTW and will be comprised of solid material, including soil that could be potentially contaminated.

Mixed waste: Waste that has both RCRA hazardous waste and LLRW characteristics.

Non-hazardous waste: Waste with chemical and physical characteristics that do not meet hazardous waste classification criteria.

Non-Resource Conservation and Recovery Act (RCRA) hazardous waste: Waste that meets the State of California's criteria for material that poses a threat to human health or the environment, based on the material's characteristics.

Land disposal unit: A geographic area that contains waste. Land disposal units are depicted in Figures E-1 through E-6 and include the ET, LFU-1, LFU-2, LFU-3, the ST, and the WBH. In this appendix, the HFSDA is also treated as a land disposal unit.

Preliminary cleanup goal (PCG): A concentration established for a given COC as a remedial benchmark for protectiveness of human health and the environment.

Principal threat waste (PTW): Waste that is considered highly toxic or highly mobile or would potentially present a risk to human health or the environment in the event of exposure. PTW can be found in solid or liquid form.

Resource Conservation and Recovery Act (RCRA) hazardous waste: Waste that meets federal criteria for material that poses a threat to human health or the environment based on the material's ignitability, reactivity, corrosivity, and/or toxicity characteristics or the material's status as a listed hazardous waste.

Soil: For the purposes of this appendix, soil includes excavated overburden native soil and fill material placed on top of a waste cell. In addition, soil includes native soil/fill material excavated beyond the contact layer soil surrounding a waste cell. Soil from these locations may be contaminated.

Solid waste: Solid material discarded as refuse in the land disposal units (e.g., laboratory wastes, municipal waste, etc.). Solid waste may be commingled with soil. For the purposes of FS – Volume 1 and this appendix, solid waste is assumed to be found within waste cell boundaries.

Subarea: An area within the boundaries of a land disposal unit based on criteria for a specific alternative or the vertical and lateral extent of contamination.

Total excavated volume (TEV): The volume of material excavated to access waste and contaminated soil. The TEV is the total volume of the waste, contaminated soil, and clean soil.

Volatile organic compound (VOC) “hot spot:” A volume of soil that has demonstrated elevated levels of VOC soil gas concentrations in previous investigations.

Waste cell: The generic term for a disposal trench or hole and referring to the three-dimensional space assumed to contain a mixture of contaminated soil and solid waste (soil/solid waste).

Waste stream: A general category of waste composed of materials with similar physical characteristics. The four waste streams included in this appendix are soil, LTW, PTW and biological wastes. The volumes of these four waste streams comprise the TEV for an individual subarea.

Waste characterization type: A sub-category which divides wastes into groups with similar chemical or radiological characteristics. Waste characterization types include RCRA hazardous, non-RCRA hazardous, LLRW, mixed waste, and non-hazardous waste.

E2. Methodology for Estimating Total Excavation Volumes

Approximate excavation boundaries were delineated to target waste cells within each land disposal unit; boundaries were defined based on the review of geophysical data, exploratory trench logs, chemical analytical data, historical aerial photographs, and historical accounts from former laboratory personnel. In LFU-1, the ET, and the ST, little evidence is available for reliable delineation of waste cells. Therefore, these units are treated as single waste cells because geophysical anomalies appear throughout their extent. Within each land disposal unit, subareas were further delineated to capture areas with elevated concentrations of COCs and/or according to specific requirements of an alternative. Table E-1 summarizes the alternative-specific subareas as outlined in Section 5 of FS – Volume 1. In order to estimate excavated volumes, an additional two feet of contact soil were added to the waste cell boundaries to account for potentially contaminated contact soil adjacent to and beneath the waste cells. The excavation subareas in this appendix were created for estimation purposes only, allowing for comparison between remedial alternatives. Actual areas of excavation during the remedial action phase are subject to change and will be finalized in the Remedial Action Work Plan.

Depths of disposal cells were estimated using trench logs from previous exploratory trench investigations (Dames & Moore, 1996a; Dames & Moore, 1996b; Dames & Moore, 1996c; Dames & Moore, 1997; Dames & Moore, 1998a; Dames & Moore, 1998b). The mean depth of the disposal cells within a given land disposal area or subarea was computed by averaging the maximum waste depths observed in the exploratory trenches within that land disposal unit or subarea. The two-foot layer of contact soil was added to this average depth. Analytical data within the excavation subarea were also reviewed to assess whether the assumed excavation depth should be deepened beyond the two-foot contact soil layer boundary to include soil with elevated levels of FS – Volume 1 COCs. Tables E-2 through E-7 show the concentrations of FS – Volume 1 COCs remaining within a land disposal unit based upon the depths of excavation assumed for each land disposal unit. After

finalizing the assumed waste depth for a given subarea, the depth was multiplied by the corresponding planar area to compute the TEV for that subarea.

Figures E-1 through E-7 depict the location of the subareas within each land disposal unit. The following subsections provide information on the estimation of TEVs for each land disposal unit. Table E-1 correlates the excavation subareas with the proposed alternatives described in the FS – Volume 1.

E2.1. Eastern Trenches

Although geophysical anomalies and exploratory trenches give some indication of the distribution of waste within the ET, there is moderate uncertainty about its exact location. Delineation of specific disposal cells/trenches was not obvious in the available aerial photographs. Based on information from exploratory trench logs and preliminary survey reports (DOE, 1988), solid waste was mainly disposed of in long, north-south oriented trenches (as shown via the geophysical anomalies and historically interpreted trench locations on Figure E-1). Previous reports suggest that five additional shorter east-west disposal trenches are present in the northernmost area of the ET (DOE, 1988). Historical accounts indicate that the trenches were typically 2 feet wide, 40 to 200 feet long, had a maximum depth of 10 feet, and had 4 feet of cover material (DOE, 1988). Field observations during the remedial investigation suggest that the trenches are approximately 6 feet deep (Geomatrix, 2004). Within the ET, volumes were calculated for the following (Figure E-1):

ET North: This subarea refers to the northernmost area of the ET which protrudes north beyond the northern boundary of LFU-2 and the Cobalt-60 Building Annex (H-290). Based on historical accounts, three of five east-west oriented disposal trenches are included in this subarea. The assumed excavation depth at the ET North is 8 feet below ground surface (bgs).

ET South: This subarea includes the southern portion of the ET, which makes up the majority of the land disposal unit. Based on historical accounts, ET South includes two east-west oriented disposal trenches and six north-south oriented disposal trenches. To account for the uncertainty in reliably delineating the location of waste cells, the subarea excavation boundary was extended to coincide with the land disposal unit boundary. The ET South is bordered by LFU-2 to the west and has northern and southern boundaries collinear with those of LFU-2. The average excavation depth for the majority of ET South is 8 feet bgs. Under the proposed remedial alternative in which a bottom liner and leachate collection and removal system (LCRS) are installed under the disposal unit (Alternative SW-8, Table E-1), the ET South area would be excavated to 20 feet bgs to accommodate liner construction and installation.

ET VOC “Hot Spot”: This subarea refers to the approximately 1,600-square-foot area (40 feet by 40 feet) on the eastern edge of the ET, where high concentrations of VOCs have been detected in previous soil gas investigations (see Appendix A of the FS – Volume 1; Dames and Moore, 2000). The dimensions of the “hot spot” excavation were selected to encompass the area showing the highest relative soil gas concentrations, as indicated in a passive soil vapor survey (Dames and Moore, 2000), and extend to a depth of 20 feet to capture soil with the highest concentrations of soil

gas VOCs at 15 feet bgs plus an additional 5 feet of soil (Appendix B, Figure B-3). The ET VOC “hot spot” is split into two subareas:

ET VOC “hot spot” east: The eastern subarea lies outside the ET land disposal unit boundary and is assumed not to contain waste cells. Under alternatives which would require the excavation of the ET VOC “hot spot,” the ET VOC “hot spot” east would be backfilled with clean fill. Under alternatives in which the LFU-2/ET/WBH area is capped, the ET VOC “hot spot” east would be excluded from the capped area and backfilled with clean fill.

ET VOC “hot spot” west: ET VOC “hot spot” west lies within the ET land disposal unit boundaries and is assumed to contain waste cells. It will be capped under alternatives that include capping of the LFU-2/ET/WBH area. Under such alternatives, the ET VOC “hot spot” west would be backfilled with non-PTW excavated material.

Trenches with Known Principal Threat Waste (ET): According to exploratory trench logs, PTW is known to occur in trenches TRL-45, TRL-48, 24, and 26 (Dames & Moore, 1997). However, the current locations of these trenches were estimated based on un-surveyed geophysical anomalies. To confirm the locations of these original exploratory trenches, new spatially-referenced geophysical surveys would be conducted. The results of these surveys would be compared to previous survey results to re-establish the locations of the original exploratory trenches and the potential location of PTW. These trenches would be excavated, and the PTW would be sent for off-Site disposal. The total volumes of the original exploratory trenches were used to estimate the TEV of the new trenches potentially containing PTW. Based on the trench logs, this assumption is conservative because PTW was estimated to comprise a small percentage of the total excavated volume of the original exploratory trenches (less than two percent). These trenches would be excavated and the PTW disposed of off-Site.

Proposed Exploratory Trenches (ET): Four additional exploratory trenches are proposed in the ET. Proposed trench locations were selected for areas where geophysical anomalies were identified and no previous exploratory trenches were excavated. Trench locations would be based on the results of the geophysical survey mentioned above. Excavation in these trenches would continue until no further PTW is encountered.

Table E-2 shows the samples that would be removed based on the assumed excavation boundaries and highlights the post-excavation ET COCs exceeding FS – Volume 1 PCGs. The majority of COCs exceeding PCGs would be removed.

E2.2. Landfill Unit No. 1

Delineation of specific disposal cells/trenches was not obvious based on the available historical aerial photographs. However, geophysical anomalies suggest the presence of waste cells

and trenches throughout much of the land disposal unit (Figure E-2). Exploratory trenches confirmed the presence of waste (Dames & Moore, 1996a); however, much of the unit has not been investigated, leaving uncertainty in defining waste location and extent. According to the available exploratory trench logs, the bottoms of the waste disposal cells were observed to vary from 4 to 8 feet bgs (Geomatrix, 2004).

Within LFU-1, volumes were calculated for the following excavation areas (Figure E-2):

LFU-1 Drainage Area: The area of LFU-1 that runs adjacent to the Putah Creek levee to the south and to the east of the north-south trending drainage area, which discharges to a culvert at the southeast corner of LFU-1. This area would include the current X-buildings. The assumed excavation depth of this area is 10 feet bgs.

LFU-1 Non-Drainage Area: The majority of LFU-1 encompassed by the LFU-1 disposal unit boundary but exclusive of the LFU-1 Drainage Area. The assumed excavation depth of this area is 10 feet bgs. To account for the uncertainty in the location of waste cells in LFU-1, the subarea excavation boundary was extended to coincide with the land disposal unit boundary. This area includes the trenches with known PTW and proposed exploratory trenches in LFU-1.

Trenches with Known Principal Threat Waste (LFU-1): According to exploratory trench logs, PTW is known to occur within the LFU-1 boundary in trenches TRL-35 and TRL-36 (Dames & Moore, 1996a). However, the current locations of these trenches were estimated based on un-surveyed geophysical anomalies. To confirm the locations of these original exploratory trenches, new spatially-referenced geophysical surveys would be conducted. The results of these surveys would be compared to previous survey results to re-establish the locations of the original exploratory trenches and the potential location of PTW. These trenches would be excavated, and the PTW would be sent for off-Site disposal. The total volumes of the original exploratory trenches were used to estimate the TEV of the new trenches potentially containing PTW. Based on the trench logs, this assumption is conservative because PTW was estimated to comprise a small percentage of the total excavated volume of the original exploratory trenches (less than two percent). These trenches would be excavated and the PTW disposed of off-Site.

Proposed Exploratory Trenches (LFU-1): Seven additional exploratory trenches are proposed in LFU-1. Proposed trench locations were selected for areas where geophysical anomalies were identified and no previous exploratory trenches were excavated. Trench locations would be based on the results of the geophysical survey mentioned above. Excavation in these trenches would continue until no further PTW is encountered.

LFU-1: LFU-1 refers to the total area encompassed by the LFU-1 land disposal unit boundary. This area would be designated for excavation to 20 ft bgs under proposed remedial Alternative SW-8, in which a bottom liner and LCRS would be installed (Table E-1). This area includes the LFU-1 Drainage Area, LFU-1 Non-Drainage Area, trenches with known PTW, and proposed exploratory trenches in LFU-1.

Table E-3 shows the samples from soil that would be removed based on the assumed excavation boundaries and highlights the post-excavation LFU-1 COCs exceeding FS – Volume 1 PCGs. The majority of COCs exceeding PCGs would be removed.

E2.3. Landfill Unit No. 2

Waste trenches in LFU-2 are known to be oriented east-west and span the length of the unit (DOE, 1988). Within LFU-2, volumes were calculated for the following excavation subareas (Figure E-3):

LFU-2 Waste Cells: Six waste cells within the LFU-2 boundary would be targeted for removal. The assumed excavation depth of these waste cells is 13 feet bgs.

LFU-2 VOC “hot spot”: This subarea includes the approximately 1,600-square-foot area (40 feet by 40 feet) within LFU-2 where high concentrations of VOCs have been detected in previous soil gas investigations (Table E-4) (Dames and Moore, 2000). The dimensions of the “hot spot” excavation were selected to encompass the area showing the highest relative soil gas concentrations, as indicated in a passive soil vapor survey (Dames and Moore, 2000), and extend to a depth of 20 feet to capture soil with the highest concentrations of soil gas VOCs at 15 feet bgs plus an additional 5 feet of soil (Appendix B, Figure B-3).

Trenches with Known Principal Threat Waste (LFU-2): According to exploratory trench logs, PTW is known to occur in trenches TRL-12, TRL-20, and TRL-22, which are within the LFU-2 boundary (Dames & Moore, 1996b). However, the current locations of these trenches were estimated based on un-surveyed geophysical anomalies. To confirm the locations of these original exploratory trenches, new spatially-referenced geophysical surveys would be conducted. The results of these surveys would be compared to previous survey results to re-establish the locations of the original exploratory trenches and the potential location of PTW. These trenches would be excavated and the PTW would be sent for off-Site disposal. The total volumes of the original exploratory trenches were used to estimate the TEV of the new trenches potentially containing PTW. Based on the trench logs, this assumption is conservative because PTW was estimated to comprise a small percentage of the total excavated volume of the original exploratory trenches (less than two percent). These trenches would be excavated and the PTW disposed of off-Site.

Proposed Exploratory Trenches (LFU-2): Four additional exploratory trenches are proposed in LFU-2. Proposed trench locations were selected for areas where geophysical anomalies were identified and no previous exploratory trenches were excavated. Trench locations would be based on the results of the geophysical survey mentioned above. Excavation in these trenches would continue until no further PTW is encountered.

LFU-2: LFU-2 refers to the total area encompassed by the LFU-2 land disposal unit boundary. This area would be designated for excavation to 20 ft bgs under proposed remedial Alternative SW-8, in which a bottom liner and LCRS would be installed

(Table E-1). This area includes the LFU-2 VOC “hot spot,” LFU-2 waste cells, trenches with known PTW, and proposed exploratory trenches in LFU-2.

Table E-4 shows the samples that would be removed based on the assumed excavation boundaries and highlights the post-excavation LFU-2 COCs exceeding FS – Volume 1 PCGs. The majority of COCs exceeding PCGs would be removed.

E2.4. Landfill Unit No. 3

A 1965 aerial photograph of LFU-3 shows two separate waste cells. During exploratory trench investigations, the bottom of the waste cells was observed to vary from 3 feet bgs to greater than 11 feet bgs (Geomatrix, 2004).

Within LFU-3, volumes were calculated for the following excavation areas (Figure E-4):

LFU-3 Waste Cells: This subarea includes two waste cells; the assumed excavation depth for these waste cells is 10 feet bgs.

LFU-3 Drainage Area: Under proposed remedial alternatives where LFU-3 would be capped and the north-south trending concrete drainage channel would be removed (Alternatives SW-4, SW-5, and SW-6), the LFU-3 waste cell subarea, which underlies the concrete drainage channel, would be excavated to a depth of 10 feet bgs.

Proposed Exploratory Trenches (LFU-3): Two additional exploratory trenches are proposed in LFU-3. Proposed trench locations were selected for areas where geophysical anomalies were identified and no previous exploratory trenches were excavated. Trench locations would be based on the results of a new spatially-referenced geophysical survey. Excavation in these trenches would continue until no further PTW is encountered.

Table E-5 shows the samples that would be removed based on the assumed excavation boundaries and highlights the post-excavation LFU-3 COCs exceeding FS – Volume 1 PCGs. The majority of COCs exceeding PCGs would be removed.

E2.5. Southern Trenches and Hopland Field Station Disposal Area

Disposal areas in the ST and HFSDA could not be delineated from review of available aerial photographs. However, geophysical anomalies were identified in the ST (Dames & Moore, 1998a); historical accounts suggest that waste trenches in this area vary from 2 to 4 feet in width and previous exploratory trench investigations indicate that the bottom depth of the waste cells vary from 3 to 5.5 feet bgs (Geomatrix, 2004) (Figure E-5).

The HFSDA has not been formally investigated, and as such, there are no exploratory trenches located in this area. However, geophysical anomalies were observed outside the southwest corner of LFU-2 (Figure E-5). In addition, anecdotal evidence suggests the area was used to dispose of animal carcasses received from the UC Davis Hopland Field Station. Volumes were calculated for the following excavation areas:

ST: Areas with known trench waste and COCs in the subsurface. To account for the uncertainty in reliably delineating the location of waste cells in ST, the subarea excavation boundary includes the majority of the land disposal unit. The assumed excavation depth of this area is 6 feet bgs.

HFSDA: A rectangular area adjacent to the southwest corner of LFU-2. The assumed excavation depth of this area is 6 feet bgs.

Proposed Exploratory Trenches (ST and HFSDA): Five additional exploratory trenches are proposed in the ST and three are proposed in the HFSDA. Trench locations were selected for areas where geophysical anomalies were identified and no previous exploratory trenches were excavated. Excavation in these trenches would continue until no further PTW is encountered.

Table E-6 shows the samples that would be removed, based on the assumed excavation boundaries, and also highlights the ST COCs exceeding FS – Volume 1 PCGs. The majority of COCs exceeding PCGs would be removed.

E2.6. Waste Burial Holes

An interim removal action was conducted in 1999 at the WBH to remove LLRW, debris, and other source material potentially impacting groundwater in the area (Dames & Moore, 1999). Excavated soils were used as backfill for the excavation, and imported clean fill was used to cap the excavated area. The depth to the top of the waste material ranged from 2 to 8 feet bgs, and the solid waste ranged in thickness from 1 to 5 feet (Dames & Moore, 1999). Given the extent of the previous removal action, no waste is expected to be encountered at the WBH; however, contaminated soil was backfilled during the removal action.

The WBH subarea volumes were based on the following (Figure E-6):

WBH Shallow: The majority of the WBH land disposal unit would be excavated to 10 feet bgs, capturing shallow soils with concentrations of COCs exceeding PCGs. The WBH Shallow subarea is exclusive of the WBH Intermediate and WBH Deep subareas.

WBH Intermediate (within the WBH Shallow Subarea): Soil would be excavated an additional 5 feet to 15 feet bgs to capture concentrations of COCs exceeding PCGs at intermediate depths (i.e., deeper than 10 feet bgs). The three WBH Intermediate subareas are irregular areas in the center of the WBH land disposal unit. The three subareas are disconnected from each other.

WBH Deep: To include concentrations of COCs exceeding PCGs at depths deeper than 15 feet bgs, soil would be excavated to an additional 5 feet bgs in the WBH Intermediate Subarea, and 10 feet bgs in the WBH Shallow Subarea, to 20 feet bgs. The three WBH Deep subareas are rectangular, disconnected areas located along the northern and southern boundaries of the WBH land disposal unit. One WBH Deep

subarea, WBH Deep (south), surrounding sample location WBH-2, lies slightly outside the unit's southern boundary (Figure E-6).

Table E-7 shows the samples that would be removed, based on the assumed excavation boundaries, and also highlights the post-excavation WBH COCs exceeding FS – Volume 1 PCGs. The majority of COCs exceeding PCGs would be removed. In some locations deeper than 10 feet bgs, carbon-14 would remain at concentrations greater than the PCG; however, activities of carbon-14 in groundwater demonstrate a decreasing trend over time, suggesting that remaining carbon-14 activities would be unlikely to impact groundwater in the future (FS – Volume 1, Figures 2-19 through 2-21).

E2.7. Other Areas

In addition, volumes were calculated for the following excavation area:

Non-Impacted Area: Under Alternative SW-8, in which a bottom liner and a LCRS are installed below the disposal units, the area between LFU-1 and LFU-2 would be excavated to a depth of 20 feet bgs to accommodate liner construction and installation (Table E-1). It is assumed that this area was not impacted by land disposal activities. Approximately half of the area is covered by the Cobalt-60 field (Figure E-7).

E3. Methodology for Estimating Waste Stream Volumes and Waste Characterization Types

The estimation of TEVs described in Section E2 was used in the development of excavation-related costs. Further refinement of these volumes into various waste streams and characterization types was conducted to estimate costs for disposal. The first tier of segregation divided the TEV for each subarea into soil and soil/solid waste fractions. Soil/solid waste is defined as the volume of commingled material within a waste cell in addition to the surrounding contact soil layer. In contrast, soil is defined as the volume of excavated material outside the waste cell and contact soil boundaries (Figure E-8). A summary of the estimated volumes of soil and soil/solid waste are presented in Table E-1.

The following subsections document the methodology for assuming volumes of the three soil/solid waste streams (LTW, PTW, and biological waste) and for assuming volumes of the five waste characterization types as applied to each waste stream. A description of the waste stream and waste characterization categories is presented in Table E-8. Figure E-9 provides a diagram which shows the relationships between a generic TEV, waste streams, and associated waste characterization types, and Figure E-10 shows a flow chart for the overall categorization process.

E3.1. Waste Streams

During excavation, it is assumed that the four waste streams will make up the general types of material that would need to be managed for on- or off-Site disposal.

E3.1.1. Soil

The soil waste stream is the only waste stream originating from outside the soil/solid waste cell. The volume of the soil waste stream from a given excavation subarea was computed as the difference between the TEV and the estimated volume of the soil/solid waste cell (Table E-1).

E3.1.2. PTW

Empirical evidence from the *Waste Burial Holes Removal Action Report* was considered in developing the percentages of PTW for each of the land disposal units (UC Davis, 2000). According to the report, approximately 1.25 percent of the waste excavated in this interim removal action was considered PTW. As the WBH were known to have received waste from UC Davis campus laboratories, these findings can be considered a reasonable gauge of the types of waste to expect in the ET and ST (DOE, 1988).

Exploratory trench logs were also examined for the presence or absence of PTW materials. Table E-9 summarizes the PTW identified in the exploratory trenches. Based on the exploratory trench logs, the greatest percentage by volume of PTW was identified in the ET. It was, therefore, assumed that the ET would include the highest percentage of PTW among the land disposal units (Table E-10). Combining this assumption with the WBH removal action findings, it was assumed that two percent of the soil/solid waste from the ET would be considered PTW. LFU-1, LFU-2, LFU-3, and the ST were assigned a percentage of PTW of 1.25 percent of soil/solid waste to match the WBH removal action findings. According to accounts of disposal practices at the Site, the LFU-1, LFU-2, and LFU-3 land disposal units generally received more sanitary waste typical of municipal solid waste originating from the main UC Davis campus than the WBH, ET, and ST (DOE, 1988). However, disposal practices at these units are not well documented. As such, assuming 1.25 percent of soil/solid waste in these land disposal units is PTW would be considered a conservative estimate. It was assumed that solid waste was removed from the WBH during the removal action and that no PTW was buried in the HFSDA (see below).

E3.1.3. Biological Waste

Biological waste was estimated using the same methodology as for PTW, in conjunction with anecdotal evidence provided in historical accounts (DOE, 1988). Empirical evidence from the *Waste Burial Holes Removal Action Report* was also considered in developing the percentages of biological waste for each of the land disposal units (UC Davis, 2000). According to this report, approximately 1.25 percent of the waste excavated during the WBH removal action was considered biological waste. Because of similarities in waste disposal practices at the WBH, the ET, and the ST, the same percentage was assigned to the ET and ST. Based on knowledge of Site disposal practices, it was assumed that the percentage of biological waste in the soil/solid waste of LFU-1, LFU-2, and LFU-3 would be less than that assumed for the ET, ST, and WBH. The percentage of biological waste for LFU-1, LFU-2, and LFU-3 was assumed to be 0.25 percent of excavated soil/solid waste (Table E-10).

The HFSDA is believed to have received 24 carcasses from animals used in experiments at the Hopland Field Station (DOE, 1988). Based on this account, the volume of biological waste in the HFSDA was set at 20 cubic yards (Table E-11).

E3.1.4. LTW

Having estimated the percentages of PTW and biological waste within the soil/solid waste volume, the percentage of LTW was calculated by subtracting the percentages of PTW and biological waste from 100 percent (Table E-10). LTW comprises the majority of the volume of the soil/solid waste cell.

E3.2. Waste Characterization Types

Each of the four waste streams described in Section E3.1 was further partitioned into the following five waste characterization types to further estimate the volumes for on- or off-Site disposal: RCRA hazardous waste, non-RCRA hazardous waste, LLRW, mixed waste, and non-hazardous waste. These distinctions in waste characterization were necessary for assessing what quantities of material would be managed on-Site versus sent off-Site for disposal and for estimating off-Site disposal costs.

Because of the general lack of waste inventory records, limited waste characterization data at the Site, and the heterogeneous nature of the waste, a high level of uncertainty exists regarding the actual percentages of each waste characterization type. The methodology employed to assign percentages of waste characterization types was dependent on the particular waste stream under consideration.

For soil and LTW waste streams, existing analytical data were evaluated in each land disposal unit to estimate the percentages of LLRW, RCRA hazardous waste, and non-RCRA hazardous waste. Samples were assigned to the soil or LTW sub-groups geospatially, based upon their sample location and depth; LTW samples were located within soil/solid waste cells and soil samples were located outside of the soil/solid waste cells.

The processes by which the waste streams were characterized are described in further detail in the following subsections and are outlined in Figure E-10.

E3.2.1. Soil and LTW RCRA Hazardous Waste

Assumed RCRA hazardous waste fractions for soil and LTW were assigned through analysis of existing FS – Volume 1 data for designated soil and LTW samples (Attachments E-1-1 to E-1-11). For samples that exceeded background concentrations, the potential percentage of RCRA hazardous waste was based on the constituent with the highest observed percentage of results exceeding 20 times the toxicity characteristic leaching procedure (TCLP). The percentage of samples exceeding 20 times the TCLP was compared to the percentage of background exceedances, and the lower of these two values was carried forward. After this process was completed for each constituent, the maximum percentage was designated as the percentage of potential RCRA hazardous waste for the waste stream in the land disposal unit evaluated. Percentages retained from this analysis were further assessed qualitatively before a final designated percentage was assigned (Section E3.2.6). The assumed percentage of RCRA hazardous waste for soil and LTW was applied to each excavation subarea within the land disposal unit evaluated.

E3.2.2. Soil and LTW Non-RCRA Hazardous Waste

Assumed non-RCRA hazardous waste fractions for soil and LTW were determined by analysis of existing data for soil and LTW samples (Attachments E-1-1 to E-1-11). For samples that exceeded background concentrations, the potential percentage of non-RCRA hazardous waste was based on the constituent with the highest observed percentage of results exceeding 10 times the soluble threshold limit concentration (STLC). The percentage of samples exceeding 10 times the STLC was compared to the percentage of background exceedances, and the lower of these two values was carried forward. After this process was completed for each constituent, the maximum percentage was designated as the percentage of potential non-RCRA hazardous waste for the waste stream in the land disposal unit evaluated. If the constituent with the highest percentage was that selected for the RCRA hazardous waste designation, then the constituent with the next highest percentage was selected to represent the non-RCRA hazardous waste percentage. Percentages retained from this analysis were further assessed qualitatively before a final designated percentage was assigned (Section E3.2.6). The assumed percentage of non-RCRA hazardous waste for soil and LTW was applied to each excavation subarea within the land disposal unit evaluated.

E3.2.3. Soil and LTW LLRW

For the purposes of estimating the quantity of LLRW, radionuclide activities suggestive of Site-related anthropogenic sources were used as indicators of LLRW. Assumed LLRW fractions for soil and LTW were assigned through analysis of existing data for soil and LTW samples, respectively (Attachments E-1-12 to E-1-22). The percentage of samples exceeding background activities of individual radionuclides was used to represent the potential fraction of waste anticipated to be LLRW. The percentage of samples exceeding background and ten times background were evaluated for each constituent. If 50 percent or more of the samples exceeding background also exceeded ten times background, then the assumed LLRW percentage was designated as the percentage of samples exceeding background. If fewer than 50 percent of the samples exceeding background exceeded ten times background, then the assumed LLRW percentage was designated as one-half the percentage of samples exceeding background. The ten times background threshold value was selected because it was assumed that activities attributable to background could be found within the same order of magnitude as the background value, whereas values greater than background by an order of magnitude or more were suggestive of anthropogenic sources of radioactivity. Percentages retained from this analysis were further assessed qualitatively before a final designated percentage was assigned (Section E3.2.6). The assumed percentage of LLRW for soil and LTW was applied to each excavation subarea within the land disposal unit evaluated.

Because no data have been collected at the HFSDA, it was assumed that 100 percent of the LTW in this area would be classified as LLRW. According to historical accounts, the area was used for the disposal of biological wastes (assumed to be LLRW, see E.3.2.8). Therefore, the LTW in the HFSDA is expected to be commingled soil contaminated by these wastes.

E3.2.4. Soil and LTW Mixed Waste

Limited evidence exists documenting the volumes of potentially mixed waste or potential disposal locations within the land disposal units. Process knowledge suggests that mixed waste could be present within these units, as both hazardous chemical and radiological materials were discarded

in the land disposal units. During the WBH removal action, no soil or LTW sent for off-Site disposal was classified as mixed waste.

To account for the disposal of mixed waste, a decision process was employed assigning mixed waste percentages based on the assigned RCRA hazardous waste and LLRW fractions. For either soil or LTW, if both RCRA hazardous waste and LLRW assumed percentages exceeded ten percent of the waste stream, the mixed waste fraction was assumed to be two percent. If only one of either the RCRA hazardous waste or LLRW percentages exceeded ten percent, the mixed waste fraction was assumed to be one percent. If both the RCRA hazardous waste and the LLRW percentages were less than ten percent, then the mixed waste fraction was assumed to be zero percent.

The designation of zero, one, or two percent was intended to yield volumes of mixed waste consistent with knowledge of Site history and the experience during the WBH removal action. While historical accounts suggest the possibility for mixed waste to be present in the land disposal units, none was encountered during the WBH removal action. Therefore, mixed waste was assumed to be the waste characterization type of smallest volume. Although the percentages assumed seem small, when applied to large volumes of soil/solid waste, they yield substantial volumes of estimated mixed waste. Percentages retained from this analysis were qualitatively assessed before a final designated percentage was assigned (Section E3.2.6). The assumed percentage of mixed waste for soil and LTW was applied to each excavation subarea within the land disposal unit evaluated.

E3.2.5. Soil and LTW Non-Hazardous Waste

The non-hazardous waste percentage for soil and LTW was assigned by subtracting the sum of the percentages of RCRA hazardous, non-RCRA hazardous, LLRW, and mixed waste from 100 percent.

E3.2.6. Soil and LTW Qualitative Assessment

Attachment E-1-23 summarizes the results of the assignment of percentages of the five waste characterization types for soil and LTW. Results of the data analysis process indicated that some assumed percentages of LLRW for individual landfill disposal units appeared inconsistent with knowledge about the Site's history. Specifically, the percentages of LLRW assigned to the soil and LTW waste streams at LFU-3 were much higher than expected, based on the known waste disposed of in the area (i.e., primarily municipal waste), while the assigned percentages of LLRW for soil and LTW in the ET and ST were lower than expected. It has been documented that the ET, ST, and WBH were known to have received LLRW (DOE, 1988). In fact, assigned percentages of LLRW for soil and LTW in the ET and ST were lower than those for LFU-1, LFU-2, and LFU-3. The estimated percentage of LLRW at LFU-3 was the highest among the land disposal units. As such, knowledge of historical Site disposal practices, in combination with the uncertainty existing in the radionuclide data, justified an adjustment of the assigned percentages of LLRW.

The percentages of LLRW for LFU-3 soil and LTW were decreased to match the percentages obtained through data analysis for LFU-1 because it was believed that disposal practices at the two landfills were similar. Furthermore, the assumed percentages of LLRW for the ET and ST soil and LTW were increased to match the percentages assigned to LFU-2. While LFU-2 was not believed to

have specifically received LLRW, given its proximity to the ET and WBH and the uncertainty in the locations of the actual waste cells used for LLRW disposal, the percentages assumed through data evaluation were retained.

The assumed percentage of mixed waste for ET soil and LTW was also increased to two percent to match that of LFU-2. With elevated soil gas concentrations in the ET and LFU-2, it was considered plausible that mixed waste could be present as a higher percentage of soil and LTW. In addition, the percentage of mixed waste for LFU-3 soil was decreased to one percent to match the percentage applied to LFU-1 soil.

Percentages of RCRA hazardous and non-RCRA hazardous soil and LTW assigned through data analysis were maintained, unless it was necessary to decrease them so that the sum of the five waste characterization types was equal to 100 percent (Attachment E-1-23).

E3.2.7. PTW Waste Characterization

Analytical data were unavailable for use in estimating waste characterization types for PTW. PTW is expected to be the waste stream presenting the greatest risk to human health and the environment. It is expected to be mainly comprised of campus laboratory chemical wastes in addition to other miscellaneous hazardous wastes, such as pesticide containers and batteries (Table E-9). As such, it was estimated that PTW would be classified as RCRA hazardous, LLRW, or mixed waste. It was assumed that RCRA hazardous PTW would comprise the majority of this waste stream, as most laboratory chemical wastes are managed as hazardous wastes. PTW classified as LLRW was assumed to be present in smaller volumes since low-level radioactive materials are used less commonly in campus laboratories, and mixed wastes even less so. Percentages for RCRA hazardous, LLRW, and mixed waste were qualitatively assigned on a relative basis and were set at 80, 15, and 5 percent of PTW, respectively (Figure E-10 and Table E-10). This assumption remains the same regardless of the subarea under consideration. Because the assumption is applied consistently across subareas and alternatives, it was considered a valid approach for costing the removal and disposal of PTW.

E3.2.8. Biological Waste Characterization Types

Biological wastes encountered on-Site are a legacy of previous activities and experiments. Based on process knowledge, it was assumed that 100 percent of biological wastes would be classified as LLRW (Figure E-10 and Table E-10). This assumption remains the same regardless of the subarea under consideration.

E4. Summary of Volumes

Table E-10 summarizes the estimated percentages of waste streams and waste characterization types for the excavation subareas defined in Section E2 and Table E-1. Table E-11 shows the volumes associated with the percentages presented in Table E-10.

Volumes developed in this appendix were carried forward to develop costs for excavation-related activities, backfilling, and disposal under each alternative (Appendix F). Although there is a high degree of uncertainty in these estimates, they were based on the best available evidence. During

remedial action, actual excavation areas and volumes may change. Additional waste characterization would be required if off-Site disposal is a component of the selected remedial alternative.

Table E-12 lists the subareas to be excavated under each alternative and provides the TEV, the volume of excavated material disposed on- and off-Site, and the backfill requirements for each subarea. The volumes sent for off-Site disposal are categorized in more detail in Table E-13, where the volume of each waste characterization type designated for off-Site disposal is provided for each subarea. Table E-14 summarizes TEVs, waste stream volumes, and waste characterization type volumes for each alternative.

E5. References

- Dames & Moore, 1996a. *Landfill Unit #1 Data Transmittal, Data Gaps Limited Field Investigation*, South Campus Disposal Site, UC Davis, October.
- Dames & Moore, 1996b. *Landfill Unit #2 Data Transmittal, Data Gaps Limited Field Investigation*, South Campus Disposal Site, UC Davis, November.
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- United States Department of Energy (DOE), 1988. *Environmental Survey Preliminary Report*, Laboratory for Energy-Related Health Research, Davis, California, March.
- University of California Davis (UC Davis), 2000. *Draft Waste Burial Holes Removal Action Report*, South Campus Disposal Site, Environmental Restoration, Davis, California, May.

FIGURES

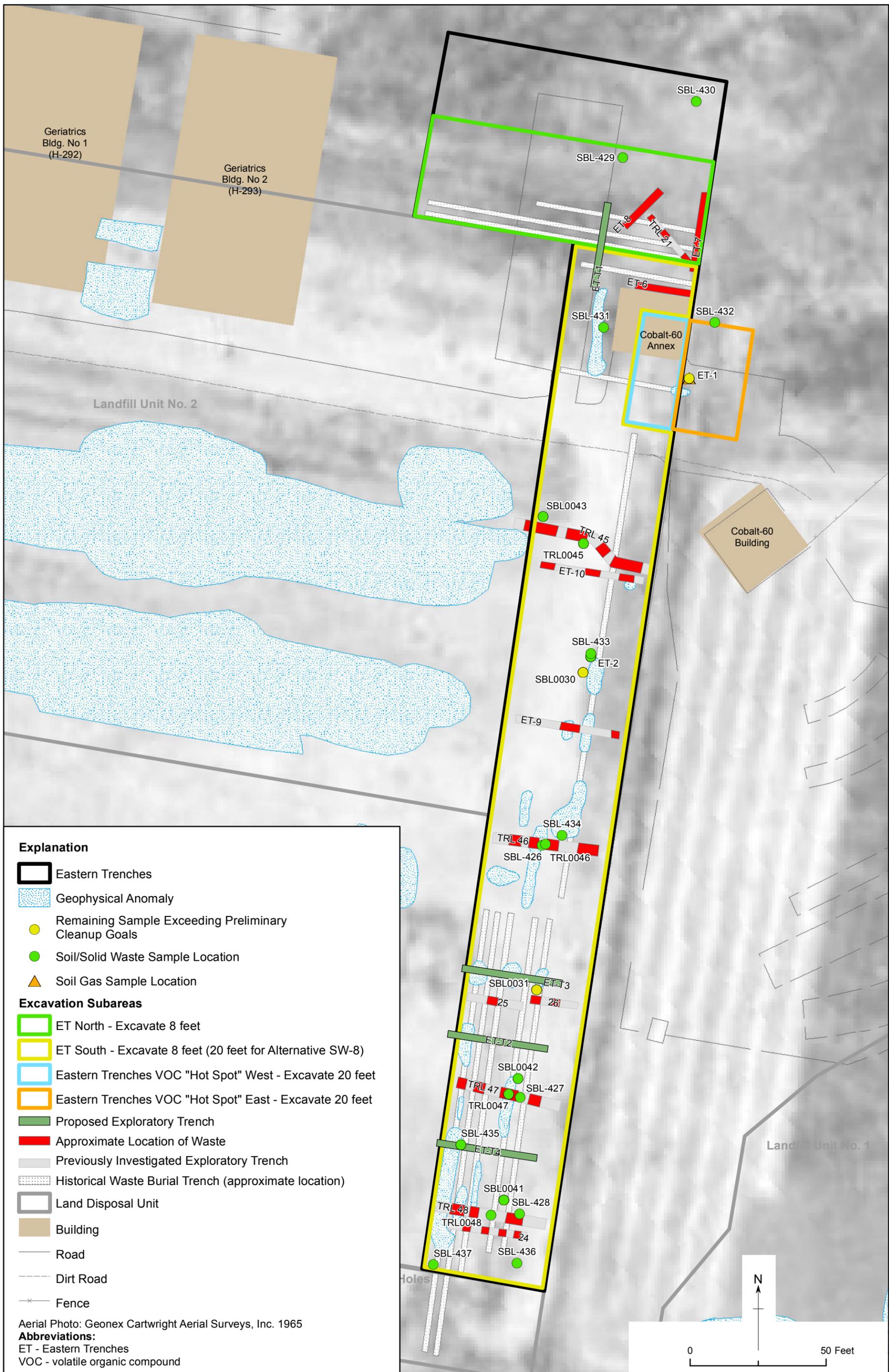


Figure E-1. Soil Excavation Subareas for Eastern Trenches - Volume Estimates, UC Davis, LEHR/OCL



Figure E-2. Soil Excavation Subareas for Landfill Unit No. 1 - Volume Estimates, UC Davis, LEHR/OCL



Explanation

- Landfill Unit No. 2
- Geophysical Anomaly
- Remaining Sample Exceeding Preliminary Cleanup Goals (Under Each Alternative)
- Remaining Sample Exceeding Preliminary Cleanup Goals (Except Under Alternative SW-8)
- Soil/Solid Waste Sample Location
- Soil Gas Sample Location

Excavation Subareas

- LFU-2 VOC "Hot Spot" - Excavate 20 feet
- LFU-2 Waste Cell - Excavate 13 feet
- LFU-2 - Excavate 20 feet (Alternative SW-8)
- Proposed Exploratory Trench
- Approximate Location of Waste
- Previously Investigated Exploratory Trench
- Land Disposal Unit
- Building
- Road
- Dirt Road
- Fence

Aerial Photo: U.S. Department of Agriculture 5/8/1964.
Abbreviations:
 LFU - landfill unit
 VOC - volatile organic compound

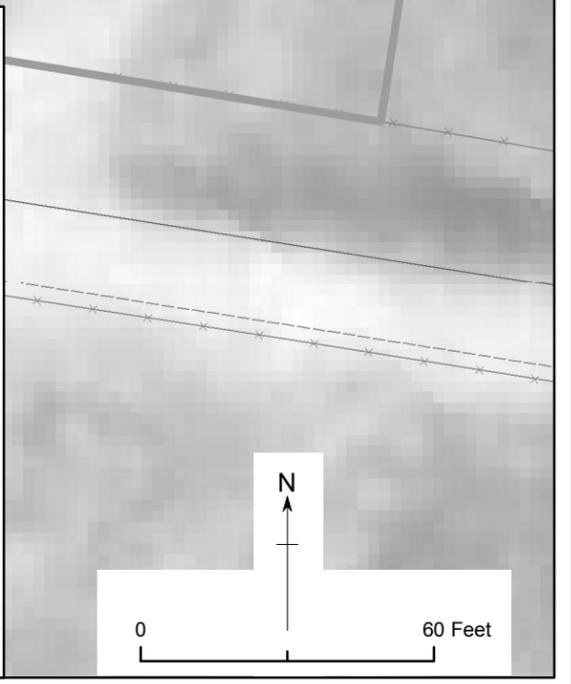


Figure E-3. Soil Excavation Subareas for Landfill Unit No. 2 - Volume Estimates, UC Davis, LEHR/OCL

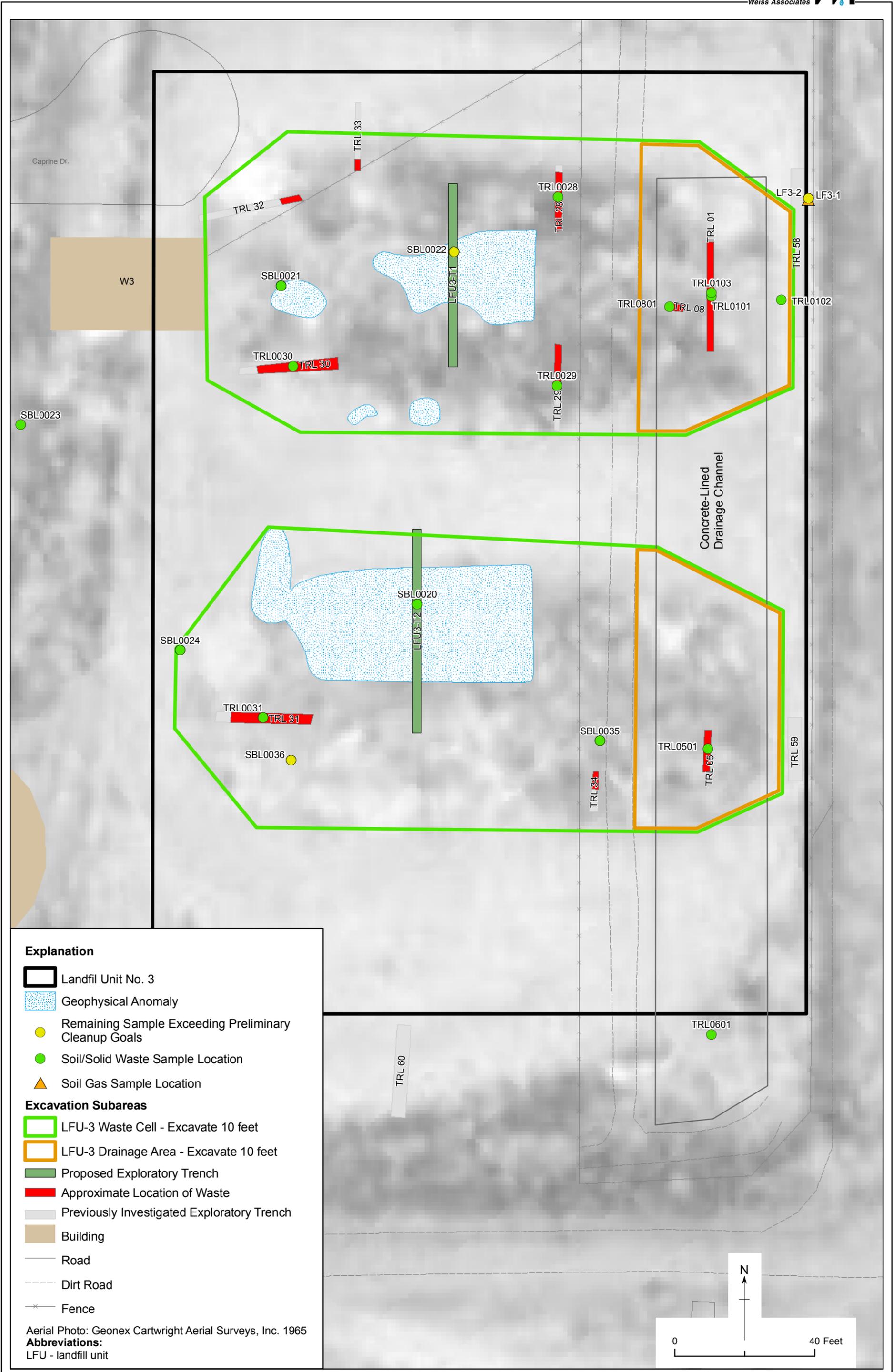


Figure E-4. Soil Excavation Subareas for Landfill Unit No. 3 - Volume Estimates, UC Davis, LEHR/OCL

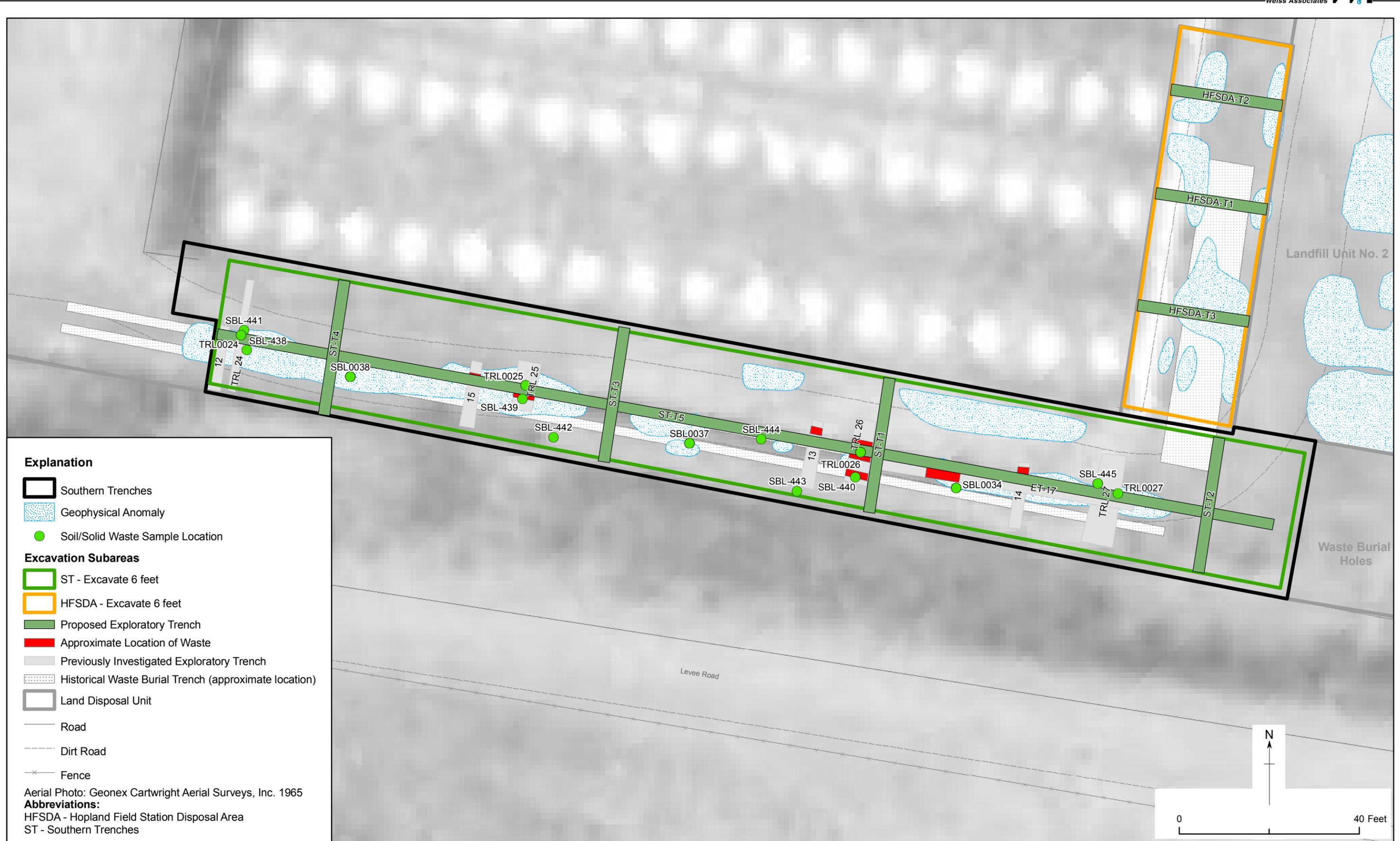


Figure E-5. Soil Excavation Subareas for Southern Trenches and Hopland Field Station Disposal Area - Volume Estimates, UC Davis, LEHR/OCL



Figure E-6. Soil Excavation Subareas for Waste Burial Holes - Volume Estimates, UC Davis, LEHR/OCL



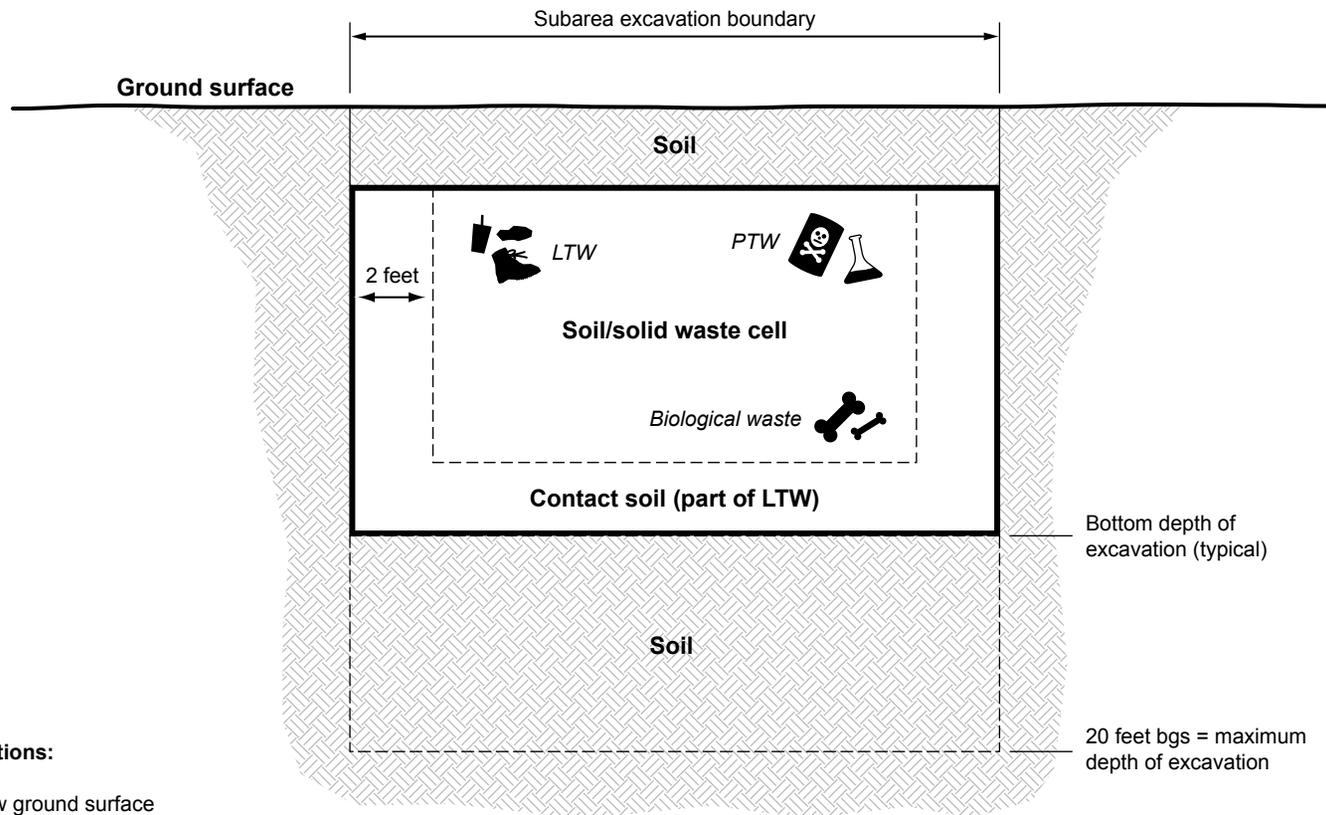
Explanation

Excavation Subarea

-  Non-Impacted Area - Excavate 20 feet
-  Geophysical Anomaly
-  Soil/Solid Waste Sample Location
-  Approximate Location of Waste
-  Previously Investigated Exploratory Trench
-  Historical Waste Burial Trench (approximate location)
-  Land Disposal Unit
-  Building
-  Road
-  Dirt Road
-  Fence

Aerial Photo: U.S. Department of Agriculture 5/8/1964.

Figure E-7. Non-Impacted Area - Volume Estimates, UC Davis, LEHR/OCL



Abbreviations:

bgs: below ground surface

LTW: low threat waste

PTW: principal threat waste

Figure E-8. Soil/Solid Waste Cell Diagram — Volume Estimates, UC Davis LEHR/OCL

Abbreviations:
 LLRW - low-level radioactive waste
 LTW - low threat waste
 PTW - principal threat waste
 RCRA - Resource Conservation and Recovery Act
 TEV - total excavated volume

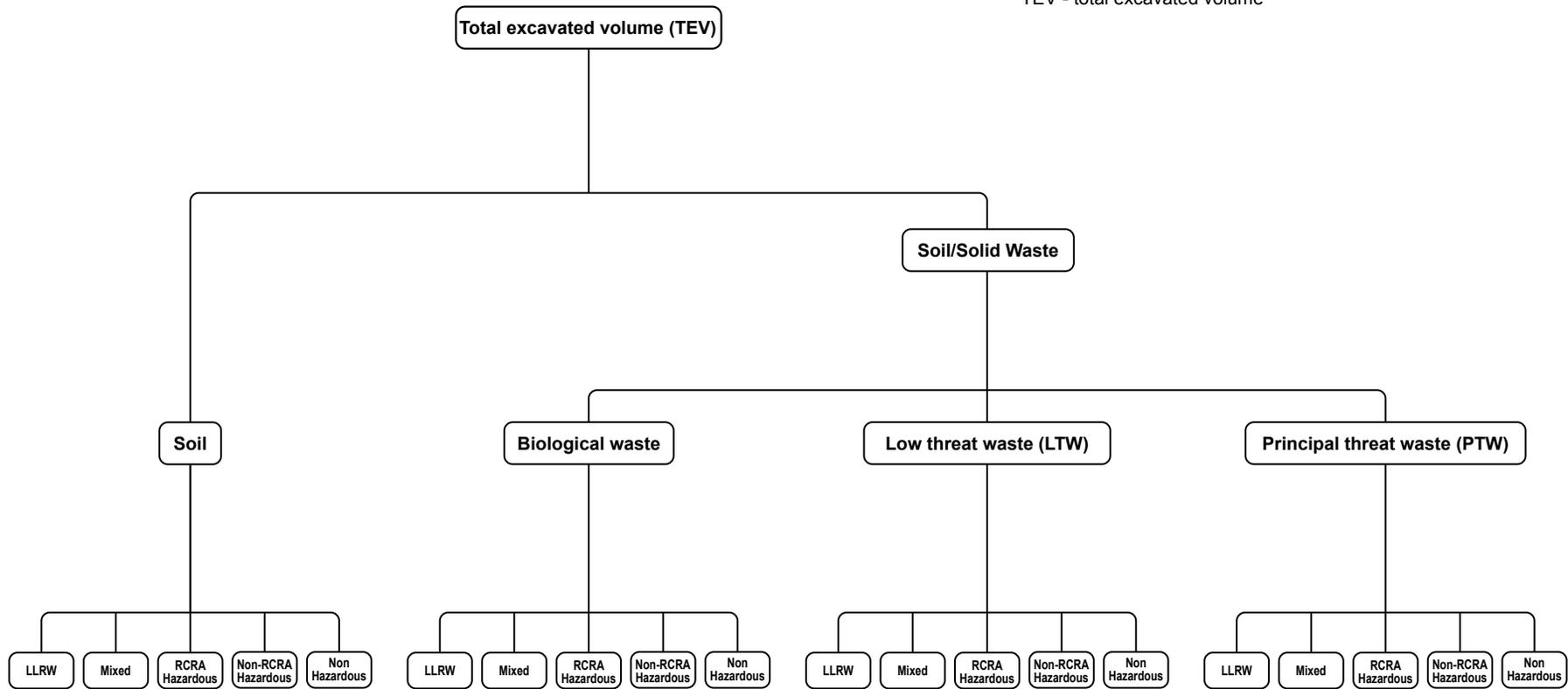


Figure E-9. Waste Categorization Schematic — Volume Estimates, UC Davis LEHR/OCL

Abbreviations:

- BGD - background
- LLRW - low-level radioactive waste
- LTW - low threat waste
- PTW - principal threat waste
- RCRA - Resource Conservation and Recovery Act
- STLC - solubility threshold limit concentration
- TCLP - toxicity characteristic leaching procedure
- 10x - ten times
- 20x - twenty times

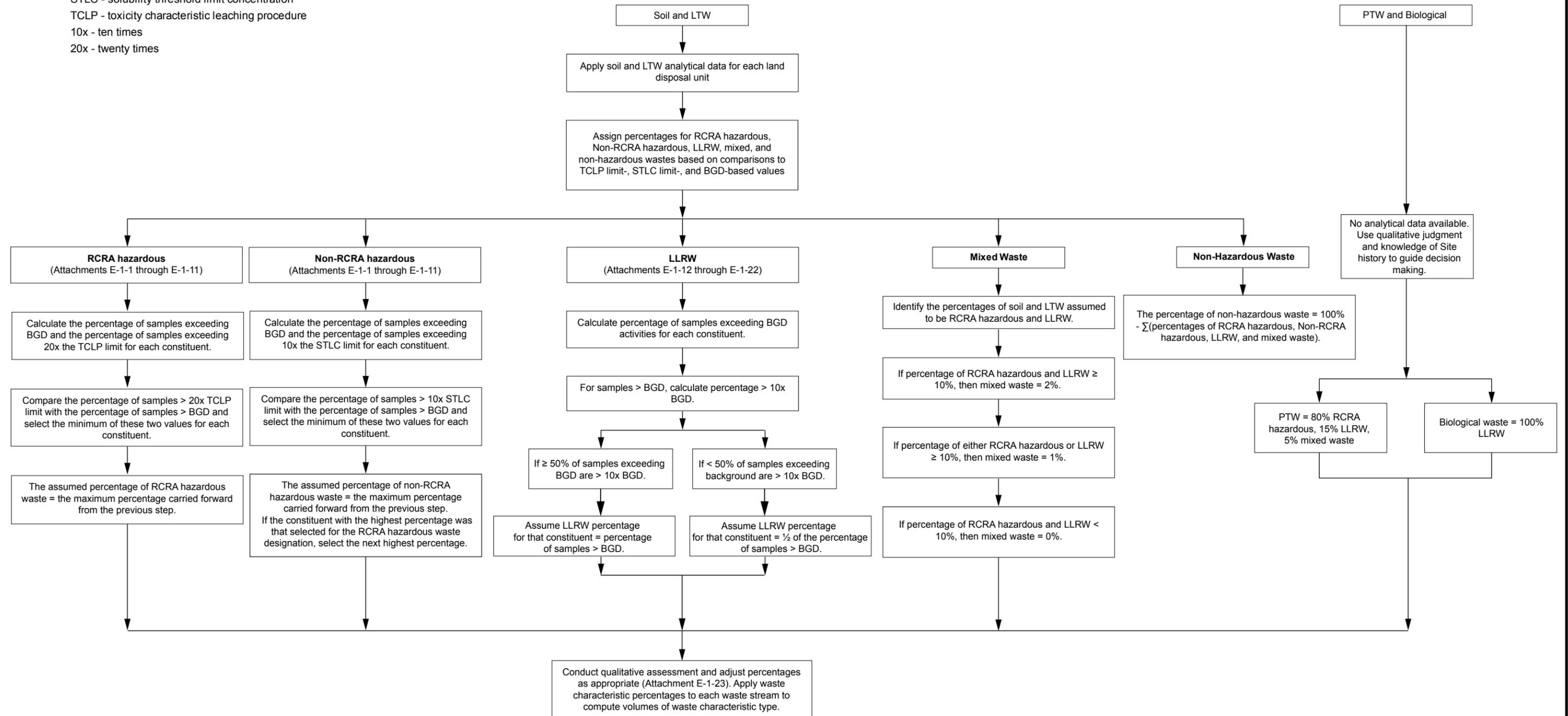


Figure E-10. Waste Categorization Methodology- Volume Estimates, UC Davis LEHR/OCL

TABLES

Table E-1. Assumed Subarea Depths, Areas, and Volumes - Volume Estimates, UC Davis LEHR/OCL

Subarea Name	Area [square feet]	Depth of Excavation [feet bgs]	Depth to Top of Waste [feet bgs]	Depth to Bottom of Waste [feet bgs]	Thickness of Waste [feet]	Total Excavated Volume [BCY]	Total Excavated Volume [LCY]	Soil/Solid		Alternative SW-1	Alternative SW-2	Alternative SW-3	Alternative SW-4	Alternative SW-5	Alternative SW-6	Alternative SW-7	Alternative SW-8	Alternative SW-9	Alternative SW-10	
								Waste [LCY]	Soil [LCY]											
Eastern Trenches																				
ET North	3,952	8.0	2.5	8	5.5	1,171	1,639	1,127	512	-	-	-	-	-	X	X	X	X	X	
ET South	16,196	8.0	2.5	8	5.5	4,799	6,718	4,619	2,099	-	-	-	-	-	X	X	-	X	X	
ET South (SW-8)	16,196	20.0	2.5	8	5.5	11,997	16,796	4,619	12,177	-	-	-	-	-	-	-	X	-	-	
ET VOC "Hot Spot" East	962	20.0	-	-	0	713	998	0	998	-	-	X	X	X	X	X	X	X	X	
ET VOC "Hot Spot" West	664	20.0	2.5	8	5.5	492	689	189	499	-	-	X	X	X	X	X	X	X	X	
ET Exploratory Trenches	a	a	a	a	a	231	324	212	112	-	-	X	X	X	- ^b					
ET Trench 24	75	7.5	2.5	7.5	5	21	29	19	10	-	-	X	X	X	- ^b					
ET Trench 26	48	7.0	2.5	7.0	4.5	12	17	11	6	-	-	X	X	X	- ^b					
ET TRL-45	219	7.5	2.5	7.5	5	61	85	57	28	-	-	X	X	X	- ^b					
ET TRL-48	163	9.5	2.5	9.5	7	57	80	59	21	-	-	X	X	X	- ^b					
ET-T1	79	6	2.5	6.0	3.5	18	25	14	10	-	-	X	X	X	- ^b					
ET-T2	93	6	2.5	6.0	3.5	21	29	17	12	-	-	X	X	X	- ^b					
ET-T3	93	6	2.5	6.0	3.5	21	29	17	12	-	-	X	X	X	- ^b					
ET-T4	93	6	2.5	6.0	3.5	21	29	17	12	-	-	X	X	X	- ^b					
<i>ET TEV Total (LCY)</i>										0	0	2,010	2,010	2,010	10,044	10,044	20,121	10,044	10,044	
Landfill Unit No. 1																				
LFU-1 Non-Drainage Area	69,158	10.0	3	10	7	25,614	35,860	25,102	10,758	-	-	-	-	-	-	-	-	X	X	
LFU-1 Drainage Area	19,479	10.0	3	10	7	7,215	10,100	7,070	3,030	-	-	-	X	X	X	X	-	X	X	
LFU-1 (SW-8)	88,637	20.0	3	10	7	65,657	91,920	32,172	59,748	-	-	-	-	-	-	-	X	-	-	
LFU-1 Exploratory Trenches	c	c	c	c	c	598	838	504	334	-	-	X	X	X	X	X	- ^b	- ^b	- ^b	
LFU-1 TRL-35	528	7.0	3	7.0	4	137	192	110	82	-	-	X	X	X	X	X	- ^b	- ^b	- ^b	
LFU-1 TRL-36	248	6.0	3	6.0	3	55	77	39	39	-	-	X	X	X	X	X	- ^b	- ^b	- ^b	
LFU1-T1	128	8	3	8.0	5.0	38	53	33	20	-	-	X	X	X	X	X	- ^b	- ^b	- ^b	
LFU1-T2	133	8	3	8.0	5.0	40	55	35	21	-	-	X	X	X	X	X	- ^b	- ^b	- ^b	
LFU1-T3	137	8	3	8.0	5.0	41	57	35	21	-	-	X	X	X	X	X	- ^b	- ^b	- ^b	
LFU1-T4	191	8	3	8.0	5.0	57	79	50	30	-	-	X	X	X	X	X	- ^b	- ^b	- ^b	
LFU1-T5	233	8	3	8.0	5.0	69	97	60	36	-	-	X	X	X	X	X	- ^b	- ^b	- ^b	
LFU1-T6	280	8	3	8.0	5.0	83	116	73	44	-	-	X	X	X	X	X	- ^b	- ^b	- ^b	
LFU1-T7	269	8	3	8.0	5.0	80	112	70	42	-	-	X	X	X	X	X	- ^b	- ^b	- ^b	
<i>LFU-1 TEV Total (LCY)</i>										0	0	838	10,938	10,938	10,938	10,938	91,920	45,960	45,960	
Landfill Unit No. 2																				
LFU-2 Waste Cells	63,405	13.0	2.5	13	10.5	30,528	42,740	34,521	8,219	-	-	-	-	-	-	-	-	X	X	
LFU-2 (SW-8)	94,328	20.0	2.5	13	10.5	69,873	97,822	35,410	62,412	-	-	-	-	-	-	-	X	-	-	
LFU-2 VOC "Hot Spot"	1,633	20.0	2.5	13	10.5	1,210	1,693	889	804	-	-	X	X	X	X	X	- ^d	X	X	
LFU-2 Exploratory Trenches	e	e	e	e	e	681	953	736	218	-	-	X	X	X	X	X	- ^b	- ^b	- ^b	
LFU-2 TRL-12	37	7.75	2.5	7.75	5.25	11	15	10	5	-	-	X	X	X	X	X	- ^b	- ^b	- ^b	
LFU-2 TRL-20	55	5.5	2.5	5.5	3	11	16	9	7	-	-	X	X	X	X	X	- ^b	- ^b	- ^b	
LFU-2 TRL-22	86	15.0	2.5	15.0	12.5	48	67	56	11	-	-	X	X	X	X	X	- ^b	- ^b	- ^b	
LFU2-T1	427	11	2.5	11.0	8.5	174	244	188	55	-	-	X	X	X	X	X	- ^b	- ^b	- ^b	
LFU2-T2	427	11	2.5	11.0	8.5	174	244	188	55	-	-	X	X	X	X	X	- ^b	- ^b	- ^b	
LFU2-T3	323	11	2.5	11.0	8.5	132	184	142	42	-	-	X	X	X	X	X	- ^b	- ^b	- ^b	
LFU2-T4	323	11	2.5	11.0	8.5	132	184	142	42	-	-	X	X	X	X	X	- ^b	- ^b	- ^b	
<i>LFU-2 TEV Total (LCY)</i>										0	0	2,647	2,647	2,647	2,647	2,647	2,647	97,822	44,433	44,433
Landfill Unit No. 3																				
LFU-3 Waste Cells	26,785	10.0	2.5	10	7.5	9,920	13,889	10,416	3,472	-	-	-	-	-	-	X	X	X	X	
LFU-3 Drainage Area	7,403	10.0	2.5	10	7.5	2,742	3,839	1,853	1,985	-	-	-	X	X	X	- ^b	- ^b	- ^b	- ^b	
LFU-3 Exploratory Trenches	f	f	f	f	f	84	117	81	37	-	-	X	X	X	X	- ^b	- ^b	- ^b	- ^b	
LFU3-T1	134	8	2.5	8.0	5.5	40	56	38	17	-	-	X	X	X	X	- ^b	- ^b	- ^b	- ^b	
LFU3-T2	149	8	2.5	8.0	5.5	44	62	42	19	-	-	X	X	X	X	- ^b	- ^b	- ^b	- ^b	
<i>LFU-3 TEV Total (LCY)</i>										0	0	117	3,956	3,956	3,956	13,889	13,889	13,889	13,889	

Table E-1. Assumed Subarea Depths, Areas, and Volumes - Volume Estimates, UC Davis LEHR/OCL

Subarea Name	Area [square feet]	Depth of Excavation [feet bgs]	Depth to Top of Waste [feet bgs]	Depth to Bottom of Waste [feet bgs]	Thickness of Waste [feet]	Total Excavated Volume [BCY]	Total Excavated Volume [LCY]	Soil/Solid Waste [LCY]	Soil [LCY]	Alternative	Alternative	Alternative							
										SW-1	SW-2	SW-3	SW-4	SW-5	SW-6	SW-7	SW-8	SW-9	SW-10
Southern Trenches and Hopland Field Station Disposal Area																			
ST	7,027	6.0	1	6	5	1,562	2,186	1,822	364	-	-	-	-	-	-	X	X	X	X
ST Exploratory Trenches	g	g	g	g	g	195	273	227	45	-	X	X	X	X	X	- ^b	- ^b	- ^b	- ^b
ST-T1	76	6.0	1	6.0	5.0	17	24	20	4	-	X	X	X	X	X	- ^b	- ^b	- ^b	- ^b
ST-T2	76	6.0	1	6.0	5.0	17	24	20	4	-	X	X	X	X	X	- ^b	- ^b	- ^b	- ^b
ST-T3	76	6.0	1	6.0	5.0	17	24	20	4	-	X	X	X	X	X	- ^b	- ^b	- ^b	- ^b
ST-T4	76	6.0	1	6.0	5.0	17	24	20	4	-	X	X	X	X	X	- ^b	- ^b	- ^b	- ^b
ST-T5	570	6.0	1	6.0	5.0	127	177	148	30	-	X	X	X	X	X	- ^b	- ^b	- ^b	- ^b
HFSDA	2,076	6.0	2	6	4	461	646	431	215	-	-	-	-	-	-	X	X	X	X
HFSDA Exploratory Trenches	h	h	h	h	h	42	59	39	20	-	X	X	X	X	X	- ^b	- ^b	- ^b	- ^b
HFSDA-T1	63	6.0	2	6.0	4.0	14	20	13	7	-	X	X	X	X	X	- ^b	- ^b	- ^b	- ^b
HFSDA-T2	63	6.0	2	6.0	4.0	14	20	13	7	-	X	X	X	X	X	- ^b	- ^b	- ^b	- ^b
HFSDA-T3	63	6.0	2	6.0	4.0	14	20	13	7	-	X	X	X	X	X	- ^b	- ^b	- ^b	- ^b
<i>ST and HFSDA TEV Total (LCY)</i>										0	332	332	332	332	332	2,832	2,832	2,832	2,832
Waste Burial Holes																			
WBH Shallow	9,604	10.0	0	0	0	3,557	4,980	0	4,980	-	-	-	-	-	-	-	-	-	X
WBH Intermediate ⁱ	3,615	5.0	0	0	0	669	937	0	937	-	-	-	-	-	-	-	-	-	X
WBH Deep ^j	1,033	5.0	0	0	0	191	268	0	268	-	-	-	-	-	-	-	-	-	X
WBH Deep (south) ^k	42	20.0	0	0	0	31	44	0	44	-	-	-	-	-	-	-	-	-	X
<i>WBH TEV Total (LCY)</i>										0	0	0	0	0	0	0	0	0	6,228
Other Areas																			
Non-Impacted Area	46,402	20.0	0	0	0	34,372	48,121	0	48,121	-	-	-	-	-	-	-	X	-	-
<i>Non-Impacted Area TEV Total (LCY)</i>										0	0	0	0	0	0	0	48,121	0	0
Total Excavated Volume by Alternative [LCY]										0	332	5,943	19,882	19,882	27,916	40,349	274,704	117,158	123,386

Notes:

- Bulk factor of 1.4 used to convert BCY to LCY.
- ^a Refer to trenches with known PTW (ET Trench 24, ET Trench 26, TRL-45, TRL-48) and proposed exploratory trenches (ET-T1, ET-T2, ET-T3, and ET-T4).
- ^b Subarea will be excavated as part of larger land disposal unit excavation for ET, LFU-1, LFU-2, LFU-3, ST, or HFSDA.
- ^c Refer to trenches with known PTW (TRL-35, TRL-36) and proposed exploratory trenches (LFU1-T1, LFU1-T2, LFU1-T3, LFU1-T4, LFU1-T5, LFU1-T6, and LFU1-T7).
- ^d Under Alternative SW-8, the LFU-2 VOC "Hot Spot" is included in the LFU-2 (SW-8) subarea.
- ^e Refer to trenches with known PTW (TRL-12, TRL-20, TRL-22) and proposed exploratory trenches (LFU2-T1, LFU2-T2, LFU2-T3, and LFU2-T4).
- ^f Refer to proposed exploratory trenches LFU3-T1 and LFU3-T2.
- ^g Refer to proposed exploratory trenches ST-T1, ST-T2, ST-T3, ST-T4, and ST-T5.
- ^h Refer to proposed exploratory trenches HFSDA-T1, HFSDA-T2, and HFSDA-T3.
- ⁱ WBH Intermediate subarea is excavated to 15 feet bgs; because the WBH Shallow subarea is excavated to 10 feet bgs, the additional depth of excavation is 5 feet bgs.
- ^j WBH Deep subarea is excavated to 20 feet bgs; because the WBH Intermediate subarea is excavated to 15 feet bgs, the additional depth of excavation is 5 feet bgs.
- ^k WBH Deep (south) subarea is excavated to 20 feet bgs; because the WBH Deep (south) subarea lies outside the WBH boundary, it is listed separately and has a depth of excavation listed as 20 feet bgs.

Acronyms/Abbreviations:

- BCY - bank cubic yards
- bgs - below ground surface
- ET - Eastern Trenches
- HFSDA - Hopland Field Station Disposal Area
- LCY - loose cubic yards
- LFU - landfill unit
- PTW - principal threat waste
- ST - Southern Trenches
- TEV - total excavated volume
- VOC - volatile organic compound
- WBH - Waste Burial Holes
- X - excavate

Table E-2. Excavation Depths Based on Sample Locations and Constituents of Concern for the Eastern Trenches - Volume Estimates, UC Davis LEHR/OCL

Subarea	Location Name	Sample Name	Sample Date	Sample Begin Depth	VOCs (µg/m ³)				Radioactive Elements (pCi/g)		
					1,2-Dichloroethane	1,2-Dichloropropane	1,3-Butadiene	Chloroform	Carbon-14	Tritium (Hydrogen-3)	
					0-10 feet bgs PCGs:	---	---	7.7	87.5	0.13	1.2
					10-20 feet bgs PCGs:	11	593.8	---	203.1	0.13	1.2
>20 feet bgs PCGs:	11	---	---	322.7	0.13	1.2					
Area Not Excavated	SBL-430	SSET0105	5/7/2002	0.5					ND	ND	
Eastern Trenches North	SBL-429	SSET0104	5/7/2002	0.5					ND	ND	
Eastern Trenches South	SBL-431	SSET0106	5/7/2002	0.5					ND	ND	
	SBL-433	SSET0108	5/7/2002	0.5					ND	ND	
	SBL-434	SSET0109	5/7/2002	0.5					ND	ND	
	SBL-435	SSET0110	5/7/2002	0.5					ND	ND	
	SBL-435	SSET0111	5/7/2002	0.5					ND	ND	
	SBL-436	SSET0112	5/7/2002	0.5					1.2 J	ND	
	SBL-437	SSET0113	5/7/2002	0.5					ND	15.5	
	SBL-426	SSET0101	5/8/2002	0.5					ND	ND	
	SBL-427	SSET0102	5/8/2002	0.5					ND	ND	
	SBL-428	SSET0103	5/8/2002	0.5					ND	ND	
	SBL0031	SSUT0014	5/25/1995	2.5					ND	13	
	SBL0043	SSUT0087	9/25/1996	2.5					ND	0.1	
	TRL0045	SSUT0047	8/21/1996	3.7					ND	ND	
	TRL0045	SSUT0044	8/21/1996	4					ND	0.1	
	TRL0045	SSUT0045	8/21/1996	4					ND	ND	
	TRL0045	SSUT0046	8/21/1996	4					ND	0.05	
	SBL0042	SSUT0076	9/24/1996	4					ND	ND	
	SBL0030	SSUT0003	5/25/1995	5					ND	0.4	
	SBL0031	SSUT0015	5/25/1995	5					ND	333	
	TRL0047	SSUT0050	8/23/1996	5.5					ND	ND	
	SBL0041	SSUT0080	9/24/1996	5.5					ND	ND	
	TRL0046	SSUT0048	8/22/1996	5.8					ND	ND	
	TRL0046	SSUT0049	8/22/1996	6.5					ND	ND	
	TRL0047	SSUT0052	8/23/1996	6.5					ND	ND	
	TRL0048	SSUT0054	8/26/1996	6.5					ND	ND	
	TRL0048	SSUT0055	8/26/1996	8					ND	ND	
	SBL0031	SSUT0017	5/25/1995	10					1.8 J	0.3	
	SBL0041	SSUT0081	9/24/1996	10					ND	ND	
	SBL0042	SSUT0077	9/24/1996	10					ND	0.03	
	SBL0043	SSUT0088	9/25/1996	10					ND	ND	
	SBL0030	SSUT0007	5/25/1995	15					6.7 J	1.3	
	ET-2	SSET-2-15	9/17/2008	15					ND	ND	
	SBL0041	SSUT0083	9/24/1996	20					ND	0.3	
	SBL0042	SSUT0078	9/24/1996	20					ND	0.3	
	SBL0043	SSUT0086	9/25/1996	20					ND	ND	
	ET-2	SSET-2-22.5	9/17/2008	22.5					ND	ND	
	SBL0031	SSUT0020	5/25/1995	25					ND	3.37	
	ET-2	SSET-2-27.5	9/17/2008	27.5					ND	ND	
	SBL0030	SSUT0010	5/25/1995	30					ND	1.49	
	ET-2	SSET-2-35	9/17/2008	35					ND	ND	
	SBL0030	SSUT0012	5/25/1995	40					8.3 J	0.6	
ET VOC "Hot Spot"	SBL-432	SSET0107	5/7/2002	0.5					ND	ND	
	ET-1	SG0016	9/10/2008	5	ND	43	17 J	1,400	--	--	
	ET-1	SG0017	9/10/2008	15	330	1,900	--	13,000	--	--	
	ET-1	SG0018	9/10/2008	25	43	220	--	710	--	--	

Notes:

VOCs are COCs for soil vapor.

Red indicates an exceedance of the preliminary cleanup goal

Grey shading indicates excavated area

Light gray shading indicates excavated area under Alternative SW-8

Acronyms/Abbreviations:

- bgs - below ground surface
- COC - constituent of concern
- J - concentration is an estimated value
- ND - not detected
- PCG - preliminary cleanup goal
- pCi/g - picocuries per gram
- VOC - volatile organic compound
- - not analyzed
- µg/m³ - micrograms per cubic meter

Table E-3. Excavation Depths Based on Sample Locations and Constituents of Concern for Landfill Unit No. 1 - Volume Estimates, UC Davis LEHR/OCL

Subarea	Location Name	Sample Name	Sample Date	Sample Begin Depth	Metals (mg/kg)				VOCs (µg/m ³)	PAHs (mg/kg)	Radioactive Elements (pCi/g)	
					Arsenic	Copper	Lead	Selenium	1,3-Butadiene	Benzo(a)pyrene	Carbon-14	
					0-10 feet bgs PCGs:	9.6	60	80	1.2	---	0.015	0.13
					10-20 feet bgs PCGs:	---	---	---	1.2	14.2	---	0.13
>20 feet bgs PCGs:	---	---	---	1.2	---	---	0.13					
LFU-1 Drainage Area	SBL-410	SSLF0201	5/7/2002	0.5	4.7 J	24.7	6.4	0.4		ND	ND	
	SBL-412	SSLF0203	5/6/2002	0.5	4.9	22.4	4.7	0.7		ND	ND	
	TRL0043	SSLF0139	8/20/1996	7	23.7	317	810	5.1		ND	---	
LFU-1	SBL0025	SSLF0056	5/22/1995	0	7.8	49.9	61.2	ND		0.02	ND	
	SBL0027	SSLF0067	5/23/1995	0	6.5	31.7	9.1	ND		ND	ND	
	SBL-413	SSLF0204	5/6/2002	0.5	8.5	37	11	1.1		ND	ND	
	SBL-414	SSLF0205	5/6/2002	0.5	7.8	37.8	12.2	0.8		ND	ND	
	SBL-415	SSLF0206	5/6/2002	0.5	8.4	45.1	28	0.9		ND	ND	
	SBL-415	SSLF0207	5/6/2002	0.5	8.8	43.1	30.4	1.0		ND	ND	
	SBL-416	SSLF0208	5/6/2002	0.5	9.0	45.2	27.5	1.3		ND	ND	
	SBL-417	SSLF0209	5/6/2002	0.5	8.3	44.7	3,640	0.8		ND	4.7	
	SBL0025	SSLF0057	5/22/1995	2.5	5.4	25.1	6.2	ND		ND	1.8	
	SBL0047	SSLF0161	9/27/1996	2.5	140	470	1,300	12		ND	---	
	SBL0050	SSLF0168	9/27/1996	4	27	570	2,100	13		ND	---	
	TRL0036	SSLF0134	8/15/1996	4.5	19.4	2,690	1,300	ND		ND	ND	
	TRL0038	SSLF0135	8/16/1996	4.5	43.1	477	1,340	10.4		ND	---	
	SBL0027	SSLF0071	5/23/1995	5	6.2	41.8	8.2	ND		ND	ND	
	LF1-1	SG0001	9/16/2008	5	---	---	---	---	ND	---	---	
	TRL0036	SSLF0137	8/16/1996	5.5	9.5	51.7	9.5	3.3		ND	---	
	SBL0048	SSLF0166	9/27/1996	5.5	66	160	330	12		ND	---	
	TRL0038	SSLF0136	8/16/1996	8.5	8.8	52.1	12.2	3.5		ND	---	
	SBL0047	SSLF0162	9/27/1996	10	8.6	45	7.5	3.2		ND	---	
	SBL0047	SSLF0163	9/27/1996	10	7.3	38	6.2	2		ND	---	
	SBL-411	SSLF0202	5/6/2002	0.5	8.0	41.5	18.8	0.7		ND	ND	
	SBL0050	SSLF0167	9/27/1996	15	8.9	53	8	3.1		ND	---	
	LF1-1	SG0002	9/17/2008	15	---	---	---	---	74	---	---	
	LF1-2	SSLF1-2-15.5	9/15/2008	15.5	---	39	---	ND		---	1.0 J	
	SBL0025	SSLF0062	5/23/1995	20	5.3	35.9	8.5	ND		ND	2.5	
	SBL0048	SSLF0164	9/27/1996	20	7.8	34	7.7	ND		ND	---	
	SBL0048	SSLF0165	9/27/1996	20	8.2	40	9.2	2.7		ND	---	
	LF1-2	SSLF1-2-20	9/15/2008	20	---	35	---	ND		---	ND	
	SBL0027	SSLF0075	5/23/1995	25	7.3	41.1	6.8	ND		ND	2.6	
	LF1-1	SG0003	9/17/2008	25	---	---	---	---	ND	---	---	
	LF1-2	SSLF1-2-27.5	9/15/2008	27.5	---	43	---	ND		---	ND	
	LF1-2	SSLF1-2-37.5	9/15/2008	37.5	---	39	---	---		---	---	
LF1-2	SS-LF1-2-37.5	9/15/2008	37.5	---	---	---	ND		---	ND		
SBL0027	SSLF0078	5/23/1995	40	9.2	50.9	8.5	ND		ND	ND		

Notes:

VOCs are COCs for soil vapor.

Red indicates an exceedance of the preliminary cleanup goal

Grey shading indicates excavated area

Light gray shading indicates excavated area under Alternative SW-8

Acronyms/Abbreviations:

bgs - below ground surface

COC - constituent of concern

J - concentration is an estimated value

LFU - landfill unit

mg/kg - milligrams per kilogram

ND - not detected

PAH - polycyclic aromatic hydrocarbon

PCG- preliminary cleanup goal

pCi/g - picocuries per gram

VOC - volatile organic compound

--- - not analyzed

µg/m³ - micrograms per cubic meter

Table E-5. Excavation Depths Based on Sample Locations and Constituents of Concern for Landfill Unit No. 3 - Volume Estimates, UC Davis LEHR/OCL

Subarea	Location Name	Sample Name	Sample Date	Sample Begin Depth	Metals (mg/kg)					PCBs (mg/kg)	Radioactive Elements (pCi/g)			
					Barium	Cadmium	Copper	Lead	Manganese	Aroclor 1260	Carbon-14	Cesium-137	Strontium-90	
					0-10 feet bgs PCGs:	260	0.5	138	80	1,800	0.22	0.13	0.06	0.24
					10-20 feet bgs PCGs:	260	0.5	---	---	---	---	0.13	---	---
>20 feet bgs PCGs:	260	0.5	---	---	---	---	0.13	---	---					
Area Not Excavated	SBL0023	SSLF0041	3/7/1995	0	149	ND	32.3	10.6	---	ND	ND	ND	ND	
	TRL0601	SSLF0109	6/5/1995	0.16	165	ND	36.3	13.2	757	ND	ND	ND	ND	
	LF3-2	SSLF3-2-12.5	9/18/2008	12.5	230	1.5	49	---	370	---	ND	---	ND	
	LF3-2	SSLF3-2-20	9/18/2008	20	110	0.9	37	---	330	---	ND	---	ND	
	LF3-2	SSLF3-2-27.5	9/18/2008	27.5	110	1.6	49	---	560	---	ND	---	ND	
	LF3-2	SSLF3-2-32.5	9/18/2008	32.5	380	1.3	47	---	340	---	0.9 J	---	ND	
LFU-3 Drainage Area	TRL0102	SSLF0107	6/5/1995	0.25	171	ND	46.9	27.4	749	ND	1.2 J	0.07	ND	
	TRL0501	SSLF0108	6/5/1995	0.3	222	0.9	82.1	316	628	0.004	ND	0.055	ND	
	TRL0101	SSLF0106	6/5/1995	1.3	240	1.5	84.8	155	4,300	0.03	ND	1.3	ND	
	TRL0801	SSLF0121	6/6/1995	1.5	968	4.5	684	2,540	805	1.6	0.9 J	0.3	ND	
	TRL0103	SSLF0120	6/6/1995	2.1	203	ND	41.6	8.1	878	0.0	ND	ND	ND	
LFU-3 Waste Cells	SBL0020	SSLF0001	3/2/1995	0	149	ND	42	10.6	---	ND	1.25	0.2	ND	
	SBL0021	SSLF0012	3/3/1995	0	160	0.3	52.6	30.9	---	ND	0.5	ND	ND	
	SBL0022	SSLF0025	3/6/1995	0	175	0.2	51.2	27.9	---	ND	3.8	0.055	ND	
	SBL0024	SSLF0046	3/7/1995	0	156	ND	37.1	11.2	---	ND	ND	0.07	0.9	
	TRL0031	SSLF0133	8/12/1996	4	475	2.2	113	185	---	ND	ND	1.7	5.1	
	TRL0028	SSLF0128	8/8/1996	5.5	256	20	165	216	---	ND	ND	0.3	1.5	
	SBL0021	SSLF0024	3/3/1995	5.8	134	ND	33.5	37.1	---	ND	0.6	ND	ND	
	SBL0036	SSLF0144	9/19/1996	6.5	400	1.7	640	270	---	ND	ND	0.3	ND	
	TRL0030	SSLF0131	8/9/1996	7	262	3.1	433	164	---	ND	ND	0.2	1.8	
	SBL0022	SSLF0039	3/6/1995	7.5	245	4	509	394	---	ND	ND	0.3	0.9	
	SBL0035	SSLF0140	9/19/1996	8.5	500	12	1,700	1,800	---	ND	ND	0.7	ND	
	SBL0024	SSLF0049	3/7/1995	10	218	ND	41.8	8.1	---	ND	ND	ND	ND	
	TRL0029	SSLF0129	8/9/1996	10	203	2.4	129	521	---	ND	ND	0.2	1.1	
	TRL0029	SSLF0130	8/9/1996	10	255	2.1	128	1,080	---	ND	ND	0.2	0.5	
	SBL0022	SSLF0040	3/6/1995	14	240	ND	46.8	8.5	---	ND	1.3	ND	ND	
	SBL0021	SSLF0019	3/3/1995	15	211	ND	45.9	7.8	---	ND	ND	ND	ND	
	SBL0035	SSLF0142	9/19/1996	15	160	ND	36	7	---	ND	ND	ND	ND	
	SBL0020	SSLF0008	3/2/1995	20	183	ND	44	9.2	---	ND	ND	ND	ND	
	SBL0022	SSLF0035	3/6/1995	20	342	ND	39.5	8.2	---	ND	ND	ND	ND	
	SBL0036	SSLF0145	9/20/1996	20	220	ND	49	8.2	---	ND	ND	ND	ND	
	SBL0036	SSLF0146	9/20/1996	25	410	ND	43	10	---	ND	ND	ND	ND	
	SBL0021	SSLF0022	3/3/1995	30	161	ND	39.1	6.8	---	ND	ND	ND	ND	
	SBL0022	SSLF0037	3/6/1995	30	171	ND	39.1	7.1	---	ND	ND	ND	ND	
SBL0024	SSLF0053	3/7/1995	30	199	ND	47.8	8.4	---	ND	ND	ND	ND		
SBL0024	SSLF0054	3/7/1995	30	143	0.31	49	48.5	---	ND	ND	0.09	ND		
SBL0035	SSLF0143	9/19/1996	30	200	ND	53	8.9	---	ND	ND	ND	ND		
SBL0020	SSLF0011	3/2/1995	35	155	ND	39.8	7.3	---	ND	ND	ND	ND		

Notes:

Red indicates an exceedance of the preliminary cleanup goal

Grey shading indicates excavated area

Acronyms/Abbreviations:

- bgs - below ground surface
- J - concentration is an estimated value
- LFU - landfill unit
- mg/kg - milligrams per kilogram
- ND - not detected
- PCB - polychlorinated biphenyl
- PCG - preliminary cleanup goal
- = not analyzed
- pCi/g - picocuries per gram

Table E-6. Excavation Depths Based on Sample Locations and Constituents of Concern for Southern Trenches - Volume Estimates, UC Davis LEHR/OCL

Subarea	Location Name	Sample Name	Sample Date	Carbon-14	
				Sample Begin Depth	[pCi/g]
				0-10 feet bgs PCGs:	0.48
				10-20 feet bgs PCGs:	---
>20 feet bgs PCGs:	---				
Southern Trenches	SBL-441	SSUT0104	5/7/2002	0.5	ND
	SBL-442	SSUT0105	5/7/2002	0.5	ND
	SBL-443	SSUT0106	5/7/2002	0.5	ND
	SBL-444	SSUT0107	5/7/2002	0.5	ND
	SBL-445	SSUT0108	5/7/2002	0.5	ND
	SBL-445	SSUT0109	5/7/2002	0.5	ND
	SBL-438	SSUT0101	5/8/2002	0.5	ND
	SBL-439	SSUT0102	5/8/2002	0.5	ND
	SBL-440	SSUT0103	5/8/2002	0.5	ND
	SBL0038	SSUT0069	9/23/1996	1	ND
	TRL0025	SSUT0037	8/5/1996	1.5	ND
	TRL0027	SSUT0043	8/8/1996	2.5	ND
	SBL0034	SSUT0056	9/18/1996	2.5	ND
	SBL0037	SSUT0065	9/20/1996	2.5	ND
	TRL0024	SSUT0035	8/2/1996	2.7	15.1
	TRL0026	SSUT0039	8/7/1996	3.5	ND
	TRL0026	SSUT0041	8/7/1996	4.25	ND
	TRL0024	SSUT0036	8/2/1996	4.75	ND
	TRL0025	SSUT0038	8/5/1996	5	ND
	SBL0034	SSUT0057	9/18/1996	10	ND
	SBL0037	SSUT0066	9/20/1996	10	ND
	SBL0034	SSUT0058	9/18/1996	15	ND
	SBL0038	SSUT0072	9/23/1996	15	ND
	SBL0038	SSUT0073	9/23/1996	25	ND
	SBL0037	SSUT0068	9/30/1996	30	ND

Notes:

Red indicates an exceedance of the preliminary cleanup goal

Grey shading indicates excavated area

Acronyms/Abbreviations:

- bgs - below ground surface
- ND - not detected
- PCG - preliminary cleanup goal
- pCi/g - picocuries per gram

Table E-7. Excavation Depths Based on Sample Locations and Constituents of Concern for Waste Burial Holes - Volume Estimates, UC Davis LEHR/OCL

Subarea	Location Name	Sample Name	Sample Date	Sample Begin Depth	PAHs (mg/kg)	Radioactive Elements (pCi/g)			
					Naphthalene	Carbon-14	Cesium-137	Strontium-90	Tritium (Hydrogen-3)
					0-10 feet bgs PCGs:	0.3	0.06	0.24	1.2
					10-20 feet bgs PCGs:	---	0.3	---	0.24
>20 feet bgs PCGs:	---	0.3	---	---	3.2				
No Excavation	SSWB0076	S99101101	10/11/1999	8	---	---	---	---	ND
	SSWB0106	S99110405	11/4/1999	7	---	ND	---	---	ND
	SSWB0107	S99110406	11/4/1999	9	---	ND	---	---	ND
WBH Shallow	SSGT0005	S99092101	9/21/1999	0	---	ND	ND	ND	ND
	SSGT0006	S99092102	9/21/1999	0	---	ND	ND	ND	ND
	SSSP0001,2,3,4	S99092901	9/29/1999	0.5	---	ND	---	---	ND
	SSSP0009/0007/0	S99101901	10/19/1999	0.5	---	0.3	---	---	ND
	SSSP0010/0011/0	S99102001	10/20/1999	0.5	---	0.4	---	---	6.5
	SSSP0014/0015/0	S99102501	10/25/1999	0.5	---	0.2 J	---	---	1.91
	LLRS0004	S00032901	3/29/2000	2.5	---	3.3	---	---	26
	LLRS0005	S00032902	3/29/2000	3	---	4.4	---	---	25.5
	LLRS0006	S00032903	3/29/2000	3.3	---	2.4	---	---	19.7
	SBL-373	SBL-373-COMP	3/29/2001	4	ND	3.6	---	---	35 J
	SBL-374	SBL-374-COMP	3/29/2001	4	ND	0.5 J	---	---	ND
	SBL-376	SBL-376-COMP	3/29/2001	4	ND	ND	---	---	17.4 J
	SBL-377	SBL-377-COMP	3/29/2001	4	ND	ND	---	---	ND
	TRL0049	SSWB0002	8/27/1996	5	ND	ND	ND	0.9	0.3
	TRL0049	SSWB0001	8/27/1996	7	ND	ND	ND	0.7	0.05
	TRL0054	SSWB0014	9/3/1996	7	92	1,442	3.3	ND	2.7
	TRL0054	SSWB0017	9/3/1996	7	---	100	4,610	1.1	0.5
	SSWB0102	S99110401	11/4/1999	7	---	0.1 J	---	---	1.9 J
	SSWB0103	S99110402	11/4/1999	7	---	0.3	---	---	ND
	SSWB0105	S99110404	11/4/1999	8.5	---	ND	---	---	3.8
	SSWB0104	S99110403	11/4/1999	9	---	0.2 J	---	---	2.4 J
	SSWB0070	S99100804	10/8/1999	9.5	---	---	---	---	ND
	SSWB0060	S99100401	10/4/1999	10	---	ND	---	---	ND
	SSWB0067	S99100801	10/8/1999	10	---	2.2	---	---	ND
	SSWB0069	S99100803	10/8/1999	10	---	---	---	---	ND
	SSWB0092	S99102101	10/21/1999	10	---	---	---	---	ND
	SSWB0062	S99100601	10/6/1999	11	---	---	---	---	ND
	TRL0054	SSWB0015	9/3/1996	12	ND	ND	ND	25.5	0.12
	TRL0054	SSWB0016	9/3/1996	12	ND	ND	ND	ND	0.12
	SSWB0061	S99100402	10/4/1999	12	---	ND	---	---	ND
	SSWB0068	S99100802	10/8/1999	12	---	0.8	---	---	---
	SBL-398	SBL-398-15.5	3/27/2001	15.5	---	1.1	---	---	ND
	SBL-399	SBL-399-15.5	3/27/2001	15.5	---	0.5 J	---	---	ND
	SBL-390	SBL-390-15.5	3/28/2001	15.5	---	ND	---	---	ND
	SBL-394	SBL-394-15.5	3/28/2001	15.5	---	ND	---	---	ND
	SBL-398	SBL-398-17.5	3/27/2001	17.5	---	0.4 J	---	---	ND
	SBL-399	SBL-399-17.5	3/27/2001	17.5	---	ND	---	---	ND
	SBL-390	SBL-390-17.5	3/28/2001	17.5	---	ND	---	---	ND
	SBL-394	SBL-394-17.5	3/28/2001	17.5	---	ND	---	---	ND
	SBL-398	SBL-398-19	3/27/2001	19	---	0.6 J	---	---	ND
	SBL-399	SBL-399-19	3/27/2001	19	---	ND	---	---	ND
	SBL-390	SBL-390-19	3/28/2001	19	---	ND	---	---	ND
	SBL-394	SBL-394-19	3/28/2001	19	---	0.4 J	---	---	ND
WBH Intermediate	SSWB0018	SSWB0018	9/3/1996	2	ND	ND	ND	0.5	0.2
	SSWB0019	SSWB0019	9/3/1996	2	ND	ND	ND	ND	0.05
	PMWS0001	S99120803	12/8/1999	3.2	---	ND	---	---	111
	PMWS0002	S99120804	12/8/1999	3.2	---	2.9	---	---	128
	TRL0050	SSWB0003	8/27/1996	3.5	ND	ND	ND	0.6	62.9
	SBL-449	SSWB0104	5/8/2002	3.5	---	6.8	---	---	---
	SBL-371	SBL-371-COMP	3/29/2001	4	ND	7.2	---	---	27.3 J
	SBL-375	SBL-375-COMP	3/29/2001	4	0.06	7.9	---	---	212 J
	SBL-450	SSWB0105	5/8/2002	4.5	---	12	---	---	161
	SBL-450	SSWB0106	5/8/2002	4.5	---	15.1	---	---	165
	TRL0050	SSWB0004	8/27/1996	5.25	ND	ND	ND	0.4	ND
	SBL-451	SSWB0107	5/8/2002	6.5	---	12	---	---	261
	WBH-3	SSWBH-3-7.5	9/16/2008	7.5	---	ND	---	ND	56.5
	SSWB0088	S99102002	10/20/1999	8	---	1.6	---	---	5.2
	SSWB0089	S99102003	10/20/1999	8	---	---	---	---	6.2
	SSWB0091	S99102005	10/20/1999	8	---	---	---	---	4.3
	SSWB0079	S99101401	10/14/1999	9	---	---	---	---	90.2
	SSWB0075	S99101801	10/18/1999	9	---	---	---	---	22.5
	SSWB0093	S99102102	10/21/1999	9	---	1.1	---	---	28.7
	SSWB0077	S99101201	10/12/1999	9.5	---	ND	---	---	ND
	SSWB0071	S99100901	10/9/1999	10	---	0.6 J	---	---	ND
	SSWB0072	S99100902	10/9/1999	10	---	0.9	---	---	ND
	SSWB0080	S99101501	10/15/1999	10	---	ND	---	---	9.4
	SSWB0082	S99101601	10/16/1999	10	---	---	---	---	14.9
	SSWB0084	S99101803	10/18/1999	10	---	---	---	---	43.8
	SSWB0087	S99101902	10/19/1999	10	---	---	---	---	2.11
	SSWB0090	S99102004	10/20/1999	10	---	2.1	---	---	14.6

Table E-7. Excavation Depths Based on Sample Locations and Constituents of Concern for Waste Burial Holes - Volume Estimates, UC Davis LEHR/OCL

Subarea	Location Name	Sample Name	Sample Date	PAHs (mg/kg)		Radioactive Elements (pCi/g)			
				Sample Begin Depth	Naphthalene	Carbon-14	Cesium-137	Strontium-90	Tritium (Hydrogen-3)
				0-10 feet bgs PCGs:	3.6	0.3	0.06	0.24	1.2
				10-20 feet bgs PCGs:	---	0.3	---	0.24	1.2
>20 feet bgs PCGs:	---	0.3	---	---	3.2				
WBH Intermediate (continued)	SSWB0085	S99101804	10/18/1999	10.7	---	0.5	---	---	1.13 J
	SSWB0094	S99102103	10/21/1999	11	---	0.8	---	---	---
	SSWB0095	S99102104	10/21/1999	11	---	---	---	---	162
	SSWB0097	S99102503	10/25/1999	11	---	0.1 J	---	---	1.3 J
	SSWB0099	S99102601	10/26/1999	11	---	---	---	---	30.9
	SSWB0078	S99101202	10/12/1999	11.5	---	0.5 J	---	---	2.5 J
	TRL0052	SSWB0011	8/30/1996	12	ND	15.7	ND	ND	4.8
	SSWB0073	S99100903	10/9/1999	12	---	2.3	---	---	4.0
	SSWB0074	S99100904	10/9/1999	12	---	6.2	---	---	4.5
	SSWB0081	S99101502	10/15/1999	12	---	ND	---	---	---
	SSWB0086	S99101805	10/18/1999	12.7	---	0.8	---	---	ND
	SSWB0096	S99102502	10/25/1999	13	---	---	---	---	42.3
	SSWB0098	S99102504	10/25/1999	13	---	7.8	---	---	1.2 J
	SBL-395	SBL-395-15.5	3/26/2001	15.5	---	0.4 J	---	---	ND
	SBL-397	SBL-397-15.5	3/28/2001	15.5	---	ND	---	---	ND
	SBL-395	SBL-395-17.5	3/26/2001	17.5	---	0.7 J	---	---	ND
	SBL-397	SBL-397-17.5	3/28/2001	17.5	---	0.5 J	---	---	ND
SBL-395	SBL-395-19	3/26/2001	19	---	0.6	---	---	ND	
SBL-397	SBL-397-19	3/28/2001	19	---	0.7	---	---	ND	
WBH-3	SSWBH-3-20	9/16/2008	20	---	ND	---	ND	0.9	
WBH-3	SSWBH-3-27.5	9/16/2008	27.5	---	ND	---	ND	0.6 J	
WBH Deep	LLRS0002	S99120801	12/8/1999	3	---	17.3	---	---	76.2
	LLRS0003	S99120802	12/8/1999	3	---	9.9	---	---	13.5
	SBL-446	SSWB0101	5/8/2002	3	---	3.9	---	---	26.1
	SBL-448	SSWB0103	5/8/2002	3	---	6.3	---	---	22.1
	LLRS0001	S99120901	12/9/1999	4	---	7.4	---	---	21.7
	SBL-372	SBL-372-COMP	3/29/2001	4	ND	6.6	---	---	41 J
	SBL-447	SSWB0102	5/8/2002	6.5	---	7.5	---	---	289
	SSWB0066	S99100701	10/7/1999	8.5	---	---	---	---	ND
	SSWB0063	S99100602	10/6/1999	9.5	---	ND	---	---	ND
	SSWB0083	S99101802	10/18/1999	9.5	---	---	---	---	1.7
	TRL0051	SSWB0007	8/29/1996	10	ND	ND	ND	ND	3,530
	SSWB0065	S99100702	10/7/1999	10	---	---	---	---	ND
	SSWB0064	S99100603	10/6/1999	11.5	---	ND	---	---	---
	SBL0032	SSUT0027	5/26/1995	15	ND	ND	ND	ND	3,930
	WBH-2	SSWBH-2-15	9/16/2008	15	---	ND	---	---	19.7
	SBL-393	SBL-393-15.5	3/26/2001	15.5	---	0.4 J	---	---	ND
	SBL-396	SBL-396-15.5	3/26/2001	15.5	---	0.7	---	---	66.5
	SRI-391	SRI-391-15.5	3/27/2001	15.5	---	ND	---	---	34.8
	SBL-392	SBL-392-15.5	3/28/2001	15.5	---	ND	---	---	3.9 J
	SBL-393	SBL-393-17.5	3/26/2001	17.5	---	0.6 J	---	---	ND
	SBL-396	SBL-396-17.5	3/26/2001	17.5	---	0.4 J	---	---	133
	SBL-391	SBL-391-17.5	3/27/2001	17.5	---	ND	---	---	32.8
	SBL-392	SBL-392-17.5	3/28/2001	17.5	---	ND	---	---	6.3 J
	SBL-392	SBL-392-17.5D	3/28/2001	17.5	---	0.4 J	---	---	6.7
	SBL-393	SBL-393-19	3/26/2001	19	---	0.3 J	---	---	455
	SBL-396	SBL-396-19	3/26/2001	19	---	0.5 J	---	---	11 J
	SBL-391	SBL-391-19	3/27/2001	19	---	ND	---	---	37.9
	SBL-392	SBL-392-19	3/28/2001	19	---	ND	---	---	ND
	WBH-2	SSWBH-2-20	9/16/2008	20	---	ND	---	ND	38.1
	WBH-2	SSWBH-2-30	9/16/2008	30	---	ND	---	ND	0.5 J
	SBL0032	SSUT0031	5/26/1995	35	ND	1.9 J	ND	ND	147
	WBH-2	SSWBH-2-35	9/16/2008	35	---	ND	---	ND	ND

Notes:

Red indicates an exceedance of the preliminary cleanup goal

Grey shading indicates excavated area

Acronyms/Abbreviations:

- bgs - below ground surface
- J - concentration is an estimated value
- mg/kg - milligram per kilogram
- ND - not detected
- PAH - polycyclic aromatic hydrocarbon
- PCG - preliminary cleanup goal
- pCi/g - picocuries per gram
- WBH - Waste Burial Holes
- - not analyzed

Table E-8. Excavated Material Types - Volume Estimates, UC Davis LEHR/OCL

Waste Streams	Description
Soil	Soil including fill material outside the boundaries of a waste cell and its two-foot contact layer.
Low Threat Waste (LTW)	Typical municipal waste material, including soil and solid waste materials.
Principal Threat Waste (PTW)	Waste that is highly toxic or highly mobile, that can pose a potential future risk to human health or groundwater, and can be in solid or liquid form.
Biological Waste	E.g., bones, carcasses, feces.
Waste Characteristic Types	
Non-Hazardous	Waste that is not considered a threat to human health or the environment. Non-hazardous waste does not demonstrate hazardous waste characteristics.
RCRA Hazardous Waste	Waste that is considered hazardous under federal regulations as identified in 40 CFR 261.
Non-RCRA Hazardous Waste	Waste that is considered hazardous in California, as identified in Title 22 CCR, but not under federal regulations.
Low-Level Radioactive Waste (LLRW)	Waste with radioactivity levels greater than background activity levels.
Mixed Waste	Waste with both low-level radioactive and hazardous waste characteristics.

Acronyms/Abbreviations:

- CCR - California Code of Regulations
- CFR - Code of Federal Regulations
- LLRW - low-level radioactive waste
- LTW - low threat waste
- PTW - principal threat waste
- RCRA - Resource Conservation and Recovery Act

Table E-9. Identification of Principal Threat Waste - Volume Estimates, UC Davis LEHR/OCL

	Material	Trench Name	Estimated Location in Trench	Depth (feet)
ET	Bottles/vials with clear/amber liquids	TRL-45	38-50 feet from eastern edge	3.5-4
	Orange/yellow/white powders			
	Light green solid	TRL-48	12.25-14.5 feet from eastern edge	3.5-7.5
	Jars with white crystalline powder			
	Large ceramic crocks with whitish granular powder			
	Olive colored glass bottle with volatile liquid	24	12-14 feet from eastern edge	3.5-5.5
	Wide-mouth bottles with very thick liquid			
	Bottles with clear/reddish brown liquids	26	13.5 - 16 feet from eastern edge	2-5
	Yellowish-olive powder			
	5 gallon bucket of "weedkiller"	TRL-35	18.5-20 feet from eastern edge	3-3.5
Large glass bottles with fluid inside				
LFU-1	Blue and green crystalline material	TRL-36	31.5-43.5 feet from eastern edge	2.5-4
	Orange-glazed pottery (Fiestaware) with elevated beta counts			
LFU-2	Lead (battery?)	TRL-12	0.25 - 19.5 feet from eastern edge	0.5-5.75
	Ampules	TRL-20	throughout trench	0.25-3.5
	Lead casing with white crystalline powder	TRL-22	15-36 feet from southeastern edge	2-13

Acronyms/Abbreviations:

ET - Eastern Trenches

LFU - landfill unit

Table E-10. Summary of Percentages of Waste Streams and Waste Characterization Types - Volume Estimates, UC Davis LEHR/OCL

Subarea	Total Excavated Volume [LCY]	Soil vs. Solid Waste Percentage		Waste Stream Volume Percentage		Waste Characterization Type				
						LLRW	Mixed Waste	RCRA Hazardous	Non-RCRA Hazardous	Non-Hazardous
ET North	1,639	Soil	31%	Soil	100.00%	34%	2%	7%	11%	46%
		Solid Waste	69%	LTW	96.75%	50%	2%	8%	8%	32%
				PTW	2.00%	15%	5%	80%	0%	0%
Bio	1.25%			100%	0%	0%	0%	0%		
ET South	6,718	Soil	31%	Soil	100.00%	34%	2%	7%	11%	46%
		Solid Waste	69%	LTW	96.75%	50%	2%	8%	8%	32%
				PTW	2.00%	15%	5%	80%	0%	0%
Bio	1.25%			100%	0%	0%	0%	0%		
ET South (SW-8)	16,796	Soil	72.5%	Soil	100.00%	34%	2%	7%	11%	46%
		Solid Waste	27.5%	LTW	96.75%	50%	2%	8%	8%	32%
				PTW	2.00%	15%	5%	80%	0%	0%
Bio	1.25%			100%	0%	0%	0%	0%		
ET VOC "Hot Spot" East	998	Soil	100%	Soil	100.00%	34%	2%	7%	11%	46%
		Solid Waste	0%	LTW	0.00%	50%	2%	8%	8%	32%
				PTW	0.00%	15%	5%	80%	0%	0%
Bio	0.00%			100%	0%	0%	0%	0%		
ET VOC "Hot Spot" West	689	Soil	72.5%	Soil	100.00%	34%	2%	7%	11%	46%
		Solid Waste	27.5%	LTW	96.75%	50%	2%	8%	8%	32%
				PTW	2.00%	15%	5%	80%	0%	0%
Bio	1.25%			100%	0%	0%	0%	0%		
ET Exploratory Trenches	324	Soil	35%	Soil	100.00%	34%	2%	7%	11%	46%
		Solid Waste	65%	LTW	96.75%	50%	2%	8%	8%	32%
				PTW	2.00%	15%	5%	80%	0%	0%
Bio	1.25%			100%	0%	0%	0%	0%		
HFSDA	646	Soil	33%	Soil	100.00%	0%	0%	0%	0%	100%
		Solid Waste	67%	LTW	95.36%	100%	0%	0%	0%	0%
				PTW	0.00%	0%	0%	0%	0%	0%
Bio	4.64%			100%	0%	0%	0%	0%		
HFSDA Exploratory Trenches	59	Soil	33%	Soil	100.00%	0%	0%	0%	0%	100%
		Solid Waste	67%	LTW	95.36%	100%	0%	0%	0%	0%
				PTW	0.00%	0%	0%	0%	0%	0%
Bio	4.64%			100%	0%	0%	0%	0%		
LFU-1 Non-Drainage Area	35,860	Soil	30%	Soil	100.00%	26%	1%	10%	14%	49%
		Solid Waste	70%	LTW	98.50%	25%	2%	63%	10%	0%
				PTW	1.25%	15%	5%	80%	0%	0%
Bio	0.25%			100%	0%	0%	0%	0%		
LFU-1 Drainage Area	10,100	Soil	30%	Soil	100.00%	26%	1%	10%	14%	49%
		Solid Waste	70%	LTW	98.50%	25%	2%	63%	10%	0%
				PTW	1.25%	15%	5%	80%	0%	0%
Bio	0.25%			100%	0%	0%	0%	0%		

Table E-10. Summary of Percentages of Waste Streams and Waste Characterization Types - Volume Estimates, UC Davis LEHR/OCL

Subarea	Total Excavated Volume [LCY]	Soil vs. Solid Waste Percentage		Waste Stream Volume Percentage		Waste Characterization Type				
						LLRW	Mixed Waste	RCRA Hazardous	Non-RCRA Hazardous	Non-Hazardous
LFU-1 (SW-8)	91,920	Soil	65%	Soil	100.00%	26%	1%	10%	14%	49%
		Solid Waste	35%	LTW	98.50%	25%	2%	63%	10%	0%
				PTW	1.25%	15%	5%	80%	0%	0%
				Bio	0.25%	100%	0%	0%	0%	0%
LFU-1 Exploratory Trenches	838	Soil	40%	Soil	100.00%	26%	1%	10%	14%	49%
		Solid Waste	60%	LTW	98.50%	25%	2%	63%	10%	0%
				PTW	1.25%	15%	5%	80%	0%	0%
				Bio	0.25%	100%	0%	0%	0%	0%
LFU-2 Waste Cells	42,740	Soil	19%	Soil	100.00%	34%	2%	15%	12%	37%
		Solid Waste	81%	LTW	98.50%	50%	2%	48%	0%	0%
				PTW	1.25%	15%	5%	80%	0%	0%
				Bio	0.25%	100%	0%	0%	0%	0%
LFU-2 (SW-8)	97,822	Soil	64%	Soil	100.00%	34%	2%	15%	12%	37%
		Solid Waste	36%	LTW	98.50%	50%	2%	48%	0%	0%
				PTW	1.25%	15%	5%	80%	0%	0%
				Bio	0.25%	100%	0%	0%	0%	0%
LFU-2 Exploratory Trenches	953	Soil	23%	Soil	100.00%	34%	2%	15%	12%	37%
		Solid Waste	77%	LTW	98.50%	50%	2%	48%	0%	0%
				PTW	1.25%	15%	5%	80%	0%	0%
				Bio	0.25%	100%	0%	0%	0%	0%
LFU-2 VOC "Hot Spot"	1,693	Soil	47.5%	Soil	100.00%	34%	2%	15%	12%	37%
		Solid Waste	52.5%	LTW	98.50%	50%	2%	48%	0%	0%
				PTW	1.25%	15%	5%	80%	0%	0%
				Bio	0.25%	100%	0%	0%	0%	0%
LFU-3 Waste Cells	13,889	Soil	25%	Soil	100.00%	26%	1%	16%	7%	50%
		Solid Waste	75%	LTW	98.50%	25%	2%	73%	0%	0%
				PTW	1.25%	15%	5%	80%	0%	0%
				Bio	0.25%	100%	0%	0%	0%	0%
LFU-3 Drainage Area	3,839	Soil	52%	Soil	100.00%	26%	1%	16%	7%	50%
		Solid Waste	48%	LTW	98.50%	25%	2%	73%	0%	0%
				PTW	1.25%	15%	5%	80%	0%	0%
				Bio	0.25%	100%	0%	0%	0%	0%
LFU-3 Exploratory Trenches	117	Soil	31%	Soil	100.00%	26%	1%	16%	7%	50%
		Solid Waste	69%	LTW	98.50%	25%	2%	73%	0%	0%
				PTW	1.25%	15%	5%	80%	0%	0%
				Bio	0.25%	100%	0%	0%	0%	0%
Non-Impacted Area	48,121	Soil	100%	Soil	100.00%	0%	0%	0%	0%	100%
		Solid Waste	0%	LTW	0.00%	0%	0%	0%	0%	0%
				PTW	0.00%	0%	0%	0%	0%	0%
				Bio	0.00%	0%	0%	0%	0%	0%

Table E-10. Summary of Percentages of Waste Streams and Waste Characterization Types - Volume Estimates, UC Davis LEHR/OCL

Subarea	Total Excavated Volume [LCY]	Soil vs. Solid Waste Percentage		Waste Stream Volume Percentage		Waste Characterization Type				
						LLRW	Mixed Waste	RCRA Hazardous	Non-RCRA Hazardous	Non-Hazardous
ST	2,186	Soil 17%	Solid Waste 83%	Soil	100.00%	34%	1%	0%	0%	65%
				LTW	97.50%	50%	1%	0%	11%	38%
				PTW	1.25%	15%	5%	80%	0%	0%
				Bio	1.25%	100%	0%	0%	0%	0%
ST Exploratory Trenches	273	Soil 17%	Solid Waste 83%	Soil	100.00%	34%	1%	0%	0%	65%
				LTW	97.50%	50%	1%	0%	11%	38%
				PTW	1.25%	15%	5%	80%	0%	0%
				Bio	1.25%	100%	0%	0%	0%	0%
WBH	6,228	Soil 100%	Solid Waste 0%	Soil	100.00%	51%	0%	0%	5%	44%
				LTW	0.00%	0%	0%	0%	0%	
				PTW	0.00%	0%	0%	0%	0%	
				Bio	0.00%	0%	0%	0%	0%	0%

Acronyms/Abbreviations:

- Bio - biological waste
- ET - Eastern Trenches
- HFSDA - Hopland Field Station Disposal Area
- LCY - loose cubic yards
- LFU - landfill unit
- LLRW - low-level radioactive waste
- LTW - low threat waste
- PTW - principal threat waste
- RCRA - Resource Conservation and Recovery Act
- ST - Southern Trenches
- VOC - volatile organic compound
- WBH - Waste Burial Holes

Table E-11. Summary of Volumes of Waste Streams and Waste Characterization Types - Volume Estimates, UC Davis LEHR/OCL

Subarea	Total Excavated Volume [LCY]	Soil vs. Solid Waste Volume [LCY]	Waste Stream Volume [LCY]	Waste Characterization Type [LCY]					Sub-Total (hazardous material only) [LCY]
				LLRW	Mixed Waste	RCRA Hazardous	Non-RCRA Hazardous	Non-Hazardous	
ET North	1,639	Soil 512	Soil 512	174	10	36	56	236	277
		Solid Waste 1,127	LTW 1,090	545	22	87	87	349	741
			PTW 23	3	1	18	0	0	23
			Bio 14	14	0	0	0	0	14
		Total 1,639	737	33	141	144	585	1,055	
ET South	6,718	Soil 2,099	Soil 2,099	714	42	147	231	966	1,134
		Solid Waste 4,619	LTW 4,469	2,234	89	357	357	1,430	3,039
			PTW 92	14	5	74	0	0	92
			Bio 58	58	0	0	0	0	58
		Total 6,718	3,020	136	578	588	2,396	4,323	
ET South (SW-8)	16,796	Soil 12,177	Soil 12,177	4,140	244	852	1,339	5,601	6,576
		Solid Waste 4,619	LTW 4,469	2,234	89	357	357	1,430	3,039
			PTW 92	14	5	74	0	0	92
			Bio 58	58	0	0	0	0	58
		Total 16,796	6,446	338	1,284	1,697	7,031	9,764	
ET VOC "Hot Spot" East	998	Soil 998	Soil 998	339	20	70	110	459	539
		Solid Waste 0	LTW 0	0	0	0	0	0	0
			PTW 0	0	0	0	0	0	0
			Bio 0	0	0	0	0	0	0
		Total 998	339	20	70	110	459	539	
ET VOC "Hot Spot" West	689	Soil 499	Soil 499	170	10	35	55	230	270
		Solid Waste 189	LTW 183	92	4	15	15	59	125
			PTW 4	1	0	3	0	0	4
			Bio 2	2	0	0	0	0	2
		Total 689	264	14	53	70	288	400	
ET Exploratory Trenches	324	Soil 112	Soil 112	38	2	8	12	52	60
		Solid Waste 212	LTW 205	102	4	16	16	66	139
			PTW 4	1	0	3	0	0	4
			Bio 3	3	0	0	0	0	3
		Total 324	144	7	28	29	117	207	
HFSDA	646	Soil 215	Soil 215	0	0	0	0	215	0
		Solid Waste 431	LTW 411	411	0	0	0	0	411
			PTW 0	0	0	0	0	0	0
			Bio 20	20	0	0	0	0	20
		Total 646	431	0	0	0	215	431	
HFSDA Exploratory Trenches	59	Soil 20	Soil 20	0	0	0	0	20	0
		Solid Waste 39	LTW 38	38	0	0	0	0	38
			PTW 0	0	0	0	0	0	0
			Bio 2	2	0	0	0	0	2
		Total 59	39	0	0	0	20	39	
LFU-1 Non-Drainage Area	35,860	Soil 10,758	Soil 10,758	2,797	108	1,076	1,506	5,271	5,487
		Solid Waste 25,102	LTW 24,725	6,181	495	15,577	2,473	0	24,725
			PTW 314	47	16	251	0	0	314
			Bio 63	63	0	0	0	0	63
		Total 35,860	9,088	618	16,904	3,979	5,271	30,588	
LFU-1 Drainage Area	10,100	Soil 3,030	Soil 3,030	788	30	303	424	1,485	1,545
		Solid Waste 7,070	LTW 6,964	1,741	139	4,387	696	0	6,964
			PTW 88	13	4	71	0	0	88
			Bio 18	18	0	0	0	0	18
		Total 10,100	2,560	174	4,761	1,121	1,485	8,616	

Table E-11. Summary of Volumes of Waste Streams and Waste Characterization Types - Volume Estimates, UC Davis LEHR/OCL

Subarea	Total Excavated Volume [LCY]	Soil vs. Solid Waste Volume [LCY]	Waste Stream Volume [LCY]	Waste Characterization Type [LCY]					Sub-Total (hazardous material only) [LCY]
				LLRW	Mixed Waste	RCRA Hazardous	Non-RCRA Hazardous	Non-Hazardous	
LFU-1 (SW-8)	91,920	Soil 59,748	Soil 59,748	15,534	597	5,975	8,365	29,276	30,471
		Solid Waste 32,172	LTW 31,689	7,922	634	19,964	3,169	0	31,689
			PTW 402	60	20	322	0	0	402
			Bio 80	80	0	0	0	0	80
		Total 91,920	23,598	1,251	26,261	11,534	29,276	62,643	
LFU-1 Exploratory Trenches	838	Soil 334	Soil 334	87	3	33	47	164	170
		Solid Waste 504	LTW 496	124	10	312	50	0	496
			PTW 6	1	0	5	0	0	6
			Bio 1	1	0	0	0	0	1
		Total 838	213	14	351	96	164	674	
LFU-2 Waste Cells	42,740	Soil 8,219	Soil 8,219	2,795	164	1,233	986	3,041	5,178
		Solid Waste 34,521	LTW 34,003	17,001	680	16,321	0	0	34,003
			PTW 432	65	22	345	0	0	432
			Bio 86	86	0	0	0	0	86
		Total 42,740	19,947	866	17,899	986	3,041	39,699	
LFU-2 (SW-8)	97,822	Soil 62,412	Soil 62,412	21,220	1,248	9,362	7,489	23,092	39,320
		Solid Waste 35,410	LTW 34,878	17,439	698	16,742	0	0	34,878
			PTW 443	66	22	354	0	0	443
			Bio 89	89	0	0	0	0	89
		Total 97,822	38,814	1,968	26,458	7,489	23,092	74,729	
LFU-2 Exploratory Trenches	953	Soil 218	Soil 218	74	4	33	26	81	137
		Solid Waste 736	LTW 725	362	14	348	0	0	725
			PTW 9	1	0	7	0	0	9
			Bio 2	2	0	0	0	0	2
		Total 953	440	19	388	26	81	873	
LFU-2 VOC "Hot Spot"	1,693	Soil 804	Soil 804	273	16	121	97	298	507
		Solid Waste 889	LTW 876	438	18	420	0	0	876
			PTW 11	2	1	9	0	0	11
			Bio 2	2	0	0	0	0	2
		Total 1,693	715	34	550	97	298	1,396	
LFU-3 Waste Cells	13,889	Soil 3,472	Soil 3,472	903	35	556	243	1,736	1,736
		Solid Waste 10,416	LTW 10,260	2,565	205	7,490	0	0	10,260
			PTW 130	20	7	104	0	0	130
			Bio 26	26	0	0	0	0	26
		Total 13,889	3,513	246	8,150	243	1,736	12,153	
LFU-3 Drainage Area	3,839	Soil 1,985	Soil 1,985	516	20	318	139	993	993
		Solid Waste 1,853	LTW 1,826	456	37	1,333	0	0	1,826
			PTW 23	3	1	19	0	0	23
			Bio 5	5	0	0	0	0	5
		Total 3,839	981	58	1,669	139	993	2,846	
LFU-3 Exploratory Trenches	117	Soil 37	Soil 37	10	0	6	3	18	18
		Solid Waste 81	LTW 79	20	2	58	0	0	79
			PTW 1	0	0	1	0	0	1
			Bio 0	0	0	0	0	0	0
		Total 117	30	2	65	3	18	99	
Non-Impacted Area	48,121	Soil 48,121	Soil 48,121	0	0	0	0	48,121	0
		Solid Waste 0	LTW 0	0	0	0	0	0	0
			PTW 0	0	0	0	0	0	0
			Bio 0	0	0	0	0	0	0
		Total 48,121	0	0	0	0	48,121	0	

Table E-11. Summary of Volumes of Waste Streams and Waste Characterization Types - Volume Estimates, UC Davis LEHR/OCL

Subarea	Total Excavated Volume [LCY]	Soil vs. Solid Waste Volume [LCY]	Waste Stream Volume [LCY]	Waste Characterization Type [LCY]					Sub-Total (hazardous material only) [LCY]
				LLRW	Mixed Waste	RCRA Hazardous	Non-RCRA Hazardous	Non-Hazardous	
ST	2,186	Soil 364	<i>Soil</i> 364	124	4	0	0	237	128
		Solid Waste 1,822	<i>LTW</i> 1,776	888	18	0	195	675	1,101
			<i>PTW</i> 23	3	1	18	0	0	23
			<i>Bio</i> 23	23	0	0	0	0	23
			Total 2,186	1,038	23	18	195	912	1,274
ST Exploratory Trenches	273	Soil 45	<i>Soil</i> 45	15	0	0	0	30	16
		Solid Waste 227	<i>LTW</i> 221	111	2	0	24	84	137
			<i>PTW</i> 3	0	0	3	0	0	3
			<i>Bio</i> 3	3	0	0	0	0	3
			Total 273	129	3	3	24	114	159
WBH	6,228	Soil 6,228	<i>Soil</i> 6,228	3,177	0	0	311	2,741	3,488
		Solid Waste 0	<i>LTW</i> 0	0	0	0	0	0	0
			<i>PTW</i> 0	0	0	0	0	0	0
			<i>Bio</i> 0	0	0	0	0	0	0
			Total 6,228	3,177	0	0	311	2,741	3,488

Acronyms/Abbreviations:

- Bio - biological waste
- ET - Eastern Trenches
- HFSDA - Hopland Field Station Disposal Area
- LCY - loose cubic yards
- LFU - landfill unit
- LLRW - low-level radioactive waste
- LTW - low threat waste
- PTW - principal threat waste
- RCRA - Resource Conservation and Recovery Act
- ST - Southern Trenches
- VOC - volatile organic compound
- WBH - Waste Burial Holes

Table E-12. Excavation and Disposal Estimate Summary by Alternative - Volume Estimates, UC Davis LEHR/OCL

Subarea ^a	Volume (LCY)	Source ^{b,c}	Destination
Alternative SW-2			
HFSDA Exploratory Trenches			
Total Excavated Volume	59	Exploratory trenches	-
Volume disposed off-Site	0	-	-
Volume disposed on-Site	59	Exploratory trenches (non-PTW)	Exploratory trenches backfill
Additional Backfill Requirements	0	-	-
ST Exploratory Trenches			
Total Excavated Volume	273	Exploratory trenches	-
Volume disposed off-Site	3	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	270	Exploratory trenches (non-PTW)	Exploratory trenches backfill
Additional Backfill Requirements	3	Off-Site source	Exploratory trenches backfill
Alternative SW-2 Total Excavated Volume	332		
Alternative SW-3			
ET VOC "Hot Spot" East			
Total Excavated Volume	998	ET VOC Hot Spot (east)	-
Volume disposed off-Site	539	ET VOC Hot Spot (east) (hazardous material)	Waste disposal site
Volume disposed on-Site	459	ET VOC Hot Spot (east) (non-hazardous material)	On-Site CAMUs
Additional Backfill Requirements	998	Off-Site source	ET VOC Hot Spot (east) backfill
ET VOC "Hot Spot" West			
Total Excavated Volume	689	ET VOC Hot Spot (west)	-
Volume disposed off-Site	400	ET VOC Hot Spot (west) (hazardous material)	Waste disposal site
Volume disposed on-Site	288	ET VOC Hot Spot (west) (non-hazardous material)	ET VOC Hot Spot (west) backfill (part of on-Site CAMU)
Additional Backfill Requirements	400	Off-Site source	ET VOC Hot Spot (west) backfill (part of on-Site CAMU)
LFU-2 VOC "Hot Spot"			
Total Excavated Volume	1,693	LFU-2 VOC Hot Spot	-
Volume disposed off-Site	1,396	LFU-2 VOC Hot Spot (hazardous material)	Waste disposal site
Volume disposed on-Site	298	LFU-2 VOC Hot Spot (non-hazardous material)	LFU-2 VOC Hot Spot backfill (part of on-Site CAMU)
Additional Backfill Requirements	1,396	Off-Site source	LFU-2 VOC Hot Spot backfill (part of on-Site CAMU)
ET Exploratory Trenches			
Total Excavated Volume	324	Exploratory trenches	-
Volume disposed off-Site	4	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	319	Exploratory trenches (non-PTW)	Exploratory trenches backfill (part of on-Site CAMU)
Additional Backfill Requirements	4	Off-Site source	Exploratory trenches backfill (part of on-Site CAMU)
HFSDA Exploratory Trenches			
Total Excavated Volume	59	Exploratory trenches	-
Volume disposed off-Site	0	-	-
Volume disposed on-Site	59	Exploratory trenches (non-PTW)	Exploratory trenches backfill
Additional Backfill Requirements	0	-	-
LFU-1 Exploratory Trenches			
Total Excavated Volume	838	Exploratory trenches	-
Volume disposed off-Site	6	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	831	Exploratory trenches (non-PTW)	Exploratory trenches backfill (part of on-Site CAMU)
Additional Backfill Requirements	6	Off-Site source	Exploratory trenches backfill (part of on-Site CAMU)
LFU-2 Exploratory Trenches			
Total Excavated Volume	953	Exploratory trenches	-
Volume disposed off-Site	9	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	944	Exploratory trenches (non-PTW)	Exploratory trenches backfill (part of on-Site CAMU)
Additional Backfill Requirements	9	Off-Site source	Exploratory trenches backfill (part of on-Site CAMU)
LFU-3 Exploratory Trenches			
Total Excavated Volume	117	Exploratory trenches	-
Volume disposed off-Site	1	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	116	Exploratory trenches (non-PTW)	Exploratory trenches backfill (part of on-Site CAMU)
Additional Backfill Requirements	1	Off-Site source	Exploratory trenches backfill (part of on-Site CAMU)
ST Exploratory Trenches			
Total Excavated Volume	273	Exploratory trenches	-
Volume disposed off-Site	3	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	270	Exploratory trenches (non-PTW)	Exploratory trenches backfill
Additional Backfill Requirements	3	Off-Site source	Exploratory trenches backfill
Alternative SW-3 Total Excavated Volume	5,943		
Alternative SW-4			
ET VOC "Hot Spot" East			
Total Excavated Volume	998	ET VOC Hot Spot (east)	-
Volume disposed off-Site	539	ET VOC Hot Spot (east) (hazardous material)	Waste disposal site
Volume disposed on-Site	459	ET VOC Hot Spot (east) (non-hazardous material)	On-Site CAMUs
Additional Backfill Requirements	998	Off-Site source	ET VOC Hot Spot (east) backfill
ET VOC "Hot Spot" West			
Total Excavated Volume	689	ET VOC Hot Spot (west)	-
Volume disposed off-Site	400	ET VOC Hot Spot (west) (hazardous material)	Waste disposal site
Volume disposed on-Site	288	ET VOC Hot Spot (west) (non-hazardous material)	ET VOC Hot Spot (west) backfill (part of on-Site CAMU)
Additional Backfill Requirements	400	On-Site source	ET VOC Hot Spot (west) backfill (part of on-Site CAMU)
LFU-2 VOC "Hot Spot"			
Total Excavated Volume	1,693	LFU-2 VOC Hot Spot	-
Volume disposed off-Site	1,396	LFU-2 VOC Hot Spot (hazardous material)	Waste disposal site
Volume disposed on-Site	298	LFU-2 VOC Hot Spot (non-hazardous material)	LFU-2 VOC Hot Spot backfill (part of on-Site CAMU)
Additional Backfill Requirements	1,396	On-Site source	LFU-2 VOC Hot Spot backfill (part of on-Site CAMU)
LFU-3 Drainage Area			
Total Excavated Volume	3,839	LFU-3 Drainage Area	-
Volume disposed off-Site	23	LFU-3 Drainage Area (PTW)	Waste disposal site
Volume disposed on-Site	3,815	LFU-3 Drainage Area (non-PTW)	On-Site CAMUs
Additional Backfill Requirements	3,839	Off-Site source	LFU-3 Drainage Area backfill
ET Exploratory Trenches			
Total Excavated Volume	324	Exploratory trenches	-
Volume disposed off-Site	4	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	319	Exploratory trenches (non-PTW)	Exploratory trenches backfill (part of on-Site CAMU)
Additional Backfill Requirements	4	On-Site source	Exploratory trenches backfill (part of on-Site CAMU)
HFSDA Exploratory Trenches			
Total Excavated Volume	59	Exploratory trenches	-
Volume disposed off-Site	0	-	-
Volume disposed on-Site	59	Exploratory trenches (non-PTW)	Exploratory trenches backfill
Additional Backfill Requirements	0	-	-
LFU-1 Drainage Area			
Total Excavated Volume	10,100	LFU-1 Drainage Area	-
Volume disposed off-Site	88	LFU-1 Drainage Area (PTW)	Waste disposal site
Volume disposed on-Site	10,012	LFU-1 Drainage Area (non-PTW)	On-Site CAMUs
Additional Backfill Requirements	9,895	Off-Site source	LFU-1 Drainage Area backfill (TEV less volume of drainage swale)
LFU-1 Exploratory Trenches			
Total Excavated Volume	838	Exploratory trenches	-
Volume disposed off-Site	6	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	831	Exploratory trenches (non-PTW)	Exploratory trenches backfill (part of on-Site CAMU)
Additional Backfill Requirements	6	On-Site source	Exploratory trenches backfill (part of on-Site CAMU)

Table E-12. Excavation and Disposal Estimate Summary by Alternative - Volume Estimates, UC Davis LEHR/OCL

Subarea ^a	Volume (LCY)	Source ^{b,c}	Destination
Alternative SW-4 (continued)			
LFU-2 Exploratory Trenches			
Total Excavated Volume	953	Exploratory trenches	-
Volume disposed off-Site	9	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	944	Exploratory trenches (non-PTW)	Exploratory trenches backfill (part of on-Site CAMU)
Additional Backfill Requirements	9	On-Site source	Exploratory trenches backfill (part of on-Site CAMU)
LFU-3 Exploratory Trenches			
Total Excavated Volume	117	Exploratory trenches	-
Volume disposed off-Site	1	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	116	Exploratory trenches (non-PTW)	Exploratory trenches backfill (part of on-Site CAMU)
Additional Backfill Requirements	1	On-Site source	Exploratory trenches backfill (part of on-Site CAMU)
ST Exploratory Trenches			
Total Excavated Volume	273	Exploratory trenches	-
Volume disposed off-Site	3	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	270	Exploratory trenches (non-PTW)	Exploratory trenches backfill
Additional Backfill Requirements	3	Off-Site source	Exploratory trenches backfill
Alternative SW-4 Total Excavated Volume	19,882		
Alternative SW-5			
ET VOC "Hot Spot" East			
Total Excavated Volume	998	ET VOC Hot Spot (east)	-
Volume disposed off-Site	539	ET VOC Hot Spot (east) (hazardous material)	Waste disposal site
Volume disposed on-Site	459	ET VOC Hot Spot (east) (non-hazardous material)	On-Site CAMUs
Additional Backfill Requirements	998	Off-Site source	ET VOC Hot Spot (east) backfill
ET VOC "Hot Spot" West			
Total Excavated Volume	689	ET VOC Hot Spot (west)	-
Volume disposed off-Site	400	ET VOC Hot Spot (west) (hazardous material)	Waste disposal site
Volume disposed on-Site	288	ET VOC Hot Spot (west) (non-hazardous material)	ET VOC Hot Spot (west) backfill (part of on-Site CAMU)
Additional Backfill Requirements	400	On-Site source	ET VOC Hot Spot (west) backfill (part of on-Site CAMU)
LFU-2 VOC "Hot Spot"			
Total Excavated Volume	1,693	LFU-2 VOC Hot Spot	-
Volume disposed off-Site	1,396	LFU-2 VOC Hot Spot (hazardous material)	Waste disposal site
Volume disposed on-Site	298	LFU-2 VOC Hot Spot (non-hazardous material)	LFU-2 VOC Hot Spot backfill (part of on-Site CAMU)
Additional Backfill Requirements	1,396	On-Site source	LFU-2 VOC Hot Spot backfill (part of on-Site CAMU)
LFU-3 Drainage Area			
Total Excavated Volume	3,839	LFU-3 Drainage Area	-
Volume disposed off-Site	23	LFU-3 Drainage Area (PTW)	Waste disposal site
Volume disposed on-Site	3,815	LFU-3 Drainage Area (non-PTW)	On-Site CAMUs
Additional Backfill Requirements	3,839	Off-Site source	LFU-3 Drainage Area backfill
ET Exploratory Trenches			
Total Excavated Volume	324	Exploratory trenches	-
Volume disposed off-Site	4	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	319	Exploratory trenches (non-PTW)	Exploratory trenches backfill (part of on-Site CAMU)
Additional Backfill Requirements	4	On-Site source	Exploratory trenches backfill (part of on-Site CAMU)
HFSDA Exploratory Trenches			
Total Excavated Volume	59	Exploratory trenches	-
Volume disposed off-Site	0	-	-
Volume disposed on-Site	59	Exploratory trenches (non-PTW)	Exploratory trenches backfill
Additional Backfill Requirements	0	-	-
LFU-1 Drainage Area			
Total Excavated Volume	10,100	LFU-1 Drainage Area	-
Volume disposed off-Site	88	LFU-1 Drainage Area (PTW)	Waste disposal site
Volume disposed on-Site	10,012	LFU-1 Drainage Area (non-PTW)	On-Site CAMUs
Additional Backfill Requirements	9,895	Off-Site source	LFU-1 Drainage Area backfill (TEV less volume of drainage swale)
LFU-1 Exploratory Trenches			
Total Excavated Volume	838	Exploratory trenches	-
Volume disposed off-Site	6	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	831	Exploratory trenches (non-PTW)	Exploratory trenches backfill (part of on-Site CAMU)
Additional Backfill Requirements	6	On-Site source	Exploratory trenches backfill (part of on-Site CAMU)
LFU-2 Exploratory Trenches			
Total Excavated Volume	953	Exploratory trenches	-
Volume disposed off-Site	9	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	944	Exploratory trenches (non-PTW)	Exploratory trenches backfill (part of on-Site CAMU)
Additional Backfill Requirements	9	On-Site source	Exploratory trenches backfill (part of on-Site CAMU)
LFU-3 Exploratory Trenches			
Total Excavated Volume	117	Exploratory trenches	-
Volume disposed off-Site	1	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	116	Exploratory trenches (non-PTW)	Exploratory trenches backfill (part of on-Site CAMU)
Additional Backfill Requirements	1	On-Site source	Exploratory trenches backfill (part of on-Site CAMU)
ST Exploratory Trenches			
Total Excavated Volume	273	Exploratory trenches	-
Volume disposed off-Site	3	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	270	Exploratory trenches (non-PTW)	Exploratory trenches backfill
Additional Backfill Requirements	3	Off-Site source	Exploratory trenches backfill
Alternative SW-5 Total Excavated Volume	19,882		
Alternative SW-6			
ET North			
Total Excavated Volume	1,639	ET North	-
Volume disposed off-Site	23	ET North (PTW)	Waste disposal site
Volume disposed on-Site	1,617	ET North (non-PTW)	On-Site CAMU
Additional Backfill Requirements	1,639	Off-Site source	ET North backfill
ET South			
Total Excavated Volume	6,718	ET South	-
Volume disposed off-Site	92	ET South (PTW)	Waste disposal site
Volume disposed on-Site	6,626	ET South (non-PTW)	ET South backfill (part of on-Site CAMU)
Additional Backfill Requirements	92	On-Site source	ET South backfill (part of on-Site CAMU)
ET VOC "Hot Spot" East			
Total Excavated Volume	998	ET VOC Hot Spot (east)	-
Volume disposed off-Site	539	ET VOC Hot Spot (east) (hazardous material)	Waste disposal site
Volume disposed on-Site	459	ET VOC Hot Spot (east) (non-hazardous material)	On-Site CAMUs
Additional Backfill Requirements	998	Off-Site source	ET VOC Hot Spot (east) backfill
ET VOC "Hot Spot" West			
Total Excavated Volume	689	ET VOC Hot Spot (west)	-
Volume disposed off-Site	400	ET VOC Hot Spot (west) (hazardous material)	Waste disposal site
Volume disposed on-Site	288	ET VOC Hot Spot (west) (non-hazardous material)	ET VOC Hot Spot (west) backfill (part of on-Site CAMU)
Additional Backfill Requirements	400	On-Site source	ET VOC Hot Spot (west) backfill (part of on-Site CAMU)
HFSDA Exploratory Trenches			
Total Excavated Volume	59	Exploratory trenches	-
Volume disposed off-Site	0	-	-
Volume disposed on-Site	59	Exploratory trenches (non-PTW)	Exploratory trenches backfill
Additional Backfill Requirements	0	-	-

Table E-12. Excavation and Disposal Estimate Summary by Alternative - Volume Estimates, UC Davis LEHR/OCL

Subarea ^a	Volume (LCY)	Source ^{b,c}	Destination
Alternative SW-6 (continued)			
LFU-2 VOC "Hot Spot"			
Total Excavated Volume	1,693	LFU-2 VOC Hot Spot	-
Volume disposed off-Site	1,396	LFU-2 VOC Hot Spot (hazardous material)	Waste disposal site
Volume disposed on-Site	298	LFU-2 VOC Hot Spot (non-hazardous material)	LFU-2 VOC Hot Spot backfill (part of on-Site CAMU)
Additional Backfill Requirements	1,396	On-Site source	LFU-2 VOC Hot Spot backfill (part of on-Site CAMU)
LFU-3 Drainage Area			
Total Excavated Volume	3,839	LFU-3 Drainage Area	-
Volume disposed off-Site	23	LFU-3 Drainage Area (PTW)	Waste disposal site
Volume disposed on-Site	3,815	LFU-3 Drainage Area (non-PTW)	On-Site CAMUs
Additional Backfill Requirements	3,839	Off-Site source	LFU-3 Drainage Area backfill
LFU-1 Drainage Area			
Total Excavated Volume	10,100	LFU-1 Drainage Area	-
Volume disposed off-Site	88	LFU-1 Drainage Area (PTW)	Waste disposal site
Volume disposed on-Site	10,012	LFU-1 Drainage Area (non-PTW)	On-Site CAMUs
Additional Backfill Requirements	9,895	Off-Site source	LFU-1 Drainage Area backfill (TEV less volume of drainage swale)
LFU-1 Exploratory Trenches			
Total Excavated Volume	838	Exploratory trenches	-
Volume disposed off-Site	6	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	831	Exploratory trenches (non-PTW)	Exploratory trenches backfill (part of on-Site CAMU)
Additional Backfill Requirements	6	On-Site source	Exploratory trenches backfill (part of on-Site CAMU)
LFU-2 Exploratory Trenches			
Total Excavated Volume	953	Exploratory trenches	-
Volume disposed off-Site	9	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	944	Exploratory trenches (non-PTW)	Exploratory trenches backfill (part of on-Site CAMU)
Additional Backfill Requirements	9	On-Site source	Exploratory trenches backfill (part of on-Site CAMU)
LFU-3 Exploratory Trenches			
Total Excavated Volume	117	Exploratory trenches	-
Volume disposed off-Site	1	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	116	Exploratory trenches (non-PTW)	Exploratory trenches backfill (part of on-Site CAMU)
Additional Backfill Requirements	1	On-Site source	Exploratory trenches backfill (part of on-Site CAMU)
ST Exploratory Trenches			
Total Excavated Volume	273	Exploratory trenches	-
Volume disposed off-Site	3	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	270	Exploratory trenches (non-PTW)	Exploratory trenches backfill
Additional Backfill Requirements	3	Off-Site source	Exploratory trenches backfill
Alternative SW-6 Total Excavated Volume			
	27,916		
Alternative SW-7			
ET North			
Total Excavated Volume	1,639	ET North	-
Volume disposed off-Site	23	ET North (PTW)	Waste disposal site
Volume disposed on-Site	1,617	ET North (non-PTW)	On-Site CAMUs
Additional Backfill Requirements	1,639	Off-Site source	ET North backfill
ET South			
Total Excavated Volume	6,718	ET South	-
Volume disposed off-Site	92	ET South (PTW)	Waste disposal site
Volume disposed on-Site	6,626	ET South (non-PTW)	ET South backfill (part of on-Site CAMU)
Additional Backfill Requirements	92	On-Site source	ET South backfill (part of on-Site CAMU)
ET VOC "Hot Spot" East			
Total Excavated Volume	998	ET VOC Hot Spot (east)	-
Volume disposed off-Site	539	ET VOC Hot Spot (east) (hazardous material)	Waste disposal site
Volume disposed on-Site	459	ET VOC Hot Spot (east) (non-hazardous material)	On-Site CAMU
Additional Backfill Requirements	998	Off-Site source	ET VOC Hot Spot (east) backfill
ET VOC "Hot Spot" West			
Total Excavated Volume	689	ET VOC Hot Spot (west)	-
Volume disposed off-Site	400	ET VOC Hot Spot (west) (hazardous material)	Waste disposal site
Volume disposed on-Site	288	ET VOC Hot Spot (west) (non-hazardous material)	ET VOC Hot Spot (west) backfill (part of on-Site CAMU)
Additional Backfill Requirements	400	On-Site source	ET VOC Hot Spot (west) backfill (part of on-Site CAMU)
HFSDA			
Total Excavated Volume	646	HFSDA	-
Volume disposed off-Site	0	HFSDA (PTW)	Waste disposal site
Volume disposed on-Site	646	HFSDA (non-PTW)	On-Site CAMU
Additional Backfill Requirements	646	Off-Site source	HFSDA backfill
LFU-1 Drainage Area			
Total Excavated Volume	10,100	LFU-1 Drainage Area	-
Volume disposed off-Site	88	LFU-1 Drainage Area (PTW)	Waste disposal site
Volume disposed on-Site	10,012	LFU-1 Drainage Area (non-PTW)	On-Site CAMUs
Additional Backfill Requirements	9,895	Off-Site source	LFU-1 Drainage Area backfill (TEV less volume of drainage swale)
LFU-1 Exploratory Trenches			
Total Excavated Volume	838	Exploratory trenches	-
Volume disposed off-Site	6	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	831	Exploratory trenches (non-PTW)	Exploratory trenches backfill (part of on-Site CAMU)
Additional Backfill Requirements	6	On-Site source	Exploratory trenches backfill (part of on-Site CAMU)
LFU-2 VOC "Hot Spot"			
Total Excavated Volume	1,693	LFU-2 VOC Hot Spot	-
Volume disposed off-Site	1,396	LFU-2 VOC Hot Spot (hazardous material)	Waste disposal site
Volume disposed on-Site	298	LFU-2 VOC Hot Spot (non-hazardous material)	LFU-2 VOC Hot Spot backfill (part of on-Site CAMU)
Additional Backfill Requirements	1,396	On-Site source	LFU-2 VOC Hot Spot backfill (part of on-Site CAMU)
LFU-2 Exploratory Trenches			
Total Excavated Volume	953	Exploratory trenches	-
Volume disposed off-Site	9	Exploratory trenches (PTW)	Waste disposal site
Volume disposed on-Site	944	Exploratory trenches (non-PTW)	Exploratory trenches backfill (part of on-Site CAMU)
Additional Backfill Requirements	9	On-Site source	Exploratory trenches backfill (part of on-Site CAMU)
LFU-3 Waste Cells			
Total Excavated Volume	13,889	LFU-3 Waste Cells	-
Volume disposed off-Site	130	LFU-3 Waste Cells (PTW)	Waste disposal site
Volume disposed on-Site	13,758	LFU-3 Waste Cells (non-PTW)	On-Site CAMUs
Additional Backfill Requirements	13,889	Off-Site source	LFU-3 Waste Cells backfill
ST			
Total Excavated Volume	2,186	ST	-
Volume disposed off-Site	23	ST (PTW)	Waste disposal site
Volume disposed on-Site	2,163	ST (non-PTW)	On-Site CAMUs
Additional Backfill Requirements	2,186	Off-Site source	ST backfill
Alternative SW-7 Total Excavated Volume			
	40,349		
Alternative SW-8			
ET North			
Total Excavated Volume	1,639	ET North	-
Volume disposed off-Site	23	ET North (PTW)	Waste disposal site
Volume disposed on-Site	1,617	ET North (non-PTW)	On-Site CAMU
Additional Backfill Requirements	1,639	On-Site source (non-impacted area)	ET North backfill

Table E-12. Excavation and Disposal Estimate Summary by Alternative - Volume Estimates, UC Davis LEHR/OCL

Subarea ^a	Volume (LCY)	Source ^{b,c}	Destination
Alternative SW-8 (continued)			
ET South (SW-8)			
Total Excavated Volume	16,796	ET South	-
Volume disposed off-Site	92	ET South (PTW)	Waste disposal site
Volume disposed on-Site	16,703	ET South (non-PTW)	On-Site CAMU
Additional Backfill Requirements	92	On-Site source	On-Site CAMU
ET VOC "Hot Spot" East			
Total Excavated Volume	998	ET VOC Hot Spot (east)	-
Volume disposed off-Site	539	ET VOC Hot Spot (east) (hazardous material)	Waste disposal site
Volume disposed on-Site	459	ET VOC Hot Spot (east) (non-hazardous material)	On-Site CAMU
Additional Backfill Requirements	998	On-Site source (non-impacted area)	ET VOC Hot Spot (east) backfill
ET VOC "Hot Spot" West			
Total Excavated Volume	689	ET VOC Hot Spot (west)	-
Volume disposed off-Site	400	ET VOC Hot Spot (west) (hazardous material)	Waste disposal site
Volume disposed on-Site	288	ET VOC Hot Spot (west) (non-hazardous material)	On-Site CAMU
Additional Backfill Requirements	400	On-Site source	On-Site CAMU
HFSDA			
Total Excavated Volume	646	HFSDA	-
Volume disposed off-Site	0	HFSDA (PTW)	Waste disposal site
Volume disposed on-Site	646	HFSDA (non-PTW)	On-Site CAMU
Additional Backfill Requirements	646	On-Site source (non-impacted area)	HFSDA backfill
LFU-1 (SW-8)			
Total Excavated Volume	91,920	LFU-1	-
Volume disposed off-Site	402	LFU-1 (PTW)	Waste disposal site
Volume disposed on-Site	91,518	LFU-1 (Non-PTW)	On-Site CAMU
Additional Backfill Requirements	402	On-Site source	On-Site CAMU
LFU-2 (SW-8)			
Total Excavated Volume	97,822	LFU-2	-
Volume disposed off-Site	1,827	LFU-2 (PTW) and LFU-2 VOC "Hot Spot" (hazardous material)	Waste disposal site
Volume disposed on-Site	95,994	LFU-2 (PTW) and LFU-2 VOC "Hot Spot" (non-hazardous material)	On-Site CAMU
Additional Backfill Requirements	1,827	On-Site source	On-Site CAMU
LFU-3 Waste Cells			
Total Excavated Volume	13,889	LFU-3 Waste Cells	-
Volume disposed off-Site	130	LFU-3 Waste Cells (PTW)	Waste disposal site
Volume disposed on-Site	13,758	LFU-3 Waste Cells (Non-PTW)	On-Site CAMU
Additional Backfill Requirements	13,889	On-Site source (non-impacted area)	LFU-3 Waste Cells backfill
Non-Impacted Area			
Total Excavated Volume	48,121	Non-impacted area	-
Volume disposed off-Site ^d	0	-	-
Volume disposed on-Site	48,121	Non-impacted area	ET North, ET VOC Hot Spot (east), LFU-1 Drainage Area, LFU-3 Waste Cells, ST, HFSDA backfill, On-Site CAMU
Additional Backfill Requirements	48,121	On-Site source	On-Site CAMU
ST			
Total Excavated Volume	2,186	ST	-
Volume disposed off-Site	23	ST (PTW)	Waste disposal site
Volume disposed on-Site	2,163	ST (non-PTW)	On-Site CAMU
Additional Backfill Requirements	2,186	On-Site source (non-impacted area)	ST backfill
Alternative SW-8 Total Excavated Volume			
	274,704		
Alternative SW-9			
ET North			
Total Excavated Volume	1,639	ET North	-
Volume disposed off-Site	1,639	ET North	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	1,639	Off-Site source	ET North backfill
ET South			
Total Excavated Volume	6,718	ET South	-
Volume disposed off-Site	6,718	ET South	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	6,718	Off-Site source	ET South backfill
ET VOC "Hot Spot" East			
Total Excavated Volume	998	ET VOC Hot Spot (east)	-
Volume disposed off-Site	998	ET VOC Hot Spot (east)	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	998	Off-Site source	ET VOC Hot Spot (east) backfill
ET VOC "Hot Spot" West			
Total Excavated Volume	689	ET VOC Hot Spot (west)	-
Volume disposed off-Site	689	ET VOC Hot Spot (west)	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	689	Off-Site source	ET VOC Hot Spot (west) backfill
HFSDA			
Total Excavated Volume	646	HFSDA	-
Volume disposed off-Site	0	HFSDA (PTW)	Waste disposal site
Volume disposed on-Site	646	HFSDA (non-PTW)	WBH CAMU
Additional Backfill Requirements	646	Off-Site source	HFSDA backfill
LFU-1 Non-Drainage Area			
Total Excavated Volume	35,860	LFU-1 Non-Drainage Area	-
Volume disposed off-Site	35,860	LFU-1 Non-Drainage Area	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	35,860	Off-Site source	LFU-1 Non-Drainage Area backfill
LFU-1 Drainage Area			
Total Excavated Volume	10,100	LFU-1 Drainage Area	-
Volume disposed off-Site	10,100	LFU-1 Drainage Area	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	9,895	Off-Site source	LFU-1 Drainage Area backfill (TEV less volume of drainage swale)
LFU-2 Waste Cells			
Total Excavated Volume	42,740	LFU-2 Waste Cells	-
Volume disposed off-Site	42,740	LFU-2 Waste Cells	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	42,740	Off-Site source	LFU-2 Waste Cells backfill
LFU-2 VOC "Hot Spot"			
Total Excavated Volume	1,693	LFU-2 VOC Hot Spot	-
Volume disposed off-Site	1,693	LFU-2 VOC Hot Spot	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	1,693	Off-Site source	LFU-2 VOC Hot Spot backfill
LFU-3 Waste Cells			
Total Excavated Volume	13,889	LFU-3 Waste Cells	-
Volume disposed off-Site	13,889	LFU-3 Waste Cells	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	13,889	Off-Site source	LFU-3 Waste Cells backfill

Table E-12. Excavation and Disposal Estimate Summary by Alternative - Volume Estimates, UC Davis LEHR/OCL

Subarea ^a	Volume (LCY)	Source ^{b,c}	Destination
Alternative SW-9 (continued)			
ST			
Total Excavated Volume	2,186	ST	-
Volume disposed off-Site	23	ST (PTW)	Waste disposal site
Volume disposed on-Site	2,163	ST (non-PTW)	WBH CAMU
Additional Backfill Requirements	2,186	Off-Site source	ST backfill
Alternative SW-9 Total Excavated Volume	117,158		
Alternative SW-10			
ET North			
Total Excavated Volume	1,639	ET North	-
Volume disposed off-Site	1,639	ET North	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	1,639	Off-Site source	ET North backfill
ET South			
Total Excavated Volume	6,718	ET South	-
Volume disposed off-Site	6,718	ET South	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	6,718	Off-Site source	ET South backfill
ET VOC "Hot Spot" East			
Total Excavated Volume	998	ET VOC Hot Spot (east)	-
Volume disposed off-Site	998	ET VOC Hot Spot (east)	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	998	Off-Site source	ET VOC Hot Spot (east) backfill
ET VOC "Hot Spot" West			
Total Excavated Volume	689	ET VOC Hot Spot (west)	-
Volume disposed off-Site	689	ET VOC Hot Spot (west)	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	689	Off-Site source	ET VOC Hot Spot (west) backfill
HFSDA			
Total Excavated Volume	646	HFSDA	-
Volume disposed off-Site	646	HFSDA	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	646	Off-Site source	HFSDA backfill
LFU-1 Non-Drainage Area			
Total Excavated Volume	35,860	LFU-1 Non-Drainage Area	-
Volume disposed off-Site	35,860	LFU-1 Non-Drainage Area	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	35,860	Off-Site source	LFU-1 Non-Drainage Area backfill
LFU-1 Drainage Area			
Total Excavated Volume	10,100	LFU-1 Drainage Area	-
Volume disposed off-Site	10,100	LFU-1 Drainage Area	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	9,895	Off-Site source	LFU-1 Drainage Area backfill (TEV less volume of drainage swale)
LFU-2 Waste Cells			
Total Excavated Volume	42,740	LFU-2 Waste Cells	-
Volume disposed off-Site	42,740	LFU-2 Waste Cells	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	42,740	Off-Site source	LFU-2 Waste Cells backfill
LFU-2 VOC "Hot Spot"			
Total Excavated Volume	1,693	LFU-2 VOC Hot Spot	-
Volume disposed off-Site	1,693	LFU-2 VOC Hot Spot	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	1,693	Off-Site source	LFU-2 VOC Hot Spot backfill
LFU-3 Waste Cells			
Total Excavated Volume	13,889	LFU-3 Waste Cells	-
Volume disposed off-Site	13,889	LFU-3 Waste Cells	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	13,889	Off-Site source	LFU-3 Waste Cells backfill
ST			
Total Excavated Volume	2,186	ST	-
Volume disposed off-Site	2,186	ST	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	2,186	Off-Site source	ST backfill
WBH			
Total Excavated Volume	6,228	WBH	-
Volume disposed off-Site	6,228	WBH	Waste disposal site
Volume disposed on-Site	0	-	-
Additional Backfill Requirements	6,228	Off-Site source	WBH backfill
Alternative SW-10 Total Excavated Volume	123,386		

Notes:

^a The "Additional Backfill Requirements" fields indicate the volume of material required to fill a subarea excavation after taking into account the volume of excavated material from that subarea that is used as backfill.

^b On-Site sources of backfill for excavations within a CAMU cap footprint under Alternatives SW-4, SW-5, SW-6, and SW-7 refer to non-PTW material excavated from areas outside the CAMU cap footprint and backfilled in the excavation indicated. Under Alternative SW-8, the on-Site source of clean fill for excavated areas outside the CAMU cap footprint is the "non-impacted area" between the ET and LFU-1. For areas excavated within the footprint of the CAMU cap in this alternative, on-Site backfill material is the non-PTW generated during Site excavations. Off-Site sources of backfill are indicated when it was assumed clean, imported fill would be required for the specified subarea excavation.

^c Hazardous material includes LLRW, mixed waste, RCRA hazardous waste, and non-RCRA hazardous wastes.

^d If the volume of clean fill available for backfilling exceeds on-Site fill requirements, then excess non-hazardous soil will be sent for off-Site disposal or re-used on-Site for other purposes.

Acronyms/Abbreviations:

- CAMU - corrective action management unit
- ET - Eastern Trenches
- HFSDA - Hopland Field Station Disposal Area
- LFU - landfill unit
- LLRW - low-level radioactive waste
- PTW - principal threat waste
- RCRA - Resource Conservation and Recovery Act
- ST - Southern Trenches
- TEV - total excavated volume
- VOC - volatile organic compound
- WBH - Waste Burial Holes

Table E-13. Off-Site Disposal Volume Summary by Alternative - Volume Estimates, UC Davis LEHR/OCL

<i>Subarea</i>	Category of Waste for Off-Site Disposal	<i>LLRW (LCY)</i>	<i>Mixed (LCY)</i>	<i>RCRA Hazardous (LCY)</i>	<i>Non-RCRA Hazardous (LCY)</i>	<i>Non-Hazardous (LCY)</i>	Total Volume for Off-Site Disposal (LCY)
Alternative SW-2							
HFSDA Exploratory Trenches	PTW	0	0	0	0	0	0
ST Exploratory Trenches	PTW	0	0	3	0	0	3
Total	-	0	0	3	0	0	3
Alternative SW-3							
ET VOC "Hot Spot" East	Hazardous material	339	20	70	110	0	539
ET VOC "Hot Spot" West	Hazardous material	264	14	53	70	0	400
LFU-2 VOC "Hot Spot"	Hazardous material	715	34	550	97	0	1,396
ET Exploratory Trenches	PTW	1	0	3	0	0	4
LFU-1 Exploratory Trenches	PTW	1	0	5	0	0	6
LFU-2 Exploratory Trenches	PTW	1	0	7	0	0	9
LFU-3 Exploratory Trenches	PTW	0	0	1	0	0	1
HFSDA Exploratory Trenches	PTW	0	0	0	0	0	0
ST Exploratory Trenches	PTW	0	0	3	0	0	3
Total	-	1,322	69	692	276	0	2,359
Alternative SW-4							
ET VOC "Hot Spot" East	Hazardous material	339	20	70	110	0	539
ET VOC "Hot Spot" West	Hazardous material	264	14	53	70	0	400
LFU-2 VOC "Hot Spot"	Hazardous material	715	34	550	97	0	1,396
LFU-1 Drainage Area	PTW	13	4	71	0	0	88
LFU-3 Drainage Area	PTW	3	1	19	0	0	23
ET Exploratory Trenches	PTW	1	0	3	0	0	4
LFU-1 Exploratory Trenches	PTW	1	0	5	0	0	6
LFU-2 Exploratory Trenches	PTW	1	0	7	0	0	9
LFU-3 Exploratory Trenches	PTW	0	0	1	0	0	1
HFSDA Exploratory Trenches	PTW	0	0	0	0	0	0
ST Exploratory Trenches	PTW	0	0	3	0	0	3
Total	-	1,339	75	781	276	0	2,471
Alternative SW-5							
ET VOC "Hot Spot" East	Hazardous material	339	20	70	110	0	539
ET VOC "Hot Spot" West	Hazardous material	264	14	53	70	0	400
LFU-2 VOC "Hot Spot"	Hazardous material	715	34	550	97	0	1,396
LFU-3 Drainage Area	PTW	3	1	19	0	0	23
ET Exploratory Trenches	PTW	1	0	3	0	0	4
LFU-1 Drainage Area	PTW	13	4	71	0	0	88
LFU-1 Exploratory Trenches	PTW	1	0	5	0	0	6
LFU-2 Exploratory Trenches	PTW	1	0	7	0	0	9
LFU-3 Exploratory Trenches	PTW	0	0	1	0	0	1
HFSDA Exploratory Trenches	PTW	0	0	0	0	0	0
ST Exploratory Trenches	PTW	0	0	3	0	0	3
Total	-	1,339	75	781	276	0	2,471
Alternative SW-6							
ET North	PTW	3	1	18	0	0	23
ET South	PTW	14	5	74	0	0	92
ET VOC "Hot Spot" East	Hazardous material	339	20	70	110	0	539
ET VOC "Hot Spot" West	Hazardous material	264	14	53	70	0	400
LFU-2 VOC "Hot Spot"	Hazardous material	715	34	550	97	0	1,396
LFU-3 Drainage Area	PTW	3	1	19	0	0	23
LFU-1 Drainage Area	PTW	13	4	71	0	0	88
LFU-1 Exploratory Trenches	PTW	1	0	5	0	0	6
LFU-2 Exploratory Trenches	PTW	1	0	7	0	0	9
LFU-3 Exploratory Trenches	PTW	0	0	1	0	0	1

Table E-13. Off-Site Disposal Volume Summary by Alternative - Volume Estimates, UC Davis LEHR/OCL

<i>Subarea</i>	Category of Waste for Off-Site Disposal	<i>LLRW (LCY)</i>	<i>Mixed (LCY)</i>	<i>RCRA Hazardous (LCY)</i>	<i>Non-RCRA Hazardous (LCY)</i>	<i>Non-Hazardous (LCY)</i>	Total Volume for Off-Site Disposal (LCY)
Alternative SW-6 (continued)							
HFSDA Exploratory Trenches	PTW	0	0	0	0	0	0
ST Exploratory Trenches	PTW	0	0	3	0	0	3
Total	-	1,356	80	870	276	0	2,581
Alternative SW-7							
ET North	PTW	3	1	18	0	0	23
ET South	PTW	14	5	74	0	0	92
ET VOC "Hot Spot" East	Hazardous material	339	20	70	110	0	539
ET VOC "Hot Spot" West	Hazardous material	264	14	53	70	0	400
HFSDA	PTW	0	0	0	0	0	0
LFU-2 VOC "Hot Spot"	Hazardous material	715	34	550	97	0	1,396
LFU-3 Waste Cells	PTW	20	7	104	0	0	130
LFU-1 Drainage Area	PTW	13	4	71	0	0	88
LFU-1 Exploratory Trenches	PTW	1	0	5	0	0	6
LFU-2 Exploratory Trenches	PTW	1	0	7	0	0	9
ST	PTW	3	1	18	0	0	23
Excess non-hazardous soil ^a	Non-hazardous soil	0	0	0	0	1,798	1,798
Total	-	1,374	87	970	276	1,798	4,505
Alternative SW-8							
ET North	PTW	3	1	18	0	0	23
ET South (SW-8)	PTW	14	5	74	0	0	92
ET VOC "Hot Spot" East	Hazardous material	339	20	70	110	0	539
ET VOC "Hot Spot" West	Hazardous material	264	14	53	70	0	400
HFSDA	PTW	0	0	0	0	0	0
LFU-1 (SW-8)	PTW	60	20	322	0	0	402
LFU-2 (SW-8)	PTW + LFU-2 VOC Hot Spot Hazardous material	780	56	895	97	0	1,827
LFU-3 Waste Cells	PTW	20	7	104	0	0	130
Non-Impacted Area	PTW	0	0	0	0	0	0
ST	PTW	3	1	18	0	0	23
Excess non-hazardous soil ^a	Non-Hazardous Soil	0	0	0	0	17,989	17,989
Total	-	1,484	123	1,554	276	17,989	21,426
Alternative SW-9							
ET North	all excavated material	737	33	141	144	585	1,639
ET South	all excavated material	3,020	136	578	588	2,396	6,718
ET VOC "Hot Spot" East	all excavated material	339	20	70	110	459	998
ET VOC "Hot Spot" West	all excavated material	264	14	53	70	288	689
HFSDA	PTW	0	0	0	0	0	0
LFU-1 Non-Drainage Area	all excavated material	9,088	618	16,904	3,979	5,271	35,860
LFU-1 Drainage Area	all excavated material	2,560	174	4,761	1,121	1,485	10,100
LFU-2 Waste Cells	all excavated material	19,947	866	17,899	986	3,041	42,740
LFU-2 VOC "Hot Spot"	all excavated material	715	34	550	97	298	1,693
LFU-3 Waste Cells	all excavated material	3,513	246	8,150	243	1,736	13,889
ST	PTW	3	1	18	0	0	23
Total	-	40,187	2,142	49,124	7,336	15,558	114,348
Alternative SW-10							
ET North	all excavated material	737	33	141	144	585	1,639
ET South	all excavated material	3,020	136	578	588	2,396	6,718
ET VOC "Hot Spot" East	all excavated material	339	20	70	110	459	998
ET VOC "Hot Spot" West	all excavated material	264	14	53	70	288	689
HFSDA	all excavated material	431	0	0	0	215	646

Table E-13. Off-Site Disposal Volume Summary by Alternative - Volume Estimates, UC Davis LEHR/OCL

<i>Subarea</i>	<i>Category of Waste for Off-Site Disposal</i>	<i>LLRW (LCY)</i>	<i>Mixed (LCY)</i>	<i>RCRA Hazardous (LCY)</i>	<i>Non-RCRA Hazardous (LCY)</i>	<i>Non-Hazardous (LCY)</i>	<i>Total Volume for Off-Site Disposal (LCY)</i>
Alternative SW-10 (continued)							
LFU-1 Non-Drainage Area	all excavated material	9,088	618	16,904	3,979	5,271	35,860
LFU-1 Drainage Area	all excavated material	2,560	174	4,761	1,121	1,485	10,100
LFU-2 Waste Cells	all excavated material	19,947	866	17,899	986	3,041	42,740
LFU-2 VOC "Hot Spot"	all excavated material	715	34	550	97	298	1,693
LFU-3 Waste Cells	all excavated material	3,513	246	8,150	243	1,736	13,889
ST	all excavated material	1,038	23	18	195	912	2,186
WBH	all excavated material	3,177	0	0	311	2,741	6,228
Total	-	44,829	2,164	49,124	7,843	19,426	123,386

Notes:

Volumes provided in this table are rounded to the nearest whole number; any discrepancies in summed values are attributable to rounding.

^a If the volume of excavated material to be consolidated in on-Site CAMUs exceeds the CAMUs' estimated capacity to receive waste, it was assumed that the non-hazardous soil fraction of the excavated material would be sent off-Site for disposal. Appendix F of the FS - Volume 1 provides assumptions for CAMU waste capacities.

Acronyms/Abbreviations:

- CAMU - corrective action management unit
- ET - Eastern Trenches
- FS - Feasibility Study
- HFSDA - Hopland Field Station Disposal Area
- LCY - loose cubic yards
- LFU - landfill unit
- LLRW - low-level radioactive waste
- PTW - principal threat waste
- RCRA - Resource Conservation and Recovery Act
- ST - Southern Trenches
- VOC - volatile organic compound
- WBH - Waste Burial Holes

Table E-14. Summary of Excavation Volumes by Alternative - Volume Estimates, UC Davis LEHR/OCL

Alternative	Excavation Summary			Waste Stream Volumes [LCY]				Assumed Waste Characterization Type Volumes (Off-Site Disposal Only) [LCY]					Excavated Material Disposal Summary [LCY]		Building Demolition Volumes ^a [LCY]			Disposal Summary (Including Building Demolition Waste) [LCY]	
	Excavation Depth Range [feet]	Total Excavated Volume [BCY]	Total Excavated Volume ^b [LCY]	Soil	LTW	PTW	Biological Waste	LLRW	Mixed Waste	RCRA Hazardous	Non-RCRA Hazardous	Non-Hazardous	On-Site Disposal	Off-Site Disposal	Building Demolition Total Waste	Building Demolition Hazardous Waste	Building Demolition Non-Hazardous Waste	On-Site Disposal	Off-Site Disposal
Alternative SW-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alternative SW-2	6	237	332	65	259	3	5	0	0	3	0	0	329	3	0	0	0	329	3
Alternative SW-3	6-20	4,245	5,943	3,067	2,823	38	15	1,322	69	692	276	0	3,584	2,359	35	2	33	3,584	2,394
Alternative SW-4	6-20	14,201	19,882	8,082	11,613	150	38	1,339	75	781	276	0	17,411	2,471	883	45	838	18,249	2,516
Alternative SW-5	6-20	14,201	19,882	8,082	11,613	150	38	1,339	75	781	276	0	17,411	2,471	883	45	838	18,249	2,516
Alternative SW-6	6-20	19,940	27,916	10,582	16,967	261	107	1,356	80	870	276	0	25,335	2,581	883	45	838	26,173	2,626
Alternative SW-7	6-20	28,821	40,349	12,547	27,250	387	166	1,374	87	970	276	1,798	35,845	4,505	883	45	838	36,683	4,550
Alternative SW-8	6-20	196,217	274,704	188,518	84,757	1,116	312	1,484	123	1,554	276	17,989	253,278	21,426	883	45	838	254,116	21,471
Alternative SW-9	6-20	83,684	117,158	30,972	84,757	1,116	312	40,187	2,142	49,124	7,336	15,558	2,809	114,348	883	45	838	2,809	115,231
Alternative SW-10	6-20	88,133	123,386	37,200	84,757	1,116	312	44,829	2,164	49,124	7,843	19,426	0	123,386	883	45	838	0	124,269

Note:
^a Appendix F of the FS - Volume 1 provides assumptions for volumes of hazardous and non-hazardous building demolition waste.
^b Bulk factor of 1.4 applied to bank volume

Acronyms/Abbreviations:
 BCY - bank cubic yards
 FS - Feasibility Study
 LCY - loose cubic yards
 LLRW - low-level radioactive waste
 LTW - low threat waste
 PTW - principal threat waste
 RCRA - Resource Conservation and Recovery Act

ATTACHMENT E-1: WASTE ANALYSIS TABLES

Attachment E-1-1. Hazardous Waste Characterization Analysis for Soil Samples at Eastern Trenches - Volume Estimates, UC Davis LEHR/OCL

Analyte Class	Analyte	Number of Samples	Number of Detects	Background ^a [mg/kg]	Number of Samples Exceeding Background		10x STLC [mg/kg]	Number of Samples Exceeding 10x STLC		20x TCLP [mg/kg]	Number of Samples Exceeding 20x TCLP		Assumed Percentage Non-RCRA Hazardous Waste ^b	Assumed Percentage RCRA Hazardous Waste ^c
					Percentage Exceeding Background	Percentage Exceeding 10x STLC		Percentage Exceeding 20x TCLP	Percentage Exceeding 20x TCLP					
METAL	ARSENIC	27	27	9.6	0	0%	50	0	0%	100	0	0%	0%	0%
METAL	BARIUM	27	27	260	1	4%	1000	0	0%	2000	0	0%	0%	0%
METAL	BERYLLIUM	27	19	0.72	0	0%	7.5	0	0%	---	---	0%	0%	0%
METAL	CADMIUM	27	5	0.51	0	0%	10	0	0%	20	0	0%	0%	0%
METAL	CALCIUM	6	6	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	CHROMIUM, HEXAVALENT	27	2	0.054	2	7%	50	0	0%	100	0	0%	0%	0%
METAL	CHROMIUM, TOTAL	27	27	181	2	7%	560	0	0%	100	24	89%	0%	7%
METAL	COBALT	27	27	31	0	0%	800	0	0%	---	---	0%	0%	0%
METAL	COPPER	27	27	60	0	0%	250	0	0%	---	---	0%	0%	0%
METAL	IRON	19	19	44,000	2	11%	---	---	0%	---	---	0%	0%	0%
METAL	LEAD	27	27	9.5	12	44%	50	1	4%	100	0	0%	4%	0%
METAL	MAGNESIUM	6	6	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	MANGANESE	19	19	750	1	5%	---	---	0%	---	---	0%	0%	0%
METAL	MERCURY	27	22	0.63	8	30%	2	0	0%	4	0	0%	0%	0%
METAL	MOLYBDENUM	27	14	26	0	0%	3500	0	0%	---	---	0%	0%	0%
METAL	NICKEL	27	27	330	3	11%	200	23	85%	---	---	0%	11%	0%
METAL	POTASSIUM	6	6	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	SELENIUM	27	20	1.2	8	30%	10	0	0%	20	0	0%	0%	0%
METAL	SILVER	27	2	0.55	2	7%	50	0	0%	100	0	0%	0%	0%
METAL	SODIUM	6	6	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	THALLIUM	27	1	1.6	0	0%	70	0	0%	---	---	0%	0%	0%
METAL	VANADIUM	27	27	77	2	7%	240	0	0%	---	---	0%	0%	0%
METAL	ZINC	27	27	87	8	30%	2500	0	0%	---	---	0%	0%	0%
PES	2,4,5,6-TETRACHLORO-META-XYLENE	9	9	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	ALDRIN	27	2	0	0	0%	1.4	0	0%	---	---	0%	0%	0%
PES	ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	27	4	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	ALPHA ENDOSULFAN	27	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	ALPHA-CHLORDANE	27	13	0	13	48%	2.5	0	0%	---	---	0%	0%	0%
PES	CHLORDANE	13	13	0	0	0%	2.5	0	0%	0.6	0	0%	0%	0%
PES	DECACHLOROBIPHENYL	13	13	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	DIELDRIN	27	11	0	11	41%	8	0	0%	---	---	0%	0%	0%
PES	ENDRIN	27	3	0	0	0%	0.2	0	0%	0.4	0	0%	0%	0%
PES	ENDRIN ALDEHYDE	27	3	0	3	11%	---	---	0%	---	---	0%	0%	0%
PES	ENDRIN KETONE	27	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	GAMMA-CHLORDANE	27	14	0	14	52%	2.5	0	0%	---	---	0%	0%	0%
PES	p,p'-DDD	27	2	0	2	7%	1	0	0%	---	---	0%	0%	0%
PES	p,p'-DDE	27	2	0	0	0%	1	0	0%	---	---	0%	0%	0%
PES	p,p'-DDT	27	9	0	9	33%	1	0	0%	---	---	0%	0%	0%

Attachment E-1-1. Hazardous Waste Characterization Analysis for Soil Samples at Eastern Trenches - Volume Estimates, UC Davis LEHR/OCL

Analyte Class	Analyte	Number of Samples	Number of Detects	Background ^a [mg/kg]	Number of Samples Exceeding Background	Percentage Exceeding Background	10x STLC [mg/kg]	Number of Samples Exceeding 10x STLC	Percentage Exceeding 10x STLC	20x TCLP [mg/kg]	Number of Samples Exceeding 20x TCLP	Percentage Exceeding 20x TCLP	Assumed Percentage Non-RCRA Hazardous Waste ^b	Assumed Percentage RCRA Hazardous Waste ^c
SVOC	2,4,6-TRIBROMOPHENOL	13	13	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	2-FLUOROBIPHENYL	13	13	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	2-FLUOROPHENOL	13	13	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	BENZYL BUTYL PHTHALATE	27	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	bis(2-ETHYLHEXYL) PHTHALATE	27	10	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	DI-n-BUTYL PHTHALATE	27	2	0	2	7%	---	---	0%	---	---	0%	0%	0%
SVOC	FLUORANTHENE	27	3	0	3	11%	---	---	0%	---	---	0%	0%	0%
SVOC	PHENANTHRENE	27	1	0	1	4%	---	---	0%	---	---	0%	0%	0%
SVOC	PYRENE	27	1	0	1	4%	---	---	0%	---	---	0%	0%	0%
VOC	(E)-2-Butenal	6	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	Butanal	6	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	CHLOROFORM	14	2	0	0	0%	---	---	0%	120	0	0%	0%	0%
VOC	FORMALDEHYDE	6	4	0	4	67%	---	---	0%	---	---	0%	0%	0%
VOC	Propanal	6	1	0	0	0%	---	---	0%	---	---	0%	0%	0%

Notes:

Highlighted values are those selected to represent the percentage of RCRA hazardous and non-RCRA hazardous wastes for the given land disposal unit and medium. See below for selection criteria.

^a Background for pesticides, VOCs, and SVOCs is assumed to be 0 mg/kg.

^b Assumed percentage of non-RCRA hazardous waste chosen by first selecting the minimum percentage of background and 10x STLC exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of non-RCRA hazardous waste. If the constituent with the highest non-RCRA hazardous waste percentage was that selected for the RCRA hazardous waste designation, then the constituent with the next highest percentage was selected to represent the non-RCRA hazardous waste percentage.

^c Assumed percentage of RCRA hazardous waste chosen by first selecting the minimum percentage of background and 20x TCLP exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of RCRA hazardous waste.

Acronyms/Abbreviations:

10x - ten times

20x - twenty times

mg/kg - milligram per kilogram

PES - pesticide

RCRA - Resource Conservation and Recovery Act

STLC - soluble threshold limit concentration

SVOC - semi-volatile organic compound

TCLP - toxicity characteristic leaching procedure

VOC - volatile organic compound

--- - not applicable

Attachment E-1-2. Hazardous Waste Characterization Analysis for Low Threat Waste Samples at Eastern Trenches - Volume Estimates, UC Davis LEHR/OCL

Analyte Class	Analyte	Number of Samples	Number of Detects	Background ^a [mg/kg]	Number of Samples Exceeding Background	Percentage Exceeding Background	10x STLC [mg/kg]	Number of Samples Exceeding 10x STLC	Percentage Exceeding 10x STLC	20x TCLP [mg/kg]	Number of Samples Exceeding 20x TCLP	Percentage Exceeding 20x TCLP	Assumed Percentage Non-RCRA Hazardous Waste ^b	Assumed Percentage RCRA Hazardous Waste ^c
METAL	ARSENIC	13	12	9.6	1	8%	50	0	0%	100	0	0%	0%	0%
METAL	BARIUM	13	13	260	2	15%	1000	0	0%	2000	0	0%	0%	0%
METAL	BERYLLIUM	13	2	0.72	0	0%	7.5	0	0%	---	---	0%	0%	0%
METAL	CALCIUM	2	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	CHROMIUM, TOTAL	13	13	181	0	0%	560	0	0%	100	11	85%	0%	0%
METAL	COBALT	13	12	31	0	0%	800	0	0%	---	---	0%	0%	0%
METAL	COPPER	13	13	60	0	0%	250	0	0%	---	---	0%	0%	0%
METAL	IRON	2	2	44000	1	50%	---	---	0%	---	---	0%	0%	0%
METAL	LEAD	13	13	9.5	3	23%	50	0	0%	100	0	0%	0%	0%
METAL	MAGNESIUM	2	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	MANGANESE	2	2	750	1	50%	---	---	0%	---	---	0%	0%	0%
METAL	MERCURY	13	10	0.63	1	8%	2	1	8%	4	1	8%	8%	8%
METAL	NICKEL	13	13	330	0	0%	200	11	85%	---	---	0%	0%	0%
METAL	POTASSIUM	2	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	SELENIUM	13	3	1.2	3	23%	10	0	0%	20	0	0%	0%	0%
METAL	SILVER	13	1	0.55	1	8%	50	0	0%	100	0	0%	0%	0%
METAL	SODIUM	2	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	VANADIUM	13	13	77	1	8%	240	0	0%	---	---	0%	0%	0%
METAL	ZINC	13	13	87	4	31%	2500	0	0%	---	---	0%	0%	0%
PES	ALPHA ENDOSULFAN	13	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	ALPHA-CHLORDANE	13	4	0	4	31%	2.5	0	0%	---	---	0%	0%	0%
PES	DIELDRIN	13	2	0	2	15%	8	0	0%	---	---	0%	0%	0%
PES	ENDRIN	13	1	0	0	0%	0.2	0	0%	0.4	0	0%	0%	0%
PES	ENDRIN ALDEHYDE	13	2	0	2	15%	---	---	0%	---	---	0%	0%	0%
PES	GAMMA-CHLORDANE	13	4	0	4	31%	2.5	0	0%	---	---	0%	0%	0%
PES	p,p'-DDD	13	1	0	1	8%	1	0	0%	---	---	0%	0%	0%
PES	p,p'-DDE	13	1	0	0	0%	1	0	0%	---	---	0%	0%	0%
PES	p,p'-DDT	13	1	0	1	8%	1	0	0%	---	---	0%	0%	0%
SVOC	DI-n-BUTYL PHTHALATE	13	1	0	1	8%	---	---	0%	---	---	0%	0%	0%
SVOC	HEXACHLOROBENZENE	13	1	0	0	0%	---	---	0%	2.6	0	0%	0%	0%
VOC	CHLOROFORM	13	1	0	0	0%	---	---	0%	120	0	0%	0%	0%
VOC	FORMALDEHYDE	2	1	0	1	50%	---	---	0%	---	---	0%	0%	0%
VOC	TOLUENE	13	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	XYLENES, TOTAL	13	1	0	0	0%	---	---	0%	---	---	0%	0%	0%

Notes:

Highlighted values are those selected to represent the percentage of RCRA hazardous and non-RCRA hazardous wastes for the given land disposal unit and medium. See below for selection criteria.

^a Background for pesticides, VOCs, and SVOCs is assumed to be 0 mg/kg.

^b Assumed percentage of non-RCRA hazardous waste chosen by first selecting the minimum percentage of background and 10x STLC exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of non-RCRA hazardous waste. If the constituent with the highest non-RCRA hazardous waste percentage was that selected for the RCRA hazardous waste designation, then the constituent with the next highest percentage was selected to represent the non-RCRA hazardous waste percentage. However, if no other constituents exceed 10x STLC, then the Non-RCRA hazardous waste percentage driven by the constituent selected for the RCRA hazardous waste designation was retained.

^c Assumed percentage of RCRA hazardous waste chosen by first selecting the minimum percentage of background and 20x TCLP exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of RCRA hazardous waste.

Acronyms/Abbreviations:

- 10x - ten times
- 20x - twenty times
- mg/kg - milligram per kilogram
- PES - pesticide

Attachment E-1-2. Hazardous Waste Characterization Analysis for Low Threat Waste Samples at Eastern Trenches - Volume Estimates, UC Davis LEHR/OCL

Acronyms/Abbreviations (continued):

RCRA - Resource Conservation and Recovery Act

STLC - soluble threshold limit concentration

SVOC - semi-volatile organic compound

TCLP - toxicity characteristic leaching procedure

VOC - volatile organic compound

--- - not applicable

Attachment E-1-3. Hazardous Waste Characterization Analysis for Soil Samples at Landfill Unit No. 1 - Volume Estimates, UC Davis LEHR/OCL

Analyte Class	Analyte	Number of Samples	Number of Detects	Background ^a [mg/kg]	Number of Samples Exceeding Background		Number of Samples Exceeding 10x STLC		Number of Samples Exceeding 20x TCLP		Assumed Percentage Non-RCRA Hazardous Waste ^b	Assumed Percentage RCRA Hazardous Waste ^c	
					Percentage Exceeding Background	Percentage Exceeding 10x STLC	Percentage Exceeding 10x STLC	Percentage Exceeding 20x TCLP					
METAL	ARSENIC	21	21	9.6	1	5%	50	1	5%	100	1	5%	5%
METAL	BARIUM	21	20	260	1	5%	1000	0	0%	2000	0	0%	0%
METAL	BERYLLIUM	21	14	0.72	0	0%	7.5	0	0%	---	---	0%	0%
METAL	CADMIUM	21	1	0.51	0	0%	10	0	0%	20	0	0%	0%
METAL	CALCIUM	6	6	0	0	0%	---	---	0%	---	---	0%	0%
METAL	CHROMIUM, HEXAVALENT	21	2	0.054	1	5%	50	0	0%	100	0	0%	0%
METAL	CHROMIUM, TOTAL	21	21	181	2	10%	560	0	0%	100	16	76%	10%
METAL	COBALT	21	20	31	0	0%	800	0	0%	---	---	0%	0%
METAL	COPPER	25	25	60	1	4%	250	1	4%	---	---	0%	0%
METAL	IRON	15	15	44000	1	7%	---	---	0%	---	---	0%	0%
METAL	LEAD	21	21	9.5	9	43%	50	3	14%	100	2	10%	14%
METAL	MAGNESIUM	6	6	0	0	0%	---	---	0%	---	---	0%	0%
METAL	MANGANESE	15	15	750	2	13%	---	---	0%	---	---	0%	0%
METAL	MERCURY	21	16	0.63	9	43%	2	1	5%	4	0	0%	5%
METAL	MOLYBDENUM	21	8	26	0	0%	3500	0	0%	---	---	0%	0%
METAL	NICKEL	21	21	330	1	5%	200	13	62%	---	---	0%	5%
METAL	POTASSIUM	6	6	0	0	0%	---	---	0%	---	---	0%	0%
METAL	SELENIUM	25	15	1.2	7	28%	10	1	4%	20	0	0%	4%
METAL	SILVER	21	1	0.55	0	0%	50	0	0%	100	0	0%	0%
METAL	SODIUM	6	6	0	0	0%	---	---	0%	---	---	0%	0%
METAL	THALLIUM	21	5	1.6	1	5%	70	0	0%	---	---	0%	0%
METAL	VANADIUM	21	20	77	3	14%	240	0	0%	---	---	0%	0%
METAL	ZINC	21	21	87	8	38%	2500	1	5%	---	---	0%	5%
PES	2,4,5,6-TETRACHLORO-META-XYLENE	9	9	0	0	0%	---	---	0%	---	---	0%	0%
PES	ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	21	1	0	0	0%	---	---	0%	---	---	0%	0%
PES	ALPHA-CHLORDANE	21	6	0	6	29%	2.5	0	0%	---	---	0%	0%
PES	DECACHLOROBIPHENYL	9	9	0	0	0%	---	---	0%	---	---	0%	0%
PES	DIELDRIN	21	2	0	2	10%	8	0	0%	---	---	0%	0%
PES	ENDRIN ALDEHYDE	21	1	0	1	5%	---	---	0%	---	---	0%	0%
PES	GAMMA-CHLORDANE	21	6	0	6	29%	2.5	0	0%	---	---	0%	0%
PES	p,p'-DDE	21	2	0	0	0%	1	0	0%	---	---	0%	0%
PES	p,p'-DDT	21	7	0	7	33%	1	0	0%	---	---	0%	0%
SVOC	1-METHYLNAPHTHALENE	9	1	0	1	11%	---	---	0%	---	---	0%	0%
SVOC	2,4,6-TRIBROMOPHENOL	9	9	0	0	0%	---	---	0%	---	---	0%	0%
SVOC	2-FLUOROBIPHENYL	9	9	0	0	0%	---	---	0%	---	---	0%	0%

Attachment E-1-3. Hazardous Waste Characterization Analysis for Soil Samples at Landfill Unit No. 1 - Volume Estimates, UC Davis LEHR/OCL

Analyte Class	Analyte	Number of Samples	Number of Detects	Background ^a [mg/kg]	Number of Samples Exceeding Background		Number of Samples Exceeding 10x STLC		Number of Samples Exceeding 20x TCLP		Assumed Percentage Non-RCRA Hazardous Waste ^b	Assumed Percentage RCRA Hazardous Waste ^c	
					Percentage Exceeding Background	Percentage Exceeding 10x STLC	Percentage Exceeding 10x STLC	Percentage Exceeding 20x TCLP					
SVOC	2-FLUOROPHENOL	9	9	0	0	0%	---	---	0%	---	---	0%	0%
SVOC	2-METHYLNAPHTHALENE	21	1	0	1	5%	---	---	0%	---	---	0%	0%
SVOC	BENZO(a)PYRENE	21	1	0	1	5%	---	---	0%	---	---	0%	0%
SVOC	DI-n-BUTYL PHTHALATE	21	7	0	7	33%	---	---	0%	---	---	0%	0%
SVOC	FLUORANTHENE	21	2	0	2	10%	---	---	0%	---	---	0%	0%
SVOC	PENTACHLOROPHENOL	21	1	0	1	5%	17	0	0%	2000	0	0%	0%
SVOC	PHENANTHRENE	21	3	0	3	14%	---	---	0%	---	---	0%	0%
SVOC	PYRENE	21	1	0	1	5%	---	---	0%	---	---	0%	0%
SVOC	TRIBUTYL PHOSPHATE	9	2	0	0	0%	---	---	0%	---	---	0%	0%
VOC	ACETONE	12	1	0	0	0%	---	---	0%	---	---	0%	0%
VOC	Butanal	6	5	0	0	0%	---	---	0%	---	---	0%	0%
VOC	FORMALDEHYDE	6	5	0	5	83%	---	---	0%	---	---	0%	0%
VOC	HEXANAL	6	6	0	0	0%	---	---	0%	---	---	0%	0%
VOC	Nonanal	6	1	0	0	0%	---	---	0%	---	---	0%	0%

Notes:

Highlighted values are those selected to represent the percentage of RCRA hazardous and non-RCRA hazardous wastes for the given land disposal unit and medium. See below for selection criteria.

^a Background for pesticides, VOCs, and SVOCs is assumed to be 0 mg/kg.

^b Assumed percentage of non-RCRA hazardous waste chosen by first selecting the minimum percentage of background and 10x STLC exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of non-RCRA hazardous waste. If the constituent with the highest non-RCRA hazardous waste percentage was that selected for the RCRA hazardous waste designation, then the constituent with the next highest percentage was selected to represent the non-RCRA hazardous waste percentage.

^c Assumed percentage of RCRA hazardous waste chosen by first selecting the minimum percentage of background and 20x TCLP exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of RCRA hazardous waste.

Acronyms/Abbreviations:

- 10x - ten times
- 20x - twenty times
- mg/kg - milligram per kilogram
- PES - pesticide
- RCRA - Resource Conservation and Recovery Act
- STLC - soluble threshold limit concentration
- SVOC - semi-volatile organic compound
- TCLP - toxicity characteristic leaching procedure
- VOC - volatile organic compound
- - not applicable

Attachment E-1-4. Hazardous Waste Characterization Analysis for Low Threat Waste Samples at Landfill Unit No. 1 - Volume Estimates, UC Davis LEHR/OCL

Analyte Class	Analyte	Number of Samples	Number of Detects	Background ^a [mg/kg]	Number of Samples Exceeding Background	Percentage Exceeding Background	10x STLC [mg/kg]	Number of Samples Exceeding 10x STLC	Percentage Exceeding 10x STLC	20x TCLP [mg/kg]	Number of Samples Exceeding 20x TCLP	Percentage Exceeding 20x TCLP	Assumed Percentage Non-RCRA Hazardous Waste ^b	Assumed Percentage RCRA Hazardous Waste ^c
METAL	ARSENIC	8	8	9.6	5	63%	50	1	13%	100	0	0%	13%	0%
METAL	BARIUM	8	7	260	5	63%	1000	0	0%	2000	0	0%	0%	0%
METAL	BERYLLIUM	8	1	0.72	0	0%	7.5	0	0%	---	---	0%	0%	0%
METAL	CADMIUM	8	2	0.51	2	25%	10	0	0%	20	0	0%	0%	0%
METAL	CALCIUM	1	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	CHROMIUM, TOTAL	8	8	181	1	13%	560	0	0%	100	8	100%	0%	13%
METAL	COBALT	8	5	31	0	0%	800	0	0%	---	---	0%	0%	0%
METAL	COPPER	8	8	60	5	63%	250	4	50%	---	---	0%	50%	0%
METAL	IRON	1	1	44000	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	LEAD	8	8	9.5	6	75%	50	5	63%	100	5	63%	63%	63%
METAL	MAGNESIUM	1	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	MANGANESE	1	1	750	1	100%	---	---	0%	---	---	0%	0%	0%
METAL	MERCURY	8	5	0.63	5	63%	2	1	13%	4	1	13%	13%	13%
METAL	NICKEL	8	8	330	0	0%	200	7	88%	---	---	0%	0%	0%
METAL	POTASSIUM	1	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	SELENIUM	8	6	1.2	6	75%	10	3	38%	20	0	0%	38%	0%
METAL	SILVER	8	2	0.55	2	25%	50	0	0%	100	0	0%	0%	0%
METAL	SODIUM	1	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	THALLIUM	8	3	1.6	3	38%	70	0	0%	---	---	0%	0%	0%
METAL	VANADIUM	8	5	77	2	25%	240	0	0%	---	---	0%	0%	0%
METAL	ZINC	8	8	87	7	88%	2500	2	25%	---	---	0%	25%	0%
PCB	PCB-1260 (AROCHLOR 1260)	8	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	ALPHA-CHLORDANE	8	1	0	1	13%	2.5	0	0%	---	---	0%	0%	0%
PES	DIELDRIN	8	2	0	2	25%	8	0	0%	---	---	0%	0%	0%
PES	GAMMA-CHLORDANE	8	1	0	1	13%	2.5	0	0%	---	---	0%	0%	0%
PES	p,p'-DDD	8	1	0	1	13%	1	0	0%	---	---	0%	0%	0%
PES	p,p'-DDE	8	3	0	0	0%	1	0	0%	---	---	0%	0%	0%
PES	p,p'-DDT	8	2	0	2	25%	1	0	0%	---	---	0%	0%	0%
SVOC	DI-n-BUTYL PHTHALATE	8	1	0	1	13%	---	---	0%	---	---	0%	0%	0%
VOC	ACETONE	8	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	Butanal	1	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	FORMALDEHYDE	1	1	0	1	100%	---	---	0%	---	---	0%	0%	0%
VOC	HEXANAL	1	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	Octanal	1	1	0	0	0%	---	---	0%	---	---	0%	0%	0%

Notes:

Highlighted values are those selected to represent the percentage of RCRA hazardous and non-RCRA hazardous wastes for the given land disposal unit and medium. See below for selection criteria.

^a Background for pesticides, VOCs, and SVOCs is assumed to be 0 mg/kg.

^b Assumed percentage of non-RCRA hazardous waste chosen by first selecting the minimum percentage of background and 10x STLC exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of non-RCRA hazardous waste. If the constituent with the highest non-RCRA hazardous waste percentage was that selected for the RCRA hazardous waste designation, then the constituent with the next highest percentage was selected to represent the non-RCRA hazardous waste percentage.

^c Assumed percentage of RCRA hazardous waste chosen by first selecting the minimum percentage of background and 20x TCLP exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of RCRA hazardous waste.

Attachment E-1-4. Hazardous Waste Characterization Analysis for Low Threat Waste Samples at Landfill Unit No. 1 - Volume Estimates, UC Davis LEHR/OCL

Acronyms/Abbreviations:

10x - ten times
20x - twenty times
mg/kg - milligram per kilogram
PCB - polychlorinated biphenyl
PES - pesticide
RCRA - Resource Conservation and Recovery Act
STLC - soluble threshold limit concentration
SVOC - semi-volatile organic compound
TCLP - toxicity characteristic leaching procedure
VOC - volatile organic compound
--- - not applicable

Attachment E-1-5. Hazardous Waste Characterization Analysis for Soil Samples at Landfill Unit No. 2 - Volume Estimates, UC Davis LEHR/OCL

Analyte Class	Analyte	Number of Samples	Number of Detects	Background ^a [mg/kg]	Number of Samples Exceeding Background	Percentage Exceeding Background	10x STLC [mg/kg]	Number of Samples Exceeding 10x STLC	Percentage Exceeding 10x STLC	20x TCLP [mg/kg]	Number of Samples Exceeding 20x TCLP	Percentage Exceeding 20x TCLP	Assumed Percentage Non-RCRA Hazardous Waste ^b	Assumed Percentage RCRA Hazardous Waste ^c
GEN	TOTAL ORGANIC CARBON	4	3	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	ANTIMONY	26	3	1.4	2	8%	150	0	0%	---	---	0%	0%	0%
METAL	ARSENIC	26	26	9.6	5	19%	50	0	0%	100	0	0%	0%	0%
METAL	BARIUM	26	25	260	4	15%	1000	0	0%	2000	0	0%	0%	0%
METAL	BERYLLIUM	26	17	0.72	0	0%	7.5	0	0%	---	---	0%	0%	0%
METAL	CADMIUM	29	9	0.51	7	24%	10	0	0%	20	0	0%	0%	0%
METAL	CALCIUM	11	11	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	CHROMIUM, HEXAVALENT	28	2	0.054	2	7%	50	0	0%	100	0	0%	0%	0%
METAL	CHROMIUM, TOTAL	26	26	181	2	8%	560	0	0%	100	18	69%	0%	8%
METAL	COBALT	26	25	31	0	0%	800	0	0%	---	---	0%	0%	0%
METAL	COPPER	26	26	60	4	15%	250	3	12%	---	---	0%	12%	0%
METAL	IRON	20	20	44000	2	10%	---	---	0%	---	---	0%	0%	0%
METAL	LEAD	26	26	9.5	15	58%	50	4	15%	100	4	15%	15%	15%
METAL	MAGNESIUM	11	11	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	MANGANESE	20	20	750	9	45%	---	---	0%	---	---	0%	0%	0%
METAL	MERCURY	26	18	0.63	6	23%	2	0	0%	4	0	0%	0%	0%
METAL	MOLYBDENUM	26	12	26	0	0%	3500	0	0%	---	---	0%	0%	0%
METAL	NICKEL	26	26	330	2	8%	200	12	46%	---	---	0%	8%	0%
METAL	POTASSIUM	11	11	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	SELENIUM	26	15	1.2	6	23%	10	1	4%	20	0	0%	4%	0%
METAL	SILVER	29	4	0.55	3	10%	50	0	0%	100	0	0%	0%	0%
METAL	SODIUM	11	11	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	THALLIUM	26	3	1.6	1	4%	70	0	0%	---	---	0%	0%	0%
METAL	VANADIUM	26	25	77	0	0%	240	0	0%	---	---	0%	0%	0%
METAL	ZINC	26	26	87	14	54%	2500	0	0%	---	---	0%	0%	0%
PCB	PCB-1016 (AROCHLOR 1016)	17	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
PCB	PCB-1254 (AROCHLOR 1254)	17	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
PCB	PCB-1260 (AROCHLOR 1260)	17	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	2,4,5,6-TETRACHLORO-META-XYLENE	9	9	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	ALPHA-CHLORDANE	26	13	0	13	50%	2.5	0	0%	---	---	0%	0%	0%
PES	CHLORDANE	9	9	0	0	0%	2.5	0	0%	0.6	0	0%	0%	0%
PES	DECACHLOROBIPHENYL	9	9	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	26	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	DIELDRIN	26	8	0	8	31%	8	0	0%	---	---	0%	0%	0%
PES	GAMMA-CHLORDANE	26	13	0	13	50%	2.5	0	0%	---	---	0%	0%	0%
PES	HEPTACHLOR EPOXIDE	26	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	p,p'-DDD	26	4	0	4	15%	1	0	0%	---	---	0%	0%	0%
PES	p,p'-DDE	26	6	0	0	0%	1	0	0%	---	---	0%	0%	0%
PES	p,p'-DDT	26	6	0	6	23%	1	0	0%	---	---	0%	0%	0%
SVOC	1,3-DICHLOROBENZENE	25	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	2,4,6-TRIBROMOPHENOL	9	9	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	2-CHLOROPHENOL	25	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	2-FLUOROBIPHENYL	9	9	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	2-FLUOROPHENOL	9	9	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	4-METHYLPHENOL (p-CRESOL)	25	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	BENZO(a)ANTHRACENE	25	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	BENZO(a)PYRENE	25	1	0	1	4%	---	---	0%	---	---	0%	0%	0%
SVOC	BENZO(b)FLUORANTHENE	25	1	0	0	0%	---	---	0%	---	---	0%	0%	0%

Attachment E-1-5. Hazardous Waste Characterization Analysis for Soil Samples at Landfill Unit No. 2 - Volume Estimates, UC Davis LEHR/OCL

Analyte Class	Analyte	Number of Samples	Number of Detects	Background ^a [mg/kg]	Number of Samples Exceeding Background	Percentage Exceeding Background	10x STLC [mg/kg]	Number of Samples Exceeding 10x STLC	Percentage Exceeding 10x STLC	20x TCLP [mg/kg]	Number of Samples Exceeding 20x TCLP	Percentage Exceeding 20x TCLP	Assumed Percentage Non-RCRA Hazardous Waste ^b	Assumed Percentage RCRA Hazardous Waste ^c
SVOC	BENZO(k)FLUORANTHENE	25	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	BENZYL BUTYL PHTHALATE	25	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	bis(2-ETHYLHEXYL) PHTHALATE	25	7	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	CHRYSENE	25	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	DI-n-BUTYL PHTHALATE	25	11	0	11	44%	---	---	0%	---	---	0%	0%	0%
SVOC	FLUORANTHENE	25	2	0	2	8%	---	---	0%	---	---	0%	0%	0%
SVOC	FLUORENE	25	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	PYRENE	25	1	0	1	4%	---	---	0%	---	---	0%	0%	0%
SVOC	TRIBUTYL PHOSPHATE	9	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	1,1,2-TRICHLOROETHANE	16	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	ACETONE	16	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	Butanal	10	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	CHLOROFORM	16	5	0	0	0%	---	---	0%	120	0	0%	0%	0%
VOC	FORMALDEHYDE	10	8	0	8	80%	---	---	0%	---	---	0%	0%	0%
VOC	HEXANAL	10	7	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	METHYL ETHYL KETONE (2-BUTANONE)	16	1	0	0	0%	---	---	0%	4000	0	0%	0%	0%
VOC	Nonanal	10	5	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	Octanal	10	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	TETRACHLOROETHYLENE(PCE)	16	1	0	0	0%	---	---	0%	14	0	0%	0%	0%

Notes:

Highlighted values are those selected to represent the percentage of RCRA hazardous and non-RCRA hazardous wastes for the given land disposal unit and medium. See below for selection criteria.

^a Background for pesticides, VOCs, and SVOCs is assumed to be 0 mg/kg.

^b Assumed percentage of non-RCRA hazardous waste chosen by first selecting the minimum percentage of background and 10x STLC exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of non-RCRA hazardous waste. If the constituent with the highest non-RCRA hazardous waste percentage was that selected for the RCRA hazardous waste designation, then the constituent with the next highest percentage was selected to represent the non-RCRA hazardous waste percentage.

^c Assumed percentage of RCRA hazardous waste chosen by first selecting the minimum percentage of background and 20x TCLP exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of RCRA hazardous waste.

Acronyms/Abbreviations:

- 10x - ten times
- 20x - twenty times
- GEN - general
- mg/kg - milligram per kilogram
- PCB - polychlorinated biphenyl
- PES - pesticide
- RCRA - Resource Conservation and Recovery Act
- STLC - soluble threshold limit concentration
- SVOC - semi-volatile organic compound
- TCLP - toxicity characteristic leaching procedure
- VOC - volatile organic compound
- - not applicable

Attachment E-1-6. Hazardous Waste Characterization Analysis for Low Threat Waste Samples at Landfill Unit No. 2 - Volume Estimates, UC Davis LEHR/OCL

Analyte Class	Analyte	Number of Samples	Number of Detects	Background ^a [mg/kg]	Number of Samples Exceeding Background	Percentage Exceeding Background	10x STLC [mg/kg]	Number of Samples Exceeding 10x STLC	Percentage Exceeding 10x STLC	20x TCLP [mg/kg]	Number of Samples Exceeding 20x TCLP	Percentage Exceeding 20x TCLP	Assumed Percentage Non-Hazardous RCRA Waste ^b	Assumed Percentage Hazardous RCRA Waste ^c
ANION	CHLORIDE (AS CL)	1	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
ANION	Nitrite, Nitrate-Nonspecific	10	6	0	0	0%	---	---	0%	---	---	0%	0%	0%
ANION	NITROGEN, NITRATE-NITRITE (AS N)	1	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
ANION	SULFATE (AS SO4)	1	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
GEN	ALKALINITY, TOTAL (AS CaCO3)	1	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
GEN	HARDNESS (AS CaCO3)	1	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
GEN	TOTAL KJELDAHL NITROGEN	1	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
GEN	TOTAL ORGANIC CARBON	2	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	ARSENIC	10	10	9.6	4	40%	50	1	10%	100	0	0%	10%	0%
METAL	BARIUM	10	10	260	5	50%	1000	0	0%	2000	0	0%	0%	0%
METAL	BERYLLIUM	10	2	0.72	0	0%	7.5	0	0%	---	---	0%	0%	0%
METAL	CADMIUM	11	6	0.51	6	55%	10	0	0%	20	0	0%	0%	0%
METAL	CALCIUM	4	4	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	CHROMIUM, TOTAL	10	10	181	1	10%	560	0	0%	100	7	70%	0%	10%
METAL	COBALT	10	10	31	0	0%	800	0	0%	---	---	0%	0%	0%
METAL	COPPER	10	10	60	6	60%	250	2	20%	---	---	0%	20%	0%
METAL	IRON	3	3	44000	2	67%	---	---	0%	---	---	0%	0%	0%
METAL	LEAD	10	10	9.5	7	70%	50	5	50%	100	5	50%	50%	50%
METAL	MAGNESIUM	4	4	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	MANGANESE	3	3	750	2	67%	---	---	0%	---	---	0%	0%	0%
METAL	MERCURY	10	7	0.63	3	30%	2	0	0%	4	0	0%	0%	0%
METAL	MOLYBDENUM	10	1	26	0	0%	3500	0	0%	---	---	0%	0%	0%
METAL	NICKEL	10	10	330	0	0%	200	6	60%	---	---	0%	0%	0%
METAL	POTASSIUM	4	4	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	SELENIUM	10	3	1.2	3	30%	10	0	0%	20	0	0%	0%	0%
METAL	SILVER	11	4	0.55	4	36%	50	0	0%	100	0	0%	0%	0%
METAL	SODIUM	4	4	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	VANADIUM	10	10	77	1	10%	240	0	0%	---	---	0%	0%	0%
METAL	ZINC	10	10	87	7	70%	2500	0	0%	---	---	0%	0%	0%
PCB	PCB-1248 (AROCHLOR 1248)	10	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
PCB	PCB-1254 (AROCHLOR 1254)	10	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
PCB	PCB-1260 (AROCHLOR 1260)	10	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	ALPHA ENDOSULFAN	10	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	ALPHA-CHLORDANE	10	2	0	2	20%	2.5	0	0%	---	---	0%	0%	0%
PES	DIELDRIN	10	1	0	1	10%	8	0	0%	---	---	0%	0%	0%
PES	GAMMA-CHLORDANE	10	3	0	3	30%	2.5	0	0%	---	---	0%	0%	0%
PES	p,p'-DDD	10	5	0	5	50%	1	0	0%	---	---	0%	0%	0%
PES	p,p'-DDE	10	5	0	0	0%	1	1	10%	---	---	0%	0%	0%
PES	p,p'-DDT	10	3	0	3	30%	1	0	0%	---	---	0%	0%	0%
SVOC	2-METHYLNAPHTHALENE	11	1	0	1	9%	---	---	0%	---	---	0%	0%	0%
SVOC	BENZO(a)ANTHRACENE	11	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	BENZO(a)PYRENE	11	1	0	1	9%	---	---	0%	---	---	0%	0%	0%
SVOC	BENZO(b)FLUORANTHENE	11	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	BENZO(g,h,i)PERYLENE	11	1	0	0	0%	---	---	0%	---	---	0%	0%	0%

Attachment E-1-6. Hazardous Waste Characterization Analysis for Low Threat Waste Samples at Landfill Unit No. 2 - Volume Estimates, UC Davis LEHR/OCL

Analyte Class	Analyte	Number of Samples	Number of Detects	Background ^a [mg/kg]	Number of Samples Exceeding Background	Percentage Exceeding Background	10x STLC [mg/kg]	Number of Samples Exceeding 10x STLC	Percentage Exceeding 10x STLC	20x TCLP [mg/kg]	Number of Samples Exceeding 20x TCLP	Percentage Exceeding 20x TCLP	Assumed Percentage Non-RCRA Hazardous Waste ^b	Assumed Percentage RCRA Hazardous Waste ^c
SVOC	BENZO(k)FLUORANTHENE	11	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	bis(2-ETHYLHEXYL) PHTHALATE	11	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	CHRYSENE	11	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	DI-n-BUTYL PHTHALATE	11	4	0	4	36%	---	---	0%	---	---	0%	0%	0%
SVOC	FLUORANTHENE	11	1	0	1	9%	---	---	0%	---	---	0%	0%	0%
SVOC	FLUORENE	11	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	PHENANTHRENE	11	1	0	1	9%	---	---	0%	---	---	0%	0%	0%
VOC	1,1-DICHLOROETHENE	11	1	0	0	0%	---	---	0%	14	0	0%	0%	0%
VOC	ACETONE	11	4	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	Butanal	5	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	FORMALDEHYDE	5	3	0	3	60%	---	---	0%	---	---	0%	0%	0%
VOC	HEXANAL	5	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	METHYL ETHYL KETONE (2-BUTANONE)	11	2	0	0	0%	---	---	0%	4000	0	0%	0%	0%
VOC	Nonanal	4	1	0	0	0%	---	---	0%	---	---	0%	0%	0%

Notes:
 Highlighted values are those selected to represent the percentage of RCRA hazardous and non-RCRA hazardous wastes for the given land disposal unit and medium. See below for selection criteria.
^a Background for pesticides, VOCs, and SVOCs is assumed to be 0 mg/kg.
^b Assumed percentage of non-RCRA hazardous waste chosen by first selecting the minimum percentage of background and 10x STLC exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of non-RCRA hazardous waste. If the constituent with the highest non-RCRA hazardous waste percentage was that selected for the RCRA hazardous waste designation, then the constituent with the next highest percentage was selected to represent the non-RCRA hazardous waste percentage.
^c Assumed percentage of RCRA hazardous waste chosen by first selecting the minimum percentage of background and 20x TCLP exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of RCRA hazardous waste.

Acronyms/Abbreviations:
 10x - ten times
 20x - twenty times
 GEN - general
 mg/kg - milligram per kilogram
 PCB - polychlorinated biphenyl
 PES - pesticide
 RCRA - Resource Conservation and Recovery Act
 STLC - soluble threshold limit concentration
 SVOC - semi-volatile organic compound
 TCLP - toxicity characteristic leaching procedure
 VOC - volatile organic compound
 --- - not applicable

Attachment E-1-7. Hazardous Waste Characterization Analysis for Soil Samples at Landfill Unit No. 3 - Volume Estimates, UC Davis LEHR/OCL

Analyte Class	Analyte	Number of Samples	Number of Detects	Background ^a [mg/kg]	Number of Samples Exceeding Background		10x STLC [mg/kg]	Number of Samples Exceeding 10x STLC		20x TCLP [mg/kg]	Number of Samples Exceeding 20x TCLP		Assumed Percentage Non-RCRA Hazardous Waste ^b	Assumed Percentage RCRA Hazardous Waste ^c
					Exceeding Background	Percentage Exceeding Background		Exceeding 10x STLC	Percentage Exceeding 10x STLC		Exceeding 20x TCLP	Percentage Exceeding 20x TCLP		
ANION	CHLORIDE (AS CL)	10	10	0	0	0%	---	---	0%	---	---	0%	0%	0%
ANION	Nitrite, Nitrate-Nonspecific	27	24	0	0	0%	---	---	0%	---	---	0%	0%	0%
ANION	NITROGEN, AMMONIA (AS N)	10	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
ANION	SULFATE (AS SO4)	10	10	0	0	0%	---	---	0%	---	---	0%	0%	0%
GEN	ALKALINITY, TOTAL (AS CaCO3)	10	8	0	0	0%	---	---	0%	---	---	0%	0%	0%
GEN	TOTAL KJELDAHL NITROGEN	9	9	0	0	0%	---	---	0%	---	---	0%	0%	0%
GEN	TOTAL ORGANIC CARBON	9	5	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	ANTIMONY	31	1	1.4	1	3%	150	0	0%	---	---	0%	0%	0%
METAL	ARSENIC	27	27	9.6	4	15%	50	1	4%	100	0	0%	4%	0%
METAL	BARIUM	31	31	260	4	13%	1000	0	0%	2000	0	0%	0%	0%
METAL	BERYLLIUM	27	14	0.72	0	0%	7.5	0	0%	---	---	0%	0%	0%
METAL	CADMIUM	31	12	0.51	9	29%	10	0	0%	20	0	0%	0%	0%
METAL	CALCIUM	21	21	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	CHROMIUM, TOTAL	27	27	181	1	4%	560	0	0%	100	18	67%	0%	4%
METAL	COBALT	27	27	31	1	4%	800	0	0%	---	---	0%	0%	0%
METAL	COPPER	31	31	60	5	16%	250	1	3%	---	---	0%	3%	0%
METAL	IRON	21	21	44000	2	10%	---	---	0%	---	---	0%	0%	0%
METAL	LEAD	32	32	9.5	15	47%	50	5	16%	100	5	16%	16%	16%
METAL	MAGNESIUM	21	21	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	MANGANESE	10	10	750	4	40%	---	---	0%	---	---	0%	0%	0%
METAL	MERCURY	27	22	0.63	8	30%	2	2	7%	4	1	4%	7%	4%
METAL	MOLYBDENUM	27	14	26	0	0%	3500	0	0%	---	---	0%	0%	0%
METAL	NICKEL	27	27	330	0	0%	200	15	56%	---	---	0%	0%	0%
METAL	POTASSIUM	21	21	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	SELENIUM	27	6	1.2	1	4%	10	0	0%	20	0	0%	0%	0%
METAL	SILVER	31	11	0.55	9	29%	50	1	3%	100	1	3%	3%	3%
METAL	SODIUM	21	21	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	THALLIUM	27	15	1.6	0	0%	70	0	0%	---	---	0%	0%	0%
METAL	VANADIUM	27	27	77	2	7%	240	0	0%	---	---	0%	0%	0%
METAL	ZINC	27	27	87	11	41%	2500	2	7%	---	---	0%	7%	0%
PCB	PCB-1260 (AROCHLOR 1260)	27	4	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	ALPHA-CHLORDANE	27	3	0	3	11%	2.5	0	0%	---	---	0%	0%	0%
PES	BETA ENDOSULFAN	27	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	DIELDRIN	27	4	0	4	15%	8	0	0%	---	---	0%	0%	0%
PES	ENDOSULFAN SULFATE	27	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	GAMMA-CHLORDANE	27	3	0	3	11%	2.5	0	0%	---	---	0%	0%	0%
PES	p,p'-DDD	27	2	0	2	7%	1	0	0%	---	---	0%	0%	0%
PES	p,p'-DDE	27	5	0	0	0%	1	0	0%	---	---	0%	0%	0%
PES	p,p'-DDT	27	5	0	5	19%	1	0	0%	---	---	0%	0%	0%
SVOC	BENZYL BUTYL PHTHALATE	27	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	bis(2-ETHYLHEXYL) PHTHALATE	27	5	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	DI-n-BUTYL PHTHALATE	27	21	0	21	78%	---	---	0%	---	---	0%	0%	0%

Attachment E-1-7. Hazardous Waste Characterization Analysis for Soil Samples at Landfill Unit No. 3 - Volume Estimates, UC Davis LEHR/OCL

Analyte Class	Analyte	Number of Samples	Number of Detects	Background ^a [mg/kg]	Number of Samples Exceeding Percentage		Number of Samples Exceeding Percentage			20x TCLP [mg/kg]	Number of Samples Exceeding Percentage		Assumed Percentage Non-RCRA Hazardous Waste ^b	Assumed Percentage RCRA Hazardous Waste ^c
					Background	Background	10x STLC [mg/kg]	Exceeding 10x STLC	Exceeding 10x STLC		20x TCLP	Exceeding 20x TCLP		
SVOC	DI-n-OCTYLPHTHALATE	27	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	ACETONE	28	6	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	Butanal	6	6	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	FORMALDEHYDE	21	6	0	6	29%	---	---	0%	---	---	0%	0%	0%

Notes:

Highlighted values are those selected to represent the percentage of RCRA hazardous and non-RCRA hazardous wastes for the given land disposal unit and medium. See below for selection criteria.

^a Background for pesticides, VOCs, and SVOCs is assumed to be 0 mg/kg.

^b Assumed percentage of non-RCRA hazardous waste chosen by first selecting the minimum percentage of background and 10x STLC exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of non-RCRA hazardous waste. If the constituent with the highest non-RCRA hazardous waste percentage was that selected for the RCRA hazardous waste designation, then the constituent with the next highest percentage was selected to represent the non-RCRA hazardous waste percentage.

^c Assumed percentage of RCRA hazardous waste chosen by first selecting the minimum percentage of background and 20x TCLP exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of RCRA hazardous waste.

Acronyms/Abbreviations:

- 10x - ten times
- 20x - twenty times
- GEN - general
- mg/kg - milligram per kilogram
- PCB - polychlorinated biphenyl
- PES - pesticide
- RCRA - Resource Conservation and Recovery Act
- STLC - soluble threshold limit concentration
- SVOC - semi-volatile organic compound
- TCLP - toxicity characteristic leaching procedure
- VOC - volatile organic compound
- - not applicable

Attachment E-1-8. Hazardous Waste Characterization Analysis for Low Threat Waste Samples at Landfill Unit No. 3 - Volume Estimates, UC Davis LEHR/OCL

Analyte Class	Analyte	Number of Samples	Number of Detects	Background ^a [mg/kg]	Number of Samples Exceeding Background	Percentage Exceeding Background	10x STLC [mg/kg]	Number of Samples Exceeding 10x STLC	Percentage Exceeding 10x STLC	20x TCLP [mg/kg]	Number of Samples Exceeding 20x TCLP	Percentage Exceeding 20x TCLP	Assumed Percentage Non-Hazardous Waste ^b	Assumed Percentage RCRA Hazardous Waste ^c
ANION	Nitrite, Nitrate-Nonspecific	7	6	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	ANTIMONY	7	1	1.4	1	14%	150	0	0%	---	---	0%	0%	0%
METAL	ARSENIC	7	7	9.6	3	43%	50	1	14%	100	0	0%	14%	0%
METAL	BARIUM	7	7	260	4	57%	1000	0	0%	2000	0	0%	0%	0%
METAL	BERYLLIUM	7	1	0.72	0	0%	7.5	0	0%	---	---	0%	0%	0%
METAL	CADMIUM	7	6	0.51	6	86%	10	2	29%	20	0	0%	29%	0%
METAL	CALCIUM	2	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	CHROMIUM, HEXAVALENT	7	1	0.054	1	14%	50	0	0%	100	0	0%	0%	0%
METAL	CHROMIUM, TOTAL	7	7	181	1	14%	560	1	14%	100	5	71%	14%	14%
METAL	COBALT	7	5	31	1	14%	800	0	0%	---	---	0%	0%	0%
METAL	COPPER	7	7	60	6	86%	250	4	57%	---	---	0%	57%	0%
METAL	IRON	2	2	44000	1	50%	---	---	0%	---	---	0%	0%	0%
METAL	LEAD	7	7	9.5	7	100%	50	6	86%	100	6	86%	86%	86%
METAL	MAGNESIUM	2	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	MERCURY	7	7	0.63	4	57%	2	1	14%	4	0	0%	14%	0%
METAL	MOLYBDENUM	7	2	26	0	0%	3500	0	0%	---	---	0%	0%	0%
METAL	NICKEL	7	7	330	0	0%	200	2	29%	---	---	0%	0%	0%
METAL	POTASSIUM	2	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	SELENIUM	7	4	1.2	3	43%	10	0	0%	20	0	0%	0%	0%
METAL	SILVER	7	5	0.55	5	71%	50	1	14%	100	0	0%	14%	0%
METAL	SODIUM	2	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	THALLIUM	7	3	1.6	1	14%	70	0	0%	---	---	0%	0%	0%
METAL	VANADIUM	7	6	77	0	0%	240	0	0%	---	---	0%	0%	0%
METAL	ZINC	7	7	87	6	86%	2500	0	0%	---	---	0%	0%	0%
PCB	PCB-1254 (AROCHLOR 1254)	7	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	ALPHA-CHLORDANE	7	2	0	2	29%	2.5	0	0%	---	---	0%	0%	0%
PES	GAMMA-CHLORDANE	7	2	0	2	29%	2.5	0	0%	---	---	0%	0%	0%
PES	p,p'-DDE	7	1	0	0	0%	1	0	0%	---	---	0%	0%	0%
SVOC	2-METHYLNAPHTHALENE	6	1	0	1	17%	---	---	0%	---	---	0%	0%	0%
SVOC	bis(2-ETHYLHEXYL) PHTHALATE	6	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	FLUORANTHENE	6	1	0	1	17%	---	---	0%	---	---	0%	0%	0%
SVOC	FLUORENE	6	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	NAPHTHALENE	6	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	PHENANTHRENE	6	1	0	1	17%	---	---	0%	---	---	0%	0%	0%
SVOC	PYRENE	6	1	0	1	17%	---	---	0%	---	---	0%	0%	0%
VOC	ACETONE	7	2	0	0	0%	---	---	0%	---	---	0%	0%	0%

Attachment E-1-8. Hazardous Waste Characterization Analysis for Low Threat Waste Samples at Landfill Unit No. 3 - Volume Estimates, UC Davis LEHR/OCL

Notes:

Highlighted values are those selected to represent the percentage of RCRA hazardous and non-RCRA hazardous wastes for the given land disposal unit and medium. See below for selection criteria.

^a Background for pesticides, VOCs, and SVOCs is assumed to be 0 mg/kg.

^b Assumed percentage of non-RCRA hazardous waste chosen by first selecting the minimum percentage of background and 10x STLC exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of non-RCRA hazardous waste. If the constituent with the highest non-RCRA hazardous waste percentage was that selected for the RCRA hazardous waste designation, then the constituent with the next highest percentage was selected to represent the non-RCRA hazardous waste percentage.

^c Assumed percentage of RCRA hazardous waste chosen by first selecting the minimum percentage of background and 20x TCLP exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of RCRA hazardous waste.

Acronyms/Abbreviations:

10x - ten times

20x - twenty times

mg/kg - milligram per kilogram

PCB - polychlorinated biphenyl

PES - pesticide

RCRA - Resource Conservation and Recovery Act

STLC - soluble threshold limit concentration

SVOC - semi-volatile organic compound

TCLP - toxicity characteristic leaching procedure

VOC - volatile organic compound

--- - not applicable

Attachment E-1-9. Hazardous Waste Characterization Analysis for Soil Samples at Southern Trenches - Volume Estimates, UC Davis LEHR/OCL

Analyte Class	Analyte	Number of Samples	Number of Detects	Background ^a [mg/kg]	Number of Samples Exceeding Background		10x STLC [mg/kg]	Number of Samples Exceeding 10x STLC		20x TCLP [mg/kg]	Number of Samples Exceeding 20x TCLP		Assumed Percentage Non-RCRA Hazardous Waste ^b	Assumed Percentage RCRA Hazardous Waste ^c
					Percentage Exceeding Background	Percentage Exceeding 10x STLC		Percentage Exceeding 20x TCLP	Percentage Exceeding 20x TCLP					
ANION	NITRATE	6	4	0	0	0%	---	---	0%	---	---	0%	0%	0%
ANION	Nitrite, Nitrate-Nonspecific	10	8	0	0	0%	---	---	0%	---	---	0%	0%	0%
ANION	NITROGEN, AMMONIA (AS N)	9	9	0	0	0%	---	---	0%	---	---	0%	0%	0%
GEN	TOTAL KJELDAHL NITROGEN	9	9	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	ARSENIC	16	16	9.6	1	6%	50	0	0%	100	0	0%	0%	0%
METAL	BARIUM	16	16	260	0	0%	1000	0	0%	2000	0	0%	0%	0%
METAL	BERYLLIUM	16	9	0.72	0	0%	7.5	0	0%	---	---	0%	0%	0%
METAL	CADMIUM	16	1	0.51	0	0%	10	0	0%	20	0	0%	0%	0%
METAL	CHROMIUM, TOTAL	16	16	181	0	0%	5600	0	0%	100	11	69%	0%	0%
METAL	COBALT	16	16	31	0	0%	800	0	0%	---	---	0%	0%	0%
METAL	COPPER	16	16	60	0	0%	250	0	0%	---	---	0%	0%	0%
METAL	IRON	9	9	44000	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	LEAD	16	16	9.5	4	25%	50	0	0%	100	0	0%	0%	0%
METAL	MANGANESE	9	9	750	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	MERCURY	16	13	0.63	5	31%	2	0	0%	4	0	0%	0%	0%
METAL	MOLYBDENUM	16	9	26	0	0%	3500	0	0%	---	---	0%	0%	0%
METAL	NICKEL	16	16	330	0	0%	200	8	50%	---	---	0%	0%	0%
METAL	SELENIUM	16	12	1.2	4	25%	10	0	0%	20	0	0%	0%	0%
METAL	THALLIUM	16	3	1.6	0	0%	70	0	0%	---	---	0%	0%	0%
METAL	VANADIUM	16	16	77	1	6%	240	0	0%	---	---	0%	0%	0%
METAL	ZINC	16	16	87	3	19%	2500	0	0%	---	---	0%	0%	0%
PES	2,4,5,6-TETRACHLORO-META-XYLENE	3	3	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	16	6	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	ALPHA-CHLORDANE	16	7	0	7	44%	2.5	0	0%	---	---	0%	0%	0%
PES	CHLORDANE	9	4	0	0	0%	2.5	0	0%	0.6	0	0%	0%	0%
PES	DECACHLOROBIPHENYL	9	9	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	ENDOSULFAN SULFATE	16	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	ENDRIN	16	2	0	0	0%	0.2	0	0%	0.4	0	0%	0%	0%
PES	ENDRIN ALDEHYDE	16	1	0	1	6%	---	---	0%	---	---	0%	0%	0%
PES	ENDRIN KETONE	16	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	GAMMA-CHLORDANE	16	9	0	9	56%	2.5	0	0%	---	---	0%	0%	0%
PES	p,p'-DDD	16	1	0	1	6%	1	0	0%	---	---	0%	0%	0%
PES	p,p'-DDE	16	1	0	0	0%	1	0	0%	---	---	0%	0%	0%
PES	p,p'-DDT	16	2	0	2	13%	1	0	0%	---	---	0%	0%	0%
SVOC	2,4,6-TRIBROMOPHENOL	9	9	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	2-FLUOROBIPHENYL	9	9	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	2-FLUOROPHENOL	9	9	0	0	0%	---	---	0%	---	---	0%	0%	0%
VOC	ACETONE	7	1	0	0	0%	---	---	0%	---	---	0%	0%	0%

Attachment E-1-9. Hazardous Waste Characterization Analysis for Soil Samples at Southern Trenches - Volume Estimates, UC Davis LEHR/OCL

Notes:

Highlighted values are those selected to represent the percentage of RCRA hazardous and non-RCRA hazardous wastes for the given land disposal unit and medium. See below for selection criteria.

^a Background for pesticides, VOCs, and SVOCs is assumed to be 0 mg/kg.

^b Assumed percentage of non-RCRA hazardous waste chosen by first selecting the minimum percentage of background and 10x STLC exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of non-RCRA hazardous waste. If the constituent with the highest non-RCRA hazardous waste percentage was that selected for the RCRA hazardous waste designation, then the constituent with the next highest percentage was selected to represent the non-RCRA hazardous waste percentage.

^c Assumed percentage of RCRA hazardous waste chosen by first selecting the minimum percentage of background and 20x TCLP exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of RCRA hazardous waste.

Acronyms/Abbreviations:

10x - ten times

20x - twenty times

GEN- general

mg/kg - milligram per kilogram

PES - pesticide

RCRA - Resource Conservation and Recovery Act

STLC - soluble threshold limit concentration

SVOC - semi-volatile organic compound

TCLP - toxicity characteristic leaching procedure

VOC - volatile organic compound

--- - not applicable

Attachment E-1-10. Hazardous Waste Characterization Analysis for Low Threat Waste Samples at Southern Trenches - Volume Estimates, UC Davis LEHR/OCL

Analyte Class	Analyte	Number of Samples	Number of Detects	Background ^a [mg/kg]	Number of Samples Exceeding Background		Number of Samples Exceeding 10x STLC		Number of Samples Exceeding 20x TCLP		Assumed Percentage Non-RCRA Hazardous Waste ^b	Assumed Percentage RCRA Hazardous Waste ^c		
					Percentage Exceeding Background	Percentage Exceeding 10x STLC	Percentage Exceeding 10x STLC	Percentage Exceeding 20x TCLP						
ANION	Nitrite, Nitrate-Nonspecific	9	8	0	0	0%	---	---	0%	---	0%	0%		
METAL	ARSENIC	9	9	9.6	0	0%	50	0	0%	100	0	0%	0%	
METAL	BARIUM	9	9	260	0	0%	1000	0	0%	2000	0	0%	0%	
METAL	CHROMIUM, TOTAL	9	9	181	0	0%	560	0	0%	100	9	100%	0%	0%
METAL	COBALT	9	9	31	0	0%	800	0	0%	---	---	0%	0%	0%
METAL	COPPER	9	9	60	0	0%	250	0	0%	---	---	0%	0%	0%
METAL	LEAD	9	9	9.5	0	0%	50	0	0%	100	0	0%	0%	0%
METAL	MERCURY	9	9	0.63	0	0%	2	0	0%	4	0	0%	0%	0%
METAL	NICKEL	9	9	330	1	11%	200	9	100%	---	---	0%	11%	0%
METAL	SELENIUM	9	2	1.2	2	22%	10	0	0%	20	0	0%	0%	0%
METAL	SILVER	9	1	0.55	1	11%	50	0	0%	100	0	0%	0%	0%
METAL	VANADIUM	9	9	77	0	0%	240	0	0%	---	---	0%	0%	0%
METAL	ZINC	9	9	87	1	11%	2500	0	0%	---	---	0%	0%	0%
PES	ALPHA-CHLORDANE	9	1	0	1	11%	2.5	0	0%	---	---	0%	0%	0%
PES	GAMMA-CHLORDANE	9	1	0	1	11%	2.5	0	0%	---	---	0%	0%	0%
PES	p,p'-DDD	9	1	0	1	11%	1	0	0%	---	---	0%	0%	0%
PES	p,p'-DDT	9	2	0	2	22%	1	0	0%	---	---	0%	0%	0%

Notes:

Highlighted values are those selected to represent the percentage of RCRA hazardous and non-RCRA hazardous wastes for the given land disposal unit and medium. See below for selection criteria.

^a Background for pesticides, VOCs, and SVOCs is assumed to be 0 mg/kg.

^b Assumed percentage of non-RCRA hazardous waste chosen by first selecting the minimum percentage of background and 10x STLC exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of non-RCRA hazardous waste. If the constituent with the highest non-RCRA hazardous waste percentage was that selected for the RCRA hazardous waste designation, then the constituent with the next highest percentage was selected to represent the non-RCRA hazardous waste percentage.

^c Assumed percentage of RCRA hazardous waste chosen by first selecting the minimum percentage of background and 20x TCLP exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of RCRA hazardous waste.

Acronyms/Abbreviations:

- 10x - ten times
- 20x - twenty times
- mg/kg - milligram per kilogram
- PES - pesticide
- RCRA - Resource Conservation and Recovery Act
- STLC - soluble threshold limit concentration
- TCLP - toxicity characteristic leaching procedure
- - not applicable

Attachment E-1-11. Hazardous Waste Characterization Analysis for Soil Samples at Waste Burial Holes - Volume Estimates, UC Davis LEHR/OCL

Analyte Class	Analyte	Number of Samples	Number of Detects	Background ^a [mg/kg]	Number of Samples Exceeding Background		10x STLC [mg/kg]	Number of Samples Exceeding 10x STLC		20x TCLP [mg/kg]	Number of Samples Exceeding 20x TCLP		Assumed Percentage Non-Hazardous Waste ^b	Assumed Percentage Hazardous Waste ^c
					Percentage Exceeding Background	Percentage Exceeding 10x STLC		Percentage Exceeding 20x TCLP	Percentage Exceeding 20x TCLP					
ANION	NITRATE	18	18	0	0	0%	---	---	0%	---	---	0%	0%	0%
ANION	Nitrite, Nitrate-Nonspecific	15	15	0	0	0%	---	---	0%	---	---	0%	0%	0%
GEN	TOTAL KJELDAHL NITROGEN	2	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	ANTIMONY	20	1	1.4	0	0%	150	0	0%	---	---	0%	0%	0%
METAL	ARSENIC	22	22	9.6	3	14%	50	0	0%	100	0	0%	0%	0%
METAL	BARIUM	22	22	260	1	5%	1000	0	0%	2000	0	0%	0%	0%
METAL	BERYLLIUM	22	11	0.72	0	0%	7.5	0	0%	---	---	0%	0%	0%
METAL	CADMIUM	22	1	0.51	0	0%	10	0	0%	20	0	0%	0%	0%
METAL	CALCIUM	2	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	CHROMIUM, HEXAVALENT	29	7	0.054	7	24%	50	0	0%	100	0	0%	0%	0%
METAL	CHROMIUM, TOTAL	22	22	181	0	0%	560	0	0%	100	15	68%	0%	0%
METAL	COBALT	22	21	31	1	5%	800	0	0%	---	---	0%	0%	0%
METAL	COPPER	22	22	60	2	9%	250	0	0%	---	---	0%	0%	0%
METAL	IRON	2	2	44000	1	50%	---	---	0%	---	---	0%	0%	0%
METAL	LEAD	22	22	9.5	10	45%	50	1	5%	100	0	0%	5%	0%
METAL	MAGNESIUM	2	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	MANGANESE	2	2	750	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	MERCURY	22	18	0.63	1	5%	2	0	0%	4	0	0%	0%	0%
METAL	MOLYBDENUM	22	7	26	0	0%	3500	0	0%	---	---	0%	0%	0%
METAL	NICKEL	22	22	330	0	0%	200	14	64%	---	---	0%	0%	0%
METAL	POTASSIUM	2	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	SELENIUM	22	14	1.2	13	59%	10	0	0%	20	0	0%	0%	0%
METAL	SILVER	22	5	0.55	1	5%	50	0	0%	100	0	0%	0%	0%
METAL	SODIUM	2	2	0	0	0%	---	---	0%	---	---	0%	0%	0%
METAL	THALLIUM	22	2	1.6	0	0%	70	0	0%	---	---	0%	0%	0%
METAL	VANADIUM	22	22	77	2	9%	240	0	0%	---	---	0%	0%	0%
METAL	ZINC	22	22	87	6	27%	2500	0	0%	---	---	0%	0%	0%
PCB	PCB-1260 (AROCHLOR 1260)	21	1	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	2,4,5,6-TETRACHLORO-META-XYLENE	7	7	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	ALPHA-CHLORDANE	21	8	0	8	38%	2.5	0	0%	---	---	0%	0%	0%
PES	DECACHLOROBIPHENYL	7	7	0	0	0%	---	---	0%	---	---	0%	0%	0%
PES	GAMMA-CHLORDANE	20	7	0	7	35%	2.5	0	0%	---	---	0%	0%	0%
PES	p,p'-DDD	22	1	0	1	5%	1	0	0%	---	---	0%	0%	0%
PES	p,p'-DDE	22	6	0	0	0%	1	0	0%	---	---	0%	0%	0%
PES	p,p'-DDT	20	2	0	2	10%	1	0	0%	---	---	0%	0%	0%
SUR	1-BROMO-4-FLUOROBENZENE (4-BROMOFLUOROBENZENE)	32	32	0	0	0%	---	---	0%	---	---	0%	0%	0%
SUR	DIBROMOFLUOROMETHANE	32	32	0	0	0%	---	---	0%	---	---	0%	0%	0%
SUR	TOLUENE-D8	32	32	0	0	0%	---	---	0%	---	---	0%	0%	0%
SVOC	2,4,6-TRIBROMOPHENOL	7	7	0	0	0%	---	---	0%	---	---	0%	0%	0%

Attachment E-1-11. Hazardous Waste Characterization Analysis for Soil Samples at Waste Burial Holes - Volume Estimates, UC Davis LEHR/OCL

Analyte Class	Analyte	Number of Samples	Number of Detects	Background ^a [mg/kg]	Number of Samples Exceeding Background		10x STLC [mg/kg]		20x TCLP [mg/kg]		Assumed Percentage Non-RCRA Hazardous Waste ^b	Assumed Percentage RCRA Hazardous Waste ^c	
					Percentage Exceeding Background	Percentage Exceeding Background	Percentage Exceeding 10x STLC	Percentage Exceeding 10x STLC	Percentage Exceeding 20x TCLP	Percentage Exceeding 20x TCLP			
SVOC	2-FLUOROBIPHENYL	7	7	0	0	0%	---	---	0%	---	---	0%	0%
SVOC	2-FLUOROPHENOL	7	7	0	0	0%	---	---	0%	---	---	0%	0%
SVOC	bis(2-ETHYLHEXYL) PHTHALATE	20	1	0	0	0%	---	---	0%	---	---	0%	0%
SVOC	DI-n-BUTYL PHTHALATE	20	2	0	2	10%	---	---	0%	---	---	0%	0%
SVOC	DI-n-OCTYLPHTHALATE	20	1	0	0	0%	---	---	0%	---	---	0%	0%
SVOC	FLUORANTHENE	20	1	0	1	5%	---	---	0%	---	---	0%	0%
SVOC	NAPHTHALENE	20	2	0	0	0%	---	---	0%	---	---	0%	0%
VOC	ACETONE	14	4	0	0	0%	---	---	0%	---	---	0%	0%
VOC	BENZENE	47	27	0	0	0%	---	---	0%	10	0	0%	0%
VOC	CHLOROFORM	47	7	0	0	0%	---	---	0%	120	0	0%	0%
VOC	FORMALDEHYDE	2	1	0	1	50%	---	---	0%	---	---	0%	0%
VOC	METHYL ETHYL KETONE (2-BUTANONE)	45	19	0	0	0%	---	---	0%	4000	0	0%	0%
VOC	TETRACHLOROETHYLENE(PCE)	47	2	0	0	0%	---	---	0%	14	0	0%	0%
VOC	TOLUENE	15	1	0	0	0%	---	---	0%	---	---	0%	0%

Notes:

Highlighted values are those selected to represent the percentage of RCRA hazardous and non-RCRA hazardous wastes for the given land disposal unit and medium. See below for selection criteria.

^a Background for pesticides, VOCs, and SVOCs is assumed to be 0 mg/kg.

^b Assumed percentage of non-RCRA hazardous waste chosen by first selecting the minimum percentage of background and 10x STLC exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of non-RCRA hazardous waste. If the constituent with the highest non-RCRA hazardous waste percentage was that selected for the RCRA hazardous waste designation, then the constituent with the next highest percentage was selected to represent the non-RCRA hazardous waste percentage.

^c Assumed percentage of RCRA hazardous waste chosen by first selecting the minimum percentage of background and 20x TCLP exceedances for each constituent. The highest resulting percentage amongst all constituents is the assumed percentage of RCRA hazardous waste.

Acronyms/Abbreviations:

- 10x - ten times
- 20x - twenty times
- GEN - general
- mg/kg - milligram per kilogram
- PCB - polychlorinated biphenyl
- PES - pesticide
- RCRA - Resource Conservation and Recovery Act
- STLC - soluble threshold limit concentration
- SUR - surrogate
- SVOC - semi-volatile organic compound
- TCLP - toxicity characteristic leaching procedure
- VOC - volatile organic compound
- - not applicable

Attachment E-1-12. Radiological Waste Characterization Analysis for Soil Samples at Eastern Trenches - Volume Estimates, UC Davis LEHR/OCL

Analyte	BGD (pCi/g)	Appendix C BGD Assessment ^a	Number of Samples	Number of Samples > BGD	Detections > BGD		Detection Limits		Is Maximum > 10x BGD?	Number of Samples > 10x BGD	Percent Detects Above BGD ^b	Assumed Percentage LLRW ^c
					Min (pCi/g)	Max (pCi/g)	Min (pCi/g)	Max (pCi/g)				
ACTINIUM 228	0.64		27	1	0.68	0.68	0.0576	0.4	No		4%	2%
Bismuth-212	0.43		23	3	0.539	0.71	0.128	0.6	No		13%	7%
Bismuth-214	0.54		27	4	0.563	0.62	0.0328	0.18	No		15%	7%
Carbon-14	0.13	>BGD (0-20)	31	4	1.15	8.3	0.875	9.9	Yes	3	13%	13%
Cesium-137	0.012	> BGD (0-10)	25	7	0.0184	0.0617	0.0168	0.09	No		28%	14%
Cobalt-60	0.006		27				0.019	0.11	No		0%	0%
Lead-210	1.6		24				0.204	15	No		0%	0%
Lead-212	0.7		27	2	0.701	0.73	0.0254	0.16	No		7%	4%
Lead-214	0.58		27	10	0.582	0.673	0.0325	0.16	No		37%	19%
Potassium-40	14		27				0.149	0.94	No		0%	0%
Radium-226	0.75	< BGD (0-20)	27	1	0.78	0.78	0.0328	0.25	No		4%	2%
Radium-228	0.64		13				0.0576	0.203	No		0%	0%
Strontium-90	0.056		27				0.302	1.1	No		0%	0%
Thallium-208	0.22		27	1	0.228	0.228	0.016	0.09	No		4%	2%
Thorium-228	0.74		13	1	0.785	0.785	0.105	0.281	No		8%	4%
Thorium-230	0.79		13	1	0.815	0.815	0.0371	0.29	No		8%	4%
Thorium-232	0.75		13				0.0202	0.138	No		0%	0%
Thorium-234	0.78		27	2	0.886	1.09	0.258	2.1	No		7%	4%
Uranium-235	0.039		27	1	0.142	0.142	0.1	0.39	No		4%	2%
URANIUM 235 and 236	0.039		17	1	0.185	0.185	0.024	0.26	No		6%	3%
Uranium-238	0.65		17	1	0.7	0.7	0.04	0.19	No		6%	3%
BETA, GROSS	15		27	15	15.1	17.6	3.92	6.26	No		56%	28%
ALPHA, GROSS	8.7		27	4	9.95	13.1	1.85	8.6	No		15%	7%
TRITIUM (HYDROGEN-3)	1.2	> BGD (0-20)	31	5	1.3	15.5	0.025	7	Yes	2	16%	8%

Notes:

Highlighted value is that selected to represent the percentage of LLRW for the given land disposal unit and medium. See below for selection criteria.

^a From Tables C-15 and C-16 of Appendix C of the FS - Volume 1. Numbers in parentheses indicate the depth interval in feet below ground surface for which the statement applies.

^b If 50 percent or more of the samples exceeding background exceed ten times background then the percentage exceeding background is carried forward into the "Assumed Percentage LLRW" column; if fewer than 50 percent of the samples exceeding background exceed ten times background then one-half the percentage of samples exceeding background is carried into the "Assumed Percentage LLRW" column.

^c Assumed percentage of LLRW is selected as the maximum percentage in this column among constituents analyzed.

Acronyms/Abbreviations:

10x - ten times

> - greater than

< - less than

BGD - background activity in soil

FS - Feasibility Study

LLRW - low-level radioactive waste

max - maximum activity concentration

min - minimum activity concentration

pCi/g - picocuries per gram

Attachment E-1-13. Radiological Waste Characterization Analysis for Low Threat Waste Samples at Eastern Trenches - Volume Estimates, UC Davis LEHR/OCL

Analyte	BGD (pCi/g)	Appendix C BGD Assessment ^a	Number of Samples	Number of Samples > BGD	Detections > BGD		Detection Limits		Is Maximum > 10x BGD?	Number of Samples > 10x BGD	Percent Detects Above BGD ^b	Assumed Percentage LLRW ^c
					Min (pCi/g)	Max (pCi/g)	Min (pCi/g)	Max (pCi/g)				
ACTINIUM 228	0.64		13	2	0.67	0.76	0.11	0.27	No		15%	8%
Bismuth-212	0.43		13	3	0.45	0.61	0.22	0.5	No		23%	12%
Bismuth-214	0.54		13	2	0.57	0.6	0.067	0.14	No		15%	8%
Carbon-14	0.13	>BGD (0-20)	13				0.99	11	No		0%	0%
Cesium-137	0.012	> BGD (0-10)	13	2	0.041	0.073	0.026	0.071	No		15%	8%
Cobalt-60	0.006		13				0.019	0.08	No		0%	0%
Lead-210	1.6		13				0.99	13	No		0%	0%
Lead-212	0.7		13				0.052	0.11	No		0%	0%
Lead-214	0.58		13	1	0.66	0.66	0.053	0.13	No		8%	4%
Potassium-40	14		13				0.35	0.8	No		0%	0%
Radium-226	0.75	< BGD (0-20)	13	2	0.78	0.81	0.14	0.3	No		15%	8%
Strontium-90	0.056		13				0.46	1.2	No		0%	0%
Thallium-208	0.22		13				0.032	0.068	No		0%	0%
Thorium-234	0.78		13				0.96	2.8	No		0%	0%
Uranium-235	0.039		13				0.15	0.32	No		0%	0%
BETA, GROSS	15		13	3	15.4	17.6	5.1	5.8	No		23%	12%
ALPHA, GROSS	8.7		13	1	11	11	5.7	7.5	No		8%	4%
TRITIUM (HYDROGEN-3)	1.2	> BGD (0-20)	13	1	333	333	0.024	0.036	Yes	1	8%	8%

Notes:

Highlighted value is that selected to represent the percentage of LLRW for the given land disposal unit and medium. See below for selection criteria.

^a From Tables C-15 and C-16 of Appendix C of the FS - Volume 1. Numbers in parentheses indicate the depth interval in feet below ground surface for which the statement applies.

^b If 50 percent or more of the samples exceeding background exceed ten times background then the percentage exceeding background is carried forward into the "Assumed Percentage LLRW" column; if fewer than 50 percent of the samples exceeding background exceed ten times background then one-half the percentage of samples exceeding background is carried into the "Assumed Percentage LLRW" column.

^c Assumed percentage of LLRW is selected as the maximum percentage in this column among constituents analyzed.

Acronyms/Abbreviations:

10x - ten times

> - greater than

< - less than

BGD - background activity in soil

FS - Feasibility Study

LLRW - low-level radioactive waste

max - maximum activity concentration

min - minimum activity concentration

pCi/g - picocuries per gram

Attachment E-1-14. Radiological Waste Characterization Analysis for Soil Samples at Landfill Unit No. 1 - Volume Estimates, UC Davis LEHR/OCL

Analyte	BGD (pCi/g)	Appendix C BGD Assessment ^a	Number of Samples	Number of Samples > BGD	Detections > BGD		Detection Limits		Is Maximum > 10x BGD?	Number of Samples > 10x BGD	Percent Detects Above BGD ^b	Assumed Percentage LLRW ^c
					Min (pCi/g)	Max (pCi/g)	Min (pCi/g)	Max (pCi/g)				
ACTINIUM 228	0.64		15				0.0689	0.23	No		0%	0%
Bismuth-212	0.43		15	3	0.466	0.516	0.135	0.46	No		20%	10%
Bismuth-214	0.54		15	2	0.57	0.67	0.0374	0.11	No		13%	7%
Carbon-14	0.13	>BGD (0-20)	19	5	1.02	4.74	0.76	2.9	Yes	4	26%	26%
Cesium-137	0.012	>BGD (0-10)	13	2	0.039	0.0764	0.0248	0.061	No		15%	8%
Cobalt-60	0.006		15				0.0183	0.079	No		0%	0%
Lead-210	1.6	< BGD (0-10)	15				0.354	4.2	No		0%	0%
Lead-212	0.7		15				0.0361	0.11	No		0%	0%
Lead-214	0.58		15	3	0.596	0.77	0.036	0.12	No		20%	10%
Potassium-40	14	<BGD (0-20)	15				0.143	0.66	No		0%	0%
Radium-226	0.75	<BGD (0-20)	15				0.0374	0.24	No		0%	0%
Radium-228	0.64	<BGD (0-10)	9				0.0689	0.14	No		0%	0%
Strontium-90	0.056	>BGD (0-10)	15				0.372	0.8	No		0%	0%
Thallium-208	0.22		15	3	0.222	0.256	0.0163	0.055	No		20%	10%
Thorium-228	0.74		9				0.0939	0.249	No		0%	0%
Thorium-230	0.79		9				0.0509	0.128	No		0%	0%
Thorium-232	0.75		9				0.0255	0.113	No		0%	0%
Thorium-234	0.78		15	3	0.829	1.02	0.4	1.4	No		20%	10%
Uranium-235	0.039		15				0.12	0.26	No		0%	0%
URANIUM 235 and 236	0.039		13	1	0.0526	0.0526	0.0224	0.219	No		8%	4%
Uranium-238	0.65	< BGD (0-10)	13	4	0.652	0.789	0.04	0.153	No		31%	15%
BETA, GROSS	15		15	7	15.2	17.7	4.86	6.28	No		47%	23%
ALPHA, GROSS	8.7		15	2	10.4	10.5	2.55	5.9	No		13%	7%
TRITIUM (HYDROGEN-3)	1.2		15				0.034	9.79	No		0%	0%

Notes:

Highlighted value is that selected to represent the percentage of LLRW for the given land disposal unit and medium. See below for selection criteria.

^a From Tables C-15 and C-16 of Appendix C of the FS - Volume 1. Numbers in parentheses indicate the depth interval in feet below ground surface for which the statement applies.

^b If 50 percent or more of the samples exceeding background exceed ten times background then the percentage exceeding background is carried forward into the "Assumed Percentage LLRW" column; if fewer than 50 percent of the samples exceeding background exceed ten times background then one-half the percentage of samples exceeding background is carried into the "Assumed Percentage LLRW" column.

^c Assumed percentage of LLRW is selected as the maximum percentage in this column among constituents analyzed.

Acronyms/Abbreviations:

10x - ten times

> - greater than

< - less than

BGD - background activity in soil

FS - Feasibility Study

LLRW - low-level radioactive waste

max - maximum activity concentration

min - minimum activity concentration

pCi/g - picocuries per gram

Attachment E-1-15. Radiological Waste Characterization Analysis for Low Threat Waste Samples at Landfill Unit No. 1 - Volume Estimates, UC Davis LEHR/OCL

Analyte	BGD	Appendix C	Number of Samples	Number of Samples > BGD	Detections > BGD		Detection Limits		Is Maximum > 10x BGD?	Number of Samples > 10x BGD	Percent Detects Above BGD ^b	Assumed Percentage LLRW ^c
	(pCi/g)	BGD Assessment ^a			Min (pCi/g)	Max (pCi/g)	Min (pCi/g)	Max (pCi/g)				
ACTINIUM 228	0.64		2	1	0.66	0.66	0.11	0.15	No		50%	25%
Bismuth-212	0.43		2				0.2	0.27	No		0%	0%
Bismuth-214	0.54		2				0.067	0.091	No		0%	0%
Carbon-14	0.13	>BGD (0-20)	2				1.4	11	No		0%	0%
Cesium-137	0.012	>BGD (0-10)	2				0.027	0.036	No		0%	0%
Cobalt-60	0.006		2				0.032	0.033	No		0%	0%
Lead-210	1.6	< BGD (0-10)	2				4	8.7	No		0%	0%
Lead-212	0.7		2				0.048	0.067	No		0%	0%
Lead-214	0.58		2	1	0.689	0.689	0.057	0.077	No		50%	25%
Potassium-40	14	<BGD (0-20)	2				0.32	0.43	No		0%	0%
Radium-226	0.75	<BGD (0-20)	2	1	0.84	0.84	0.13	0.24	No		50%	25%
Strontium-90	0.056	>BGD (0-10)	2	1	0.31	0.31	0.21	0.77	No		50%	25%
Thallium-208	0.22		2				0.03	0.041	No		0%	0%
Thorium-234	0.78		2				0.91	1.4	No		0%	0%
Uranium-235	0.039		2				0.16	0.22	No		0%	0%
BETA, GROSS	15		2	1	18.1	18.1	5.5	6.2	No		50%	25%
ALPHA, GROSS	8.7		2				5.3	7.4	No		0%	0%
TRITIUM (HYDROGEN-3)	1.2		2				0.035	0.037	No		0%	0%

Notes:

Highlighted value is that selected to represent the percentage of LLRW for the given land disposal unit and medium. See below for selection criteria.

^a From Tables C-15 and C-16 of Appendix C of the FS - Volume 1. Numbers in parentheses indicate the depth interval in feet below ground surface for which the statement applies.

^b If 50 percent or more of the samples exceeding background exceed ten times background then the percentage exceeding background is carried forward into the "Assumed Percentage LLRW" column; if fewer than 50 percent of the samples exceeding background exceed ten times background then one-half the percentage of samples exceeding background is carried into the "Assumed Percentage LLRW" column.

^c Assumed percentage of LLRW is selected as the maximum percentage in this column among constituents analyzed.

Acronyms/Abbreviations:

10x - ten times

> - greater than

< - less than

BGD - background activity in soil

FS - Feasibility Study

LLRW - low-level radioactive waste

max - maximum activity concentration

min - minimum activity concentration

pCi/g - picocuries per gram

Attachment E-1-16. Radiological Waste Characterization Analysis for Soil Samples at Landfill Unit No. 2 - Volume Estimates, UC Davis LEHR/OCL

Analyte	BGD (pCi/g)	Appendix C BGD Assessment ^a	Number of Samples	Number of Samples > BGD	Detections > BGD		Detection Limits		Is Maximum > 10x BGD?	Number of Samples > 10x BGD	Percent Detects Above BGD ^b	Assumed Percentage LLRW ^c
					Min (pCi/g)	Max (pCi/g)	Min (pCi/g)	Max (pCi/g)				
ACTINIUM 228	0.64		25	6	0.66	0.88	0.0576	0.3	No		24%	12%
Bismuth-212	0.43		18	4	0.48	0.59	0.129	0.52	No		22%	11%
Bismuth-214	0.54		25	9	0.55	1.08	0.0304	0.16	No		36%	18%
Carbon-14	0.13	> BGD (0-20)	29	7	1.07	4.2	0.86	1.5	Yes	6	24%	24%
Cesium-137	0.012	> BGD (0-10)	25	12	0.0187	0.164	0.0165	0.069	Yes	1	48%	24%
Cobalt-60	0.006		25				0.017	0.077	No		0%	0%
Lead-210	1.6		19				0.99	24	No		0%	0%
Lead-212	0.7		25	5	0.71	0.93	0.0287	0.13	No		20%	10%
Lead-214	0.58		25	11	0.61	1.01	0.0299	0.14	No		44%	22%
Potassium-40	14	< BGD (0-10) > BGD (10-20)	25	4	14.1	18.6	0.16	0.96	No		16%	8%
Radium-226	0.75	< BGD (0-20)	25	3	0.82	1.1	0.0304	0.3	No		12%	6%
Radium-228	0.64	< BGD (0-10)	8				0.0576	0.107	No		0%	0%
Strontium-90	0.056	> BGD (0-20)	28				0.28	1.1	No		0%	0%
Thallium-208	0.22		25	4	0.222	0.248	0.0149	0.08	No		16%	8%
Thorium-228	0.74		8	1	0.753	0.753	0.1	0.347	No		13%	6%
Thorium-230	0.79		8				0.0304	0.0905	No		0%	0%
Thorium-232	0.75		8				0.0282	0.0884	No		0%	0%
Thorium-234	0.78		25	3	0.879	1.14	0.453	1.9	No		12%	6%
Uranium-235	0.039		25				0.103	0.39	No		0%	0%
URANIUM 235 and 236	0.039		11				0.045	0.256	No		0%	0%
Uranium-238	0.65		11				0.04	0.284	No		0%	0%
BETA, GROSS	15		25	17	15.2	22.8	4.17	5.8	No		68%	34%
ALPHA, GROSS	8.7		25	3	10.6	13.1	2.32	8.4	No		12%	6%
TRITIUM (HYDROGEN-3)	1.2	> BGD (0-10)	26	3	1.4	3.2	0.032	10.3	No		12%	6%

Notes:

Highlighted value is that selected to represent the percentage of LLRW for the given land disposal unit and medium. See below for selection criteria.

^a From Tables C-15 and C-16 of Appendix C of the FS - Volume 1. Numbers in parentheses indicate the depth interval in feet below ground surface for which the statement applies.

^b If 50 percent or more of the samples exceeding background exceed ten times background then the percentage exceeding background is carried forward into the "Assumed Percentage LLRW" column; if fewer than 50 percent of the samples exceeding background exceed ten times background then one-half the percentage of samples exceeding background is carried into the "Assumed Percentage LLRW" column.

^c Assumed percentage of LLRW is selected as the maximum percentage in this column among constituents analyzed.

Acronyms/Abbreviations:

- 10x - ten times
- > - greater than
- < - less than
- BGD - background activity in soil
- FS - Feasibility Study
- LLRW - low-level radioactive waste
- max - maximum activity concentration
- min - minimum activity concentration
- pCi/g - picocuries per gram

Attachment E-1-17. Radiological Waste Characterization Analysis for Low Threat Waste Samples at Landfill Unit No. 2 - Volume Estimates, UC Davis LEHR/OCL

Analyte	BGD (pCi/g)	Appendix C BGD Assessment ^a	Number of Samples	Number of Samples > BGD	Detections > BGD		Detection Limits		Is Maximum > 10x BGD?	Number of Samples > 10x BGD	Percent Detects Above BGD ^b	Assumed Percentage LLRW ^c
					Min (pCi/g)	Max (pCi/g)	Min (pCi/g)	Max (pCi/g)				
ACTINIUM 228	0.64		10	1	0.79	0.79	0.12	0.62	No		10%	5%
Bismuth-212	0.43		8				0.24	0.89	No		0%	0%
Bismuth-214	0.54		10	1	0.63	0.63	0.07	0.27	No		10%	5%
Carbon-14	0.13	> BGD (0-20)	11	1	1.17	1.17	0.6	11	No		9%	5%
Cesium-137	0.012	> BGD (0-10)	10	5	0.078	0.252	0.033	0.14	Yes	4	50%	50%
Cobalt-60	0.006		10				0.032	0.14	No		0%	0%
Lead-210	1.6		8				1.5	11	No		0%	0%
Lead-212	0.7		10				0.056	0.19	No		0%	0%
Lead-214	0.58		10	1	0.66	0.66	0.062	0.22	No		10%	5%
Potassium-40	14	< BGD (0-10) > BGD (10-20)	10	2	14.6	15	0.39	1.5	No		20%	10%
Radium-226	0.75	< BGD (0-20)	10				0.072	0.27	No		0%	0%
Strontium-90	0.056	> BGD (0-20)	11	2	0.34	0.42	0.27	1.1	No		18%	9%
Thallium-208	0.22		10				0.034	0.15	No		0%	0%
Thorium-234	0.78		10				0.9	2.3	No		0%	0%
Uranium-235	0.039		10				0.19	0.49	No		0%	0%
URANIUM 235 and 236	0.039		1				0.029	0.029	No		0%	0%
Uranium-238	0.65		1				0.06	0.06	No		0%	0%
BETA, GROSS	15		10	8	15.3	32.5	4.8	6	No		80%	40%
ALPHA, GROSS	8.7		10	3	10.3	17.5	5.6	7.9	No		30%	15%
TRITIUM (HYDROGEN-3)	1.2	> BGD (0-10)	10				0.024	0.05	No		0%	0%

Notes:

Highlighted value is that selected to represent the percentage of LLRW for the given land disposal unit and medium. See below for selection criteria.

^a From Tables C-15 and C-16 of Appendix C of the FS - Volume 1. Numbers in parentheses indicate the depth interval in feet below ground surface for which the statement applies.

^b If 50 percent or more of the samples exceeding background exceed ten times background then the percentage exceeding background is carried forward into the "Assumed Percentage LLRW" column; if fewer than 50 percent of the samples exceeding background exceed ten times background then one-half the percentage of samples exceeding background is carried into the "Assumed Percentage LLRW" column.

^c Assumed percentage of LLRW is selected as the maximum percentage in this column among constituents analyzed.

Acronyms/Abbreviations:

10x - ten times

> - greater than

< - less than

BGD - background activity in soil

FS - Feasibility Study

LLRW - low-level radioactive waste

max - maximum activity concentration

min - minimum activity concentration

pCi/g - picocuries per gram

Attachment E-1-18. Radiological Waste Characterization Analysis for Soil Samples at Landfill Unit No. 3 - Volume Estimates, UC Davis LEHR/OCL

Analyte	BGD	Appendix C BGD Assessment ^a	Number of Samples	Number of Samples > BGD	Detections > BGD		Detection Limits		Is Maximum > 10x BGD?	Number of Samples > 10x BGD	Percent Detects Above BGD ^b	Assumed Percentage LLRW ^c
	(pCi/g)				Min (pCi/g)	Max (pCi/g)	Min (pCi/g)	Max (pCi/g)				
ACTINIUM 228	0.64		27	2	0.67	0.71	0.098	0.35	No		7%	4%
Bismuth-212	0.43		27	4	0.56	0.62	0.19	0.5	No		15%	7%
Bismuth-214	0.54		27	5	0.56	0.65	0.055	0.16	No		19%	9%
Carbon-14	0.13	> BGD (0-20)	31	7	0.45	3.77	0.22	11	Yes	1	23%	11%
Cesium-137	0.012	> BGD (0-10)	27	10	0.055	1.25	0.027	0.071	Yes	5	37%	37%
Cobalt-60	0.006		27				0.02	0.073	No		0%	0%
Lead-210	1.6	< BGD (0-20)	27	1	1.93	1.93	1	13	No		4%	2%
Lead-212	0.7		27	2	0.71	0.84	0.052	0.11	No		7%	4%
Lead-214	0.58		27	10	0.583	0.73	0.056	0.17	No		37%	19%
Potassium-40	14	< BGD (0-20)	27	1	14.3	14.3	0.31	0.81	No		4%	2%
Radium-226	0.75	< BGD (0-20)	27	5	0.8	2.91	0.051	0.27	No		19%	9%
Strontium-90	0.056	> BGD (0-10)	31	3	0.51	1.07	0.22	1.1	Yes	2	10%	10%
Thallium-208	0.22		27	5	0.227	0.29	0.032	0.086	No		19%	9%
Thorium-234	0.78		27	2	0.93	1.14	0.65	1.4	No		7%	4%
Uranium-235	0.039		27				0.15	0.32	No		0%	0%
URANIUM 235 and 236	0.039		4	1	0.06	0.06	0.025	0.052	No		25%	13%
Uranium-238	0.65		4				0.02	0.05	No		0%	0%
BETA, GROSS	15		27	21	15.2	20.7	4.8	6.3	No		78%	39%
ALPHA, GROSS	8.7		27	8	9.1	13.8	4.4	7.1	No		30%	15%
TRITIUM (HYDROGEN-3)	1.2		31				0.022	270	No		0%	0%

Notes:

Highlighted value is that selected to represent the percentage of LLRW for the given land disposal unit and medium. See below for selection criteria.

^a From Tables C-15 and C-16 of Appendix C of the FS - Volume 1. Numbers in parentheses indicate the depth interval in feet below ground surface for which the statement applies.

^b If 50 percent or more of the samples exceeding background exceed ten times background then the percentage exceeding background is carried forward into the "Assumed Percentage LLRW" column; if fewer than 50 percent of the samples exceeding background exceed ten times background then one-half the percentage of samples exceeding background is carried into the "Assumed Percentage LLRW" column.

^c Assumed percentage of LLRW is selected as the maximum percentage in this column among constituents analyzed.

Acronyms/Abbreviations:

10x - ten times

> - greater than

< - less than

BGD - background activity in soil

FS - Feasibility Study

LLRW - low-level radioactive waste

max - maximum activity concentration

min - minimum activity concentration

pCi/g - picocuries per gram

Attachment E-1-19. Radiological Waste Characterization Analysis for Low Threat Waste Samples at Landfill Unit No. 3 - Volume Estimates, UC Davis LEHR/OCL

Analyte	BGD (pCi/g)	Appendix C BGD Assessment ^a	Number of Samples	Number of Samples > BGD	Detections > BGD		Detection Limits		Is Maximum > 10x BGD?	Number of Samples > 10x BGD	Percent Detects Above BGD ^b	Assumed Percentage LLRW ^c
					Min (pCi/g)	Max (pCi/g)	Min (pCi/g)	Max (pCi/g)				
ACTINIUM 228	0.64		7				0.13	0.24	No		0%	0%
Bismuth-212	0.43		7				0.21	0.47	No		0%	0%
Bismuth-214	0.54		7	1	0.57	0.57	0.079	0.11	No		14%	7%
Carbon-14	0.13	> BGD (0-20)	7	1	0.58	0.58	0.54	11	No		14%	7%
Cesium-137	0.012	> BGD (0-10)	7	6	0.204	1.67	0.036	0.058	Yes	6	86%	86%
Cobalt-60	0.006		7				0.036	0.065	No		0%	0%
Lead-210	1.6	< BGD (0-20)	7				1.1	13	No		0%	0%
Lead-212	0.7		7				0.056	0.1	No		0%	0%
Lead-214	0.58		7	1	0.65	0.65	0.061	0.11	No		14%	7%
Potassium-40	14	< BGD (0-20)	7	1	14.8	14.8	0.43	0.65	No		14%	7%
Radium-226	0.75	< BGD (0-20)	7				0.14	0.26	No		0%	0%
Strontium-90	0.056	> BGD (0-10)	7	4	0.93	5.07	0.4	0.78	Yes	4	57%	57%
Thallium-208	0.22		7				0.038	0.061	No		0%	0%
Thorium-234	0.78		7				0.83	1.3	No		0%	0%
Uranium-235	0.039		7				0.19	0.25	No		0%	0%
BETA, GROSS	15		7	5	16	25.8	5	6.6	No		71%	36%
ALPHA, GROSS	8.7		7	1	10.9	10.9	5.4	7.5	No		14%	7%
TRITIUM (HYDROGEN-3)	1.2		7				0.022	270	No		0%	0%

Notes:

Highlighted value is that selected to represent the percentage of LLRW for the given land disposal unit and medium. See below for selection criteria.

^a From Tables C-15 and C-16 of Appendix C of the FS - Volume 1. Numbers in parentheses indicate the depth interval in feet below ground surface for which the statement applies.

^b If 50 percent or more of the samples exceeding background exceed ten times background then the percentage exceeding background is carried forward into the "Assumed Percentage LLRW" column; if fewer than 50 percent of the samples exceeding background exceed ten times background then one-half the percentage of samples exceeding background is carried into the "Assumed Percentage LLRW" column.

^c Assumed percentage of LLRW is selected as the maximum percentage in this column among constituents analyzed.

Acronyms/Abbreviations:

10x - ten times

> - greater than

< - less than

BGD - background activity in soil

FS - Feasibility Study

LLRW - low-level radioactive waste

max - maximum activity concentration

min - minimum activity concentration

pCi/g - picocuries per gram

Attachment E-1-20. Radiological Waste Characterization Analysis for Soil Samples at Southern Trenches - Volume Estimates, UC Davis LEHR/OCL

Analyte	BGD	Appendix C	Number of Samples	Number of Samples > BGD	Detections > BGD		Detection Limits		Is Maximum > 10x BGD?	Number of Samples > 10x BGD	Percent Detects Above BGD ^b	Assumed Percentage LLRW ^c
	(pCi/g)	BGD Assessment ^a			Min (pCi/g)	Max (pCi/g)	Min (pCi/g)	Max (pCi/g)				
ACTINIUM 228	0.64		14	3	0.69	0.77	0.0749	0.21	No		21%	11%
Bismuth-212	0.43		15	3	0.5	0.73	0.168	0.38	No		20%	10%
Bismuth-214	0.54		16	2	0.55	0.61	0.0415	0.11	No		13%	6%
Carbon-14	0.13	> BGD (0-10)	16				0.944	1.33	No		0%	0%
Cesium-137	0.012	> BGD (0-10)	16	3	0.0426	0.0557	0.0219	0.055	No		19%	9%
Cobalt-60	0.006		16				0.0215	0.066	No		0%	0%
Lead-210	1.6	> BGD (0-10)	16	1	3.75	3.75	0.414	14	No		6%	3%
Lead-212	0.7		16	1	0.75	0.75	0.036	0.092	No		6%	3%
Lead-214	0.58		16	3	0.6	0.643	0.0421	0.11	No		19%	9%
Potassium-40	14	< BGD (0-20)	16				0.221	0.59	No		0%	0%
Radium-226	0.75	< BGD (0-20)	16	2	0.88	0.89	0.0415	0.22	No		13%	6%
Radium-228	0.64	< BGD (0-10)	9				0.0749	0.15	No		0%	0%
Strontium-90	0.056		16				0.288	0.712	No		0%	0%
Thallium-208	0.22		16	2	0.224	0.23	0.0214	0.059	No		13%	6%
Thorium-228	0.74		9	1	1	1	0.116	0.265	No		11%	6%
Thorium-230	0.79		9				0.0289	0.232	No		0%	0%
Thorium-232	0.75		9				0.0198	0.133	No		0%	0%
Thorium-234	0.78		16	4	0.836	1.33	0.469	1.4	No		25%	13%
Uranium-235	0.039		16	1	0.16	0.16	0.142	0.26	No		6%	3%
URANIUM 235 and 236	0.039		9	1	0.0506	0.0506	0.0379	0.353	No		11%	6%
Uranium-238	0.65		9				0.0357	0.373	No		0%	0%
BETA, GROSS	15		16	4	15.4	17.5	3.89	5.9	No		25%	13%
ALPHA, GROSS	8.7		16	2	9	10.2	2.32	8.1	No		13%	6%
TRITIUM (HYDROGEN-3)	1.2		16				0.033	7.88	No		0%	0%

Notes:

Highlighted value is that selected to represent the percentage of LLRW for the given land disposal unit and medium. See below for selection criteria.

^a From Tables C-15 and C-16 of Appendix C of the FS - Volume 1. Numbers in parentheses indicate the depth interval in feet below ground surface for which the statement applies.

^b If 50 percent or more of the samples exceeding background exceed ten times background then the percentage exceeding background is carried forward into the "Assumed Percentage LLRW" column; if fewer than 50 percent of the samples exceeding background exceed ten times background then one-half the percentage of samples exceeding background is carried into the "Assumed Percentage LLRW" column.

^c Assumed percentage of LLRW is selected as the maximum percentage in this column among constituents analyzed.

Acronyms/Abbreviations:

- 10x - ten times
- > - greater than
- < - less than
- BGD - background activity in soil
- FS - Feasibility Study
- LLRW - low-level radioactive waste
- max - maximum activity concentration
- min - minimum activity concentration
- pCi/g - picocuries per gram

Attachment E-1-21. Radiological Waste Characterization Analysis for Low Threat Waste Samples at Southern Trenches - Volume Estimates, UC Davis LEHR/OCL

Analyte	BGD	Appendix C	Number of Samples	Number of Samples > BGD	Detections > BGD		Detection Limits		Is Maximum > 10x BGD?	Number of Samples > 10x BGD	Percent Detects Above BGD ^b	Assumed Percentage LLRW ^c
	(pCi/g)	BGD Assessment ^a			Min (pCi/g)	Max (pCi/g)	Min (pCi/g)	Max (pCi/g)				
ACTINIUM 228	0.64		9				0.11	0.26	No		0%	0%
Bismuth-212	0.43		9				0.19	0.48	No		0%	0%
Bismuth-214	0.54		9				0.066	0.11	No		0%	0%
Carbon-14	0.13	> BGD (0-10)	9	1	15.1	15.1	0.96	11	Yes	1	11%	11%
Cesium-137	0.012	> BGD (0-10)	9	1	0.07	0.07	0.023	0.056	No		11%	6%
Cobalt-60	0.006		9				0.02	0.068	No		0%	0%
Lead-210	1.6	> BGD (0-10)	9				0.93	9.1	No		0%	0%
Lead-212	0.7		9				0.05	0.081	No		0%	0%
Lead-214	0.58		9				0.057	0.11	No		0%	0%
Potassium-40	14	< BGD (0-20)	9				0.35	0.68	No		0%	0%
Radium-226	0.75	< BGD (0-20)	9	3	0.99	2.07	0.13	0.27	No		33%	17%
Strontium-90	0.056		9				0.43	0.63	No		0%	0%
Thallium-208	0.22		9				0.033	0.064	No		0%	0%
Thorium-234	0.78		9				0.77	1.5	No		0%	0%
Uranium-235	0.039		9				0.17	0.24	No		0%	0%
BETA, GROSS	15		9	1	16.4	16.4	5.6	6.5	No		11%	6%
ALPHA, GROSS	8.7		9				6	9.6	No		0%	0%
TRITIUM (HYDROGEN-3)	1.2		9				0.026	0.036	No		0%	0%

Notes:

Highlighted value is that selected to represent the percentage of LLRW for the given land disposal unit and medium. See below for selection criteria.

^a From Tables C-15 and C-16 of Appendix C of the FS - Volume 1. Numbers in parentheses indicate the depth interval in feet below ground surface for which the statement applies.

^b If 50 percent or more of the samples exceeding background exceed ten times background then the percentage exceeding background is carried forward into the "Assumed Percentage LLRW" column; if fewer than 50 percent of the samples exceeding background exceed ten times background then one-half the percentage of samples exceeding background is carried into the "Assumed Percentage LLRW" column.

^c Assumed percentage of LLRW is selected as the maximum percentage in this column among constituents analyzed.

Acronyms/Abbreviations:

10x - ten times

> - greater than

< - less than

BGD - background activity in soil

FS - Feasibility Study

LLRW - low-level radioactive waste

max - maximum activity concentration

min - minimum activity concentration

pCi/g - picocuries per gram

Attachment E-1-22. Radiological Waste Characterization Analysis for Soil Samples at Waste Burial Holes - Volume Estimates, UC Davis LEHR/OCL

Analyte	BGD (pCi/g)	Appendix C BGD Assessment ^a	Number of Samples	Number of Samples > BGD	Detections > BGD		Detection Limits		Is Maximum > 10x BGD?	Number of Samples > 10x BGD	Percent Detects Above BGD ^b	Assumed Percentage LLRW ^c
					Min (pCi/g)	Max (pCi/g)	Min (pCi/g)	Max (pCi/g)				
ACTINIUM 228	0.64		16	3	0.7	1.12	0.0968	1.8	No		19%	9%
Bismuth-212	0.43		16	3	0.45	0.759	0.2	2.3	No		19%	9%
Bismuth-214	0.54		16	4	0.56	0.878	0.0494	4.1	No		25%	13%
Carbon-14	0.13	> BGD (0-20)	108	59	0.177	1442	0.11	11	Yes	28	55%	27%
Cesium-137	0.012	> BGD (0-10)	16	2	3.28	4610	0.026	2.3	Yes	2	13%	13%
Cobalt-60	0.006		16				0.021	0.54	No		0%	0%
Lead-210	1.6	< BGD (0-20)	16				0.36	61	No		0%	0%
Lead-212	0.7		16	3	0.76	1.07	0.039	4.4	No		19%	9%
Lead-214	0.58		16	9	0.608	0.974	0.051	7.6	No		56%	28%
Potassium-40	14	< BGD (0-20)	16	3	16	46.8	0.261	3.8	No		19%	9%
Radium-226	0.75	> BGD (0-10) < BGD (10-20)	16	3	0.77	0.878	0.0494	0.28	No		19%	9%
Strontium-90	0.056	> BGD (0-20)	23	7	0.44	25.5	0.28	1.2	Yes	5	30%	30%
Thallium-208	0.22		16	3	0.262	0.37	0.0262	2.4	No		19%	9%
Thorium-234	0.78		16	2	1.07	2.17	0.427	27	No		13%	6%
Uranium-235	0.039		16				0.148	12	No		0%	0%
URANIUM 235 and 236	0.039		7				0.025	0.054	No		0%	0%
Uranium-238	0.65	> BGD (0-10)	9	2	1.07	2.17	0.02	1.15	No		22%	11%
BETA, GROSS	15		14	8	15.3	4280	0.92	6.1	Yes	2	57%	29%
ALPHA, GROSS	8.7		14	1	10.3	10.3	1.2	8.9	No		7%	4%
TRITIUM (HYDROGEN-3)	1.2	> BGD (0-20)	122	62	1.31	3930	0.030	9.09	Yes	41	51%	51%

Notes:

Highlighted value is that selected to represent the percentage of LLRW for the given land disposal unit and medium. See below for selection criteria.

^a From Tables C-15 and C-16 of Appendix C of the FS - Volume 1. Numbers in parentheses indicate the depth interval in feet below ground surface for which the statement applies.

^b If 50 percent or more of the samples exceeding background exceed ten times background then the percentage exceeding background is carried forward into the "Assumed Percentage LLRW" column; if fewer than 50 percent of the samples exceeding background exceed ten times background then one-half the percentage of samples exceeding background is carried into the "Assumed Percentage LLRW" column.

^c Assumed percentage of LLRW is selected as the maximum percentage in this column among constituents analyzed.

Acronyms/Abbreviations:

10x - ten times

> - greater than

< - less than

BGD - background activity in soil

FS - Feasibility Study

LLRW - low-level radioactive waste

max - maximum activity concentration

min - minimum activity concentration

pCi/g - picocuries per gram

Attachment E-1-23. Summary of Waste Characterization Analysis for Soil and Low Threat Waste Samples - Volume Estimates, UC Davis LEHR/OCL

Land Disposal Unit		Waste Characterization Type ^a				
		Waste Stream	Percent LLRW	Mixed Waste	Percent RCRA	Percent Non-RCRA
					Hazardous	Hazardous
ET	Soil	34% (28%) ^b	2% (1%) ^b	7%	11%	46%
	LTW	50% (12%) ^b	2% (1%) ^b	8%	8% ^c	32%
LFU-1	Soil	26%	1%	10%	14%	49%
	LTW	25%	2%	63%	10% ^d (50%)	0%
LFU-2	Soil	34%	2%	15%	12%	37%
	LTW	50%	2%	48% ^e (50%)	0% ^f (20%)	0%
LFU-3	Soil	26% (39%) ^g	1% (2%) ^g	16%	7%	50%
	LTW	25% (86%) ^g	2%	73% ^h (86%)	0% ⁱ (57%)	0%
ST	Soil	34% (13%) ^j	1%	0%	0%	65%
	LTW	50% (17%) ^j	1%	0%	11%	38%
WBH	Soil	51%	0%	0%	5%	44%
	LTW ^k	0%	0%	0%	0%	0%

Notes:

^a Values in parentheses indicate values obtained through data analysis. Non-parenthetical values were carried forward in volume estimation process.

^b The percentage of LLRW and mixed waste for ET soil and LTW was changed to match that of LFU-2. Based on historical knowledge the ET received LLRW; therefore the percentages of these waste characterization types was increased from the value obtained through data analysis (in parentheses).

^c The ET Non-RCRA hazardous waste percentage designation in LTW is attributable to mercury, the same constituent driving the RCRA hazardous waste percentage. This percentage was retained because no other constituent suggested Non-RCRA hazardous waste.

^d Lead drives the RCRA and Non-RCRA hazardous waste designations in LFU-1 LTW, so the Non-RCRA waste percentage driven by copper was selected (50%). The percentage was lowered to 10% because the cumulative percentage of LLRW, mixed, and RCRA hazardous waste was greater than 50%.

^e Lead drives the RCRA hazardous waste designation in LFU-2 LTW (50%). The percentage was lowered to 48% because the cumulative percentage of LLRW and mixed waste was greater than 50%.

^f Lead drives the RCRA and Non-RCRA hazardous waste designations in LFU-2 LTW, so the Non-RCRA waste percentages driven by copper were selected (20%). The percentage was lowered to 0% because the cumulative percentage of LLRW, mixed, and RCRA hazardous waste was greater than 80%.

^g The percentage of LLRW for LFU-3 soil and LTW was changed to match that of LFU-1. Based on historical knowledge these land disposal units were not used specifically for the disposal of LLRW; therefore the percentages of this waste characterization type was decreased from the value obtained through data analysis (in parentheses). The percentage of soil classified as mixed waste was also adjusted from the value in parentheses to match that of LFU-1.

^h Lead drives the RCRA hazardous waste designation in LFU-3 LTW (86%). The percentage was lowered to 73% because the cumulative percentage of LLRW and mixed waste was greater than 14%.

ⁱ Lead drives the RCRA and Non-RCRA hazardous waste designations in LFU-3 LTW, so the Non-RCRA waste percentages driven by copper were selected (57%). The percentage was lowered to 0% because the cumulative percentage of LLRW, mixed, and RCRA hazardous waste was greater than 43%.

^j The percentage of LLRW for ST soil and LTW was changed to match that of LFU-2. Based on historical knowledge ST received LLRW; therefore the percentages of this waste characterization type were increased from the value obtained through data analysis (in parentheses).

^k It is assumed that LTW was removed from the WBH during the 1999 removal action.

Acronyms/Abbreviations:

- ET - Eastern Trenches
- LFU - landfill unit
- LLRW - low-level radioactive waste
- LTW - low threat waste
- RCRA - Resource Conservation and Recovery Act
- ST - Southern Trenches
- WBH - Waste Burial Holes