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Report on the Remedial Investigation of Bear Creek Valley at the Oak Ridge Y-12 Plant, Oak Ridge, Tennessee

Volume 5. Appendix F—Baseline Human Health Risk Assessment Report

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Energy Systems Environmental Restoration Program

Report on the Remedial Investigation of Bear Creek Valley at the Oak Ridge Y-12 Plant, Oak Ridge, Tennessee

Volume 5. Appendix F—Baseline Human Health Risk Assessment Report

Date Issued—September 1996

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PREFACE

This Remedial Investigation Report on the Bear Creek Valley Characterization Area at the Oak Ridge Y-12 Plant (DOE/OR/01-1455/V1&D1, -1455/V2&D1, -1455/V3&D1, -1455/V4&D1, -1455/V5&D1, and -1455/V6&D1) was prepared in accordance with requirements under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for reporting the results of a site characterization for public review. This work was performed under Work Breakdown Structure 1.4.12.1.1.02.41 (Activity Data Sheet 2302 "Bear Creek Valley"). Publication of this document on September 15, 1996, will meet a Federal Facilities Agreement milestone. This document provides the Environmental Restoration Program with information on the Bear Creek Valley remedial investigations that include results of the Bear Creek Valley OU 1 (1995) and OU 4 (1994) and Bear Creek Valley Floodplain Soils (1995) investigations, plus results of numerous other investigations and monitoring conducted in Bear Creek Valley. It includes information on risk assessments that have evaluated long-term impacts to human health and the environment. Information provided in this document forms the basis for the development of the Feasibility Study/Environmental Assessment Report.

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ACRONYMS AND ABBREVIATIONS

ARARs	applicable or relevant and appropriate requirements
BCK	Bear Creek kilometer
BCR DB	Bear Creek Road Debris Burial
BCV	Bear Creek Valley
BEIAS	Biomedical and Environmental Information Analysis Section
BEIDMS	Bechtel Environmental Information Data Management System
BEIR	National Academy of Sciences Biological Effects of Ionizing Radiation Committee report
BGs	Burial Grounds
BHHRA	Baseline Human Health Risk Assessment
BY/BY	Boneyard/Burnyard
CA	Characterization Area
CDI	chronic daily intake
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COCs	chemicals of concern
COPCs	chemicals of potential concern
CS DB	Creekside Debris Burial
DARA	Disposal Area Remedial Action Solids Storage Unit
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
FS	Feasibility Study
%GI	percent gastrointestinal absorption efficiency
GW	groundwater well
HEAST	*Health Effects Assessment Summary Tables*
HI	hazard index
HQ	hazard quotient
IRIS	Integrated Risk Information System
LMER	Lockheed Martin Energy Research Corporation
LOAEL	lowest observed adverse effect level
NCP	National Contingency Plan
NOAEL	no observed adverse effect level
NPDES	National Pollutant Discharge Elimination System
NT	North Tributary
OLF	Oil Landfarm
OLF SP	Oil Landfarm Storage Pad
OREIS	Oak Ridge Operations Office Environmental Information System
ORPs	Oil Retention Ponds
ORR	Oak Ridge Reservation
OSHA	Occupational Safety and Health Administration
OU	operable unit
PAHs	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PRG	Preliminary Remediation Goal
RAGS	*Risk Assessment Guidance for Superfund*

RfC	reference concentration
RfD	reference dose
RI	Remedial Investigation
SAIC	Science Applications International Corporation
SARA	Superfund Amendments and Reauthorization Act
SLF-1	Sanitary Landfill 1
SS	South Spring
SVOC	semivolatile organic compounds
TDEC	Tennessee Department of Environment and Conservation
TICs	tentatively identified compounds
UCL95	95% upper confidence limit
UEFPC	Upper East Fork Poplar Creek
VOCs	volatile organic compounds
Y-12 Plant	Oak Ridge Y-12 Plant

EXECUTIVE SUMMARY

This Remedial Investigation (RI) Report characterizes the nature and extent of contamination, evaluates the fate and transport of contaminants, and assesses risk to human health and the environment resulting from waste disposal and other U.S. Department of Energy (DOE) operations in Bear Creek Valley (BCV). BCV, which is located within the DOE Oak Ridge Reservation (ORR) (Fig. ES.1), encompasses multiple waste units containing hazardous and radioactive wastes arising from operations at the adjacent Oak Ridge Y-12 Plant (Fig. ES.2). The primary waste units discussed in this RI Report are the S-3 Site, Oil Landfarm (OLF), Boneyard/Burnyard (BYBY), Sanitary Landfill 1 (SL 1), and Bear Creek Burial Grounds (BCBG). These waste units, plus the contaminated media resulting from environmental transport of the wastes from these units, are the subject of this RI.

Consistent with the Watershed Approach to remedial investigation/feasibility study (RI/FS) planning adopted by the Oak Ridge Federal Facility Agreement (FFA) parties, the environmental media and waste sites in BCV have been combined into a single Characterization Area (CA) encompassing the entire Bear Creek watershed. The benefits of this approach have included:

- a significantly reduced site investigation phase, with more reliance on historical data as the basis for remedial action decisions;
- development of more consistent Remedial Goal Options (RGOs) across the multiple source units;
- an increased focus on development of an integrated prioritization for remedial actions, particularly for sites appropriate for near-term actions; and
- an overall reduction in cost and schedule for the RI/FS process.

Accordingly, the BCV RI Report documents and interprets the results of numerous historical field characterization efforts conducted in BCV prior to 1994 as well as three limited RI field projects covering specific portions of the watershed in 1994 and 1995. This interpretation provides a comprehensive evaluation of the conditions at and risks associated with the waste sites, associated floodplain, and groundwater in the valley.

Inherent in the accelerated watershed approach is the heavy reliance on historical data to form the basis of the RI. For BCV, a significant historical data set existed, thus minimal effort was spent by the watershed RI team in gathering additional extent of contamination information. While this approach greatly reduces the schedule and cost of the RI, it does result in higher levels of uncertainty in the evaluation results. The likelihood of important data gaps in the BCV RI was minimized by adherence to the Data Quality Objective (DQO) process during the planning phase, and by proactive uncertainty management during the data collection and evaluation phases. The resulting FS will accommodate the identified uncertainties through selection of contingent actions that will allow for flexibility within the remedy selection.

This BCV RI Report represents the first major step in the decision-making process for the BCV watershed. The RI results, in concert with the follow-on FS (to be available for public review in April 1997), will form the basis for the Proposed Plan and Record of Decision for all BCV sites. This comprehensive decision document process will meet the objectives of the watershed approach for

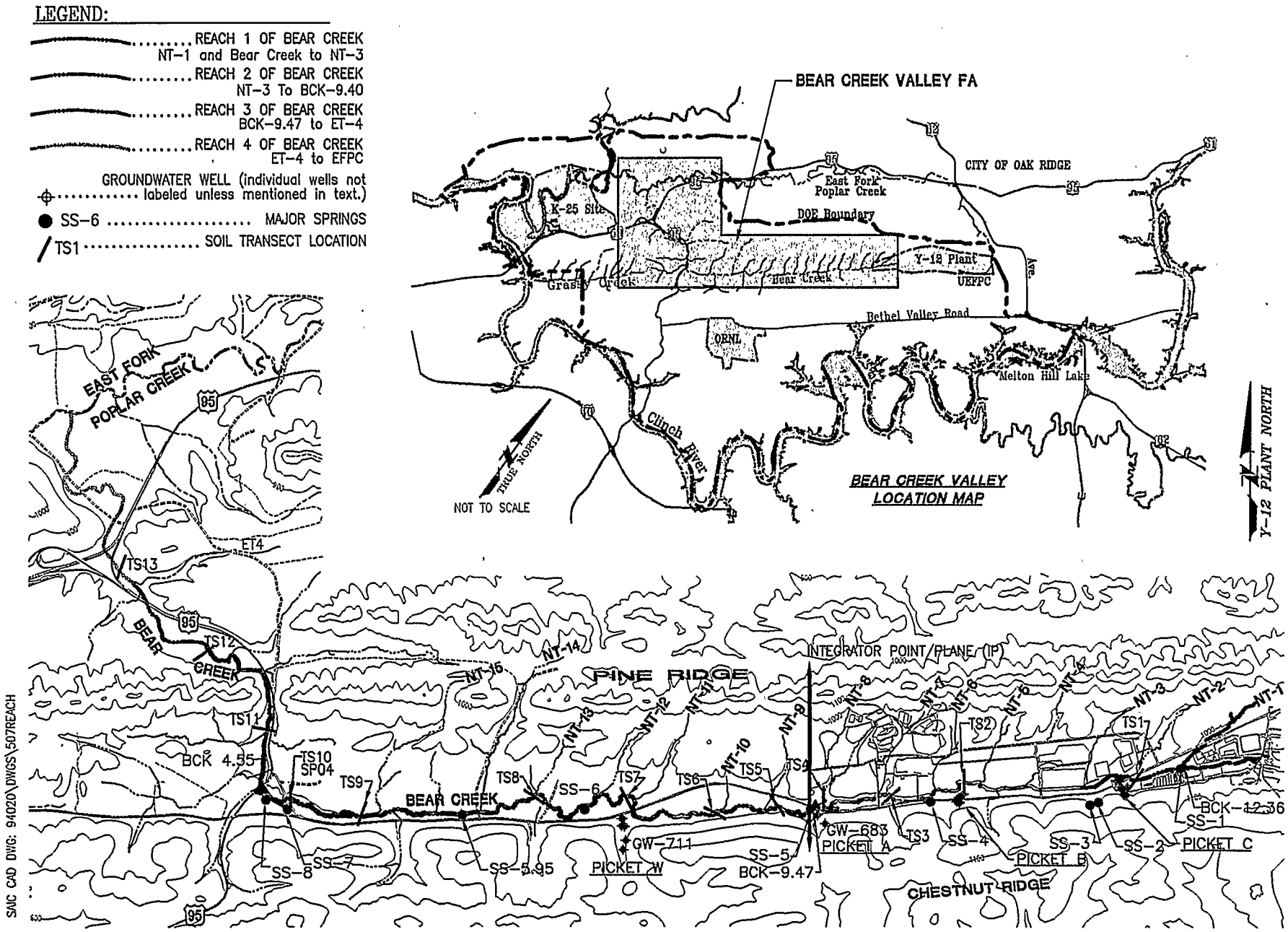


Figure ES.1. Location map for the Bear Creek Valley Characterization Area showing major geographical and hydrological features.

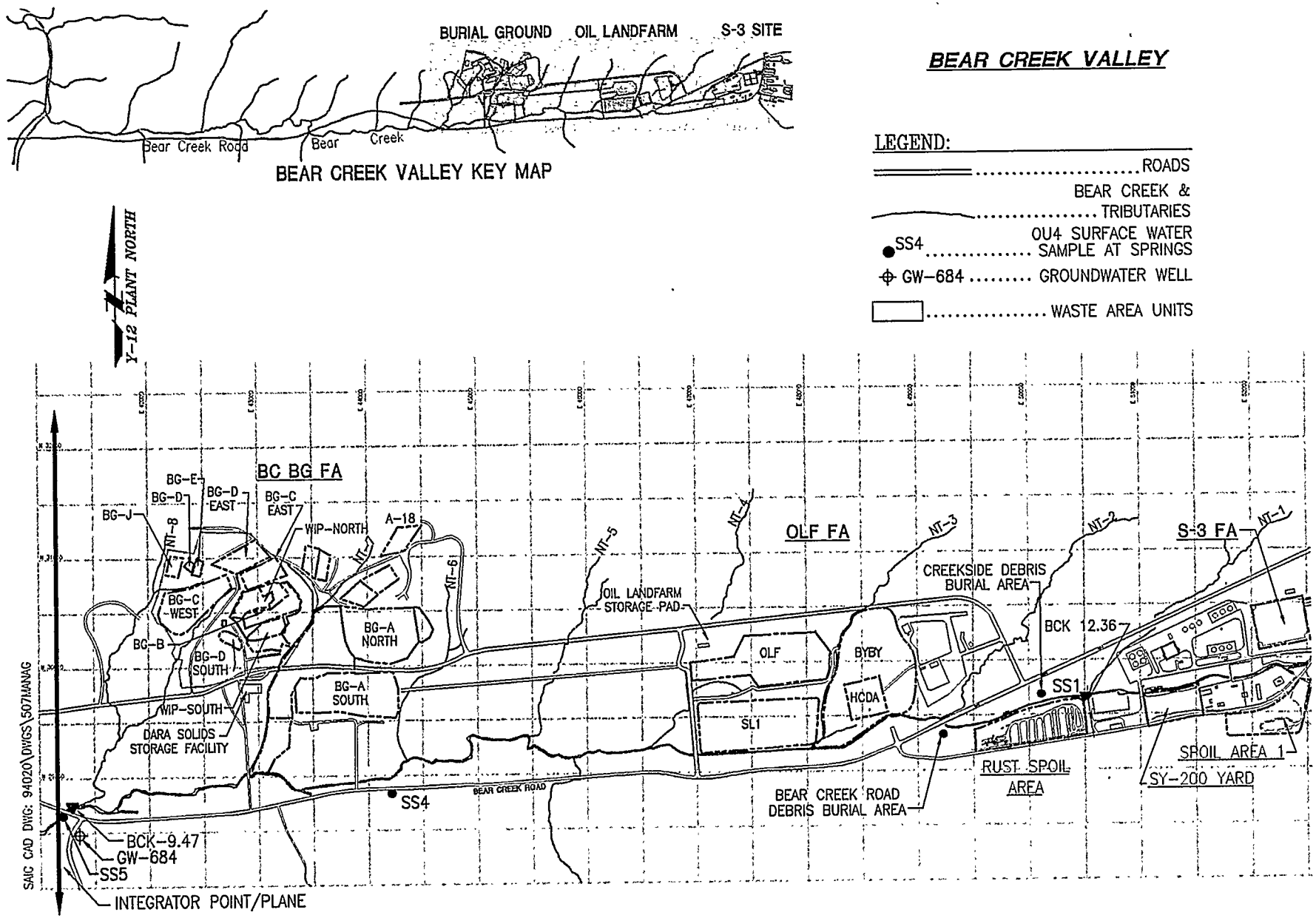


Figure ES.2. Location map for waste areas in the Bear Creek Valley Characterization Area.

BCV, which include: (1) prioritization of remedial action decisions, (2) expeditious implementation of highest priority remedial actions, and (3) increased cost effectiveness of remedial action by setting watershed Remedial Action Objectives (RAOs) based on an integrated, valley-wide, future land use plan. By conducting the evaluation within the watershed framework, DOE can ensure consistent actions that achieve the RAOs across all the units and cost effectively optimize the extent and type of remedies, regardless of location.

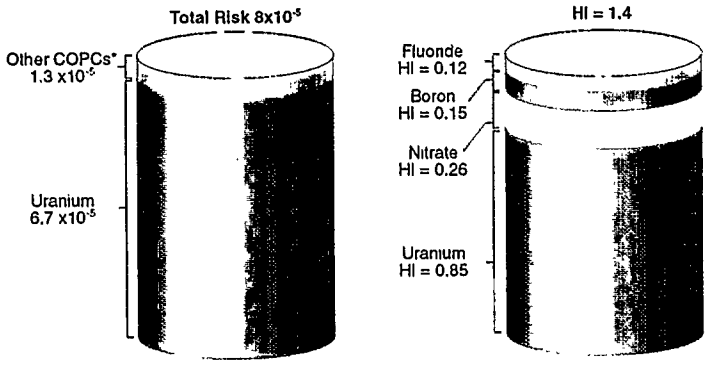
ES.1 MAJOR CONCLUSIONS FOR THE RI REPORT

The BCV RI Report contains a detailed analysis of environmental data for BCV. The major conclusions from the analysis are conveyed via conceptual models for the nature and extent of contamination and fate and transport of contaminants. Common to each of the major waste units located on the north side of Bear Creek are the following major conclusions:

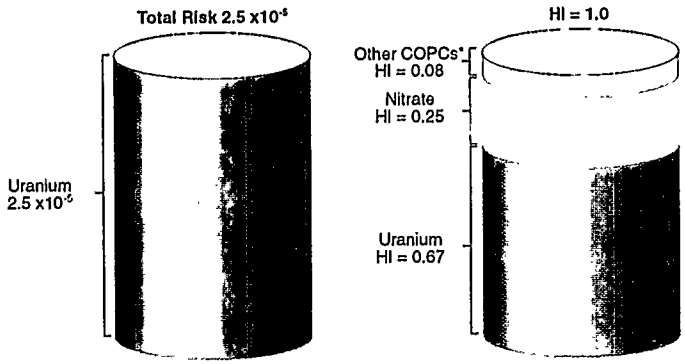
- There are a number of physical and chemical aspects of the source sites that will complicate cleanup of the sources areas and will limit the ability to allow unrestricted, e.g., residential or industrial, use at these sites (S-3 Site, BYBY, and the BCBG). These are:
  - — large volumes of buried waste exist at each source area in unlined trenches;
  - — portions of the waste at each source area are inundated by shallow groundwater;
  - — groundwater at the sources is contaminated to over 120 m (400 ft) depth and dense non-aqueous phase liquid (DNAPL) is present; at the S-3 Site and BCBG, contamination in groundwater is a secondary source that is of equal or greater magnitude than the primary waste source; and
  - — the sources are situated on low permeability, fractured shale rock. Diffusion of contaminated groundwater into the rock pores has resulted in a reservoir of contaminated groundwater that can only be released from the rock at a slow rate.
- Contaminants migrating from the waste sites in BCV converge at Bear Creek Kilometer (BCK) 9.47/South Spring (SS)-5 (Fig. ES.1): more than 99% of available water from the upper portion of the valley passes through this location as either surface water or groundwater. Thus a north-south line drawn at BCK 9.47/SS-5 is a convenient location to conduct an integrator point/plane (IP) assessment of contaminant fluxes from the waste areas (Note: in some of the FS alternatives, unrestricted land use starts to the west of this line). At the IP, potential risks from exposure to groundwater or surface water exceed 10^{-6} or a Hazard Index (HI) >1 (Fig ES.3). The chemicals of concern (COCs) at the IP are uranium, nitrate, boron, and fluoride. In addition, applicable or relevant and appropriate requirements (ARARs) for nitrate are exceeded in groundwater at the IP and also most likely for uranium (Note: uranium contamination in GW-684 at the IP does not exceed the ARAR; however, groundwater discharge at SS-5 periodically exceeds the uranium ARAR). Although it is not clear how far the elevated hazard and ARAR exceedances extend to the west, they do not extend as far as Highway 95.
- Contaminated groundwater at waste areas migrates along geological strike to nearby tributaries of Bear Creek [i.e., North Tributary (NT) -1, -2, -3, -6, -7, and -8] causing the tributaries and Bear Creek to become contaminated. This is the principal exit pathway for contaminants leaving the waste areas and moving to the IP. Figure ES.3 shows what sources and tributaries contribute the most to contamination at the IP. The S-3 Site (NT-1, NT-2, and Bear Creek above

Potential Risks and Toxic Effects at the Integrator Plane

BCK 9.4/SS-5 Aggregate



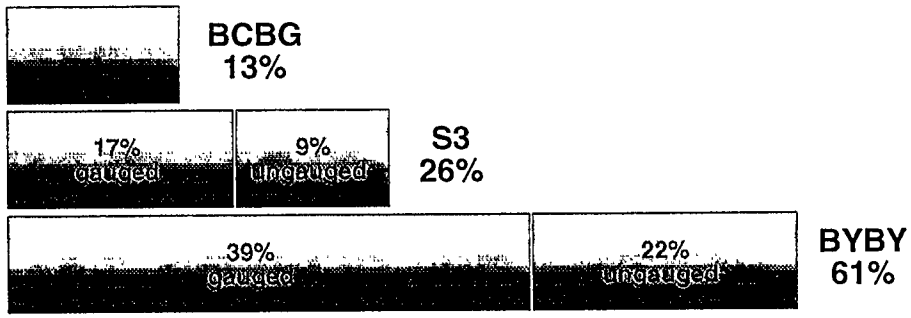
GW 684 Groundwater



*COPCs not listed individually have individual potential risk < 10^{-5} or HI < 0.1

Relative Contribution of Uranium and Nitrate at the IP from Source Areas

Uranium Flux



*Assumed distribution of ungauged flux is 70% BYBY, 30% S-3 Site.

Nitrate Flux

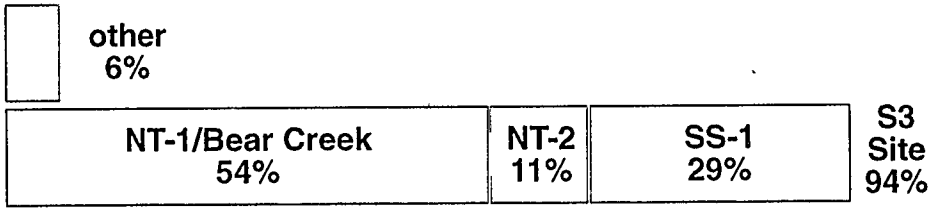


Figure ES.3. Potential risks and hazards at the Integrator point/plane and the relative magnitude of the sources for nitrate and uranium.

BCK 12.36) and BYBY (NT-3) sites are currently contributing more than 80% of the potential hazard at the IP through releases of uranium and, to a lesser extent, nitrate. The total flux from NT-1 and NT-2 is expected to increase in the foreseeable future and may result in a greater hazard at the IP. A 50 to 75% reduction in the current contaminant flux through tributaries or shallow groundwater at the S-3 Site and BYBY could reduce the total HI at the IP below 0.8.

- Discharges to surface water from a plume of contaminated groundwater at the S-3 Site are the primary causes of current impacts on the aquatic ecology in Bear Creek, east of BCK 9.47.
- Impacts of contamination at waste areas have been lessened by capping waste areas. In addition, seep collection at BCBG has lessened the downgradient impact of contamination migrating away from this source.

ES.2 BCV HYDROGEOLOGICAL CONCEPTUAL MODEL

The hydrogeological system in BCV is governed by the valley's geology. Rocks underlying BCV fall into two broad categories: those that are dominated by clastic lithologies (e.g., Nolichucky Shale) and those that are predominantly carbonates (e.g., Maynardville Limestone). The primary permeability of the rocks underlying BCV is very low. The formations are extensively fractured and, in the case of carbonate formations, karstified, creating a secondary porosity that results in substantially increased permeability.

Groundwater flows through fractures or solution conduits, which are well-connected and mostly parallel to geological strike (Fig. ES.4). Fracture aperture width generally decreases with depth, restricting the depth of active groundwater circulation. The shallow interval [top 30 m (100 ft)] of the Maynardville Limestone contains a well-connected maze of conduits that is able to transport water rapidly along strike, west in the axis of BCV. Groundwater in this interval is closely connected to flow in Bear Creek. Below 30 m (100 ft) in this formation, along strike flow occurs through discrete solution conduits and fractures that are not as well-interconnected than those in the shallow interval.

The Nolichucky Shale is the principal clastic formation that forms the northern flank of BCV. Most groundwater flow in the clastic formations occurs during and immediately following precipitation at the water table and shallow bedrock intervals [probably <15 m (50 ft) depth]. Flow is predominantly along strike, and discharge is to tributaries of Bear Creek after short flowpaths. During storms, flow in these shallow intervals may be rapid (up to 40 m/d).

As a result of predominantly short and shallow flow paths for groundwater in the clastic formations in BCV, although the largest mass of water (and consequently the largest mass of contaminants) exits BCV via surface water, groundwater is the principal pathway for contaminants leaving the waste units. The main flow and contaminant transport pathways in groundwater at the waste units are along strike with the discharge points at tributaries to Bear Creek. Fluxes in flow paths at the waste units (overland flow, soil interflow, and groundwater flow) have not been quantified but recharge followed by groundwater flow to tributaries constitutes the main water flux pathway. During a 10-month surface water monitoring program, an estimated 97% of water available for flow (precipitation and evapotranspiration) exited the section of the valley above BCK 9.47 as surface water flow.

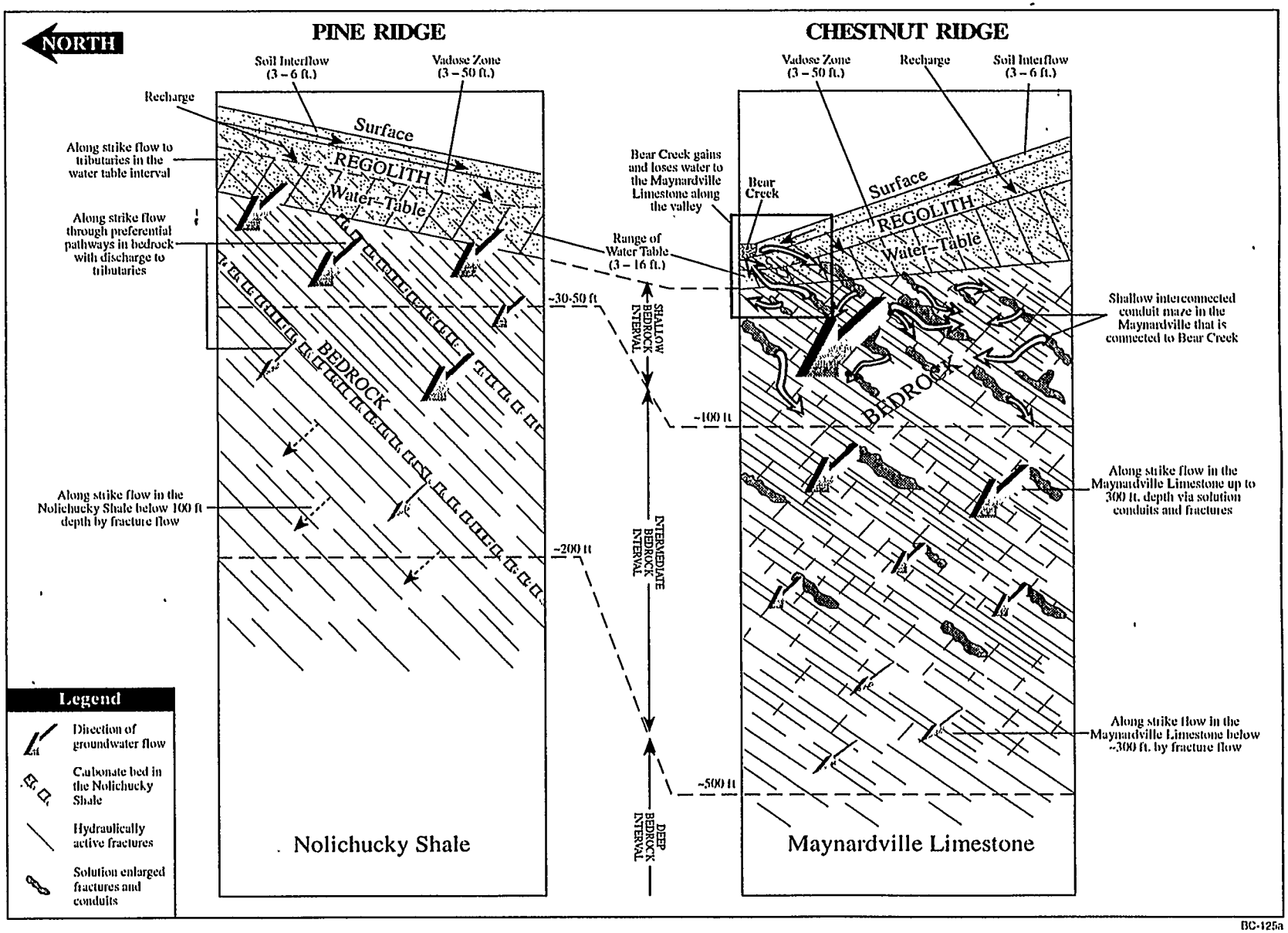


Figure ES.4. Hydrogeological conceptual model for Bear Creek Valley.

ES.3 NATURE AND EXTENT OF CONTAMINATION

ES.3.1 Environmental Database

The environmental database used for the BCV RI includes 75,000 soil, sediment, groundwater, surface water, and biota analyses obtained during the RI field projects conducted during 1994 and 1995, and 20,000 soil, sediment, groundwater, and surface water analyses obtained from historical field studies conducted in the 1980s and early 1990s. A detailed data quality assessment review demonstrated that the quality of both the recent and historical chemical data is adequate: <1% of the recent data were considered unacceptable, and only 1.3% of the historical chemical data were rejected. Historical radiological data for groundwater were deemed unacceptable for use in the RI and the Human Health Risk Assessment, therefore, additional groundwater samples were taken during the RI to complete the radiological database.

ES.3.2 Waste Sites

The primary waste sites characterized in this BCV RI report are the S-3 Site, OLF, BYBY, SL 1, and BCBG (Fig. ES.2). Three other primary waste sites within BCV — Spoil Area 1, Rust Spoil Area, and SY-200 Yard — are discussed in the BCV OU 2 RI (Energy Systems 1995). Although these sources were described in the BCV OU 2 RI Report, the watershed approach dictates that their impacts on the environment in BCV are considered in this report. In addition, numerous smaller waste disposal or storage areas throughout BCV, such as the OLF Storage Containment Pad, Bear Creek Road Debris Burial area, and Creekside Debris Burial area, are also considered as potential contaminant sources.

During the DQO process for BCV, the RI team decided that direct sampling to characterize the waste materials was not feasible (DQO meeting minutes). Instead, the physical and chemical characteristics of the contaminant sources were derived from interpretation of historical data and information in waste management records: pre-closure sampling data were used to quantify waste contamination at the S-3 Ponds and OLF sites; a detailed waste inventory was used for BCBG; and data from recent (1994) soil sampling were used for BYBY and SL 1. Where possible, current conditions within each source area were estimated to allow modeling of the potential future releases and assessment of current and future risks.

The waste areas in BCV are located in the upper 3.5 km (2.2 miles) of the valley (east of the IP) (Fig ES.2). Both solid and liquid wastes were disposed of at these sites. Most liquid waste has either infiltrated to groundwater below the waste sites or has migrated in groundwater and surface water away from the source areas. The following volumes of waste, contaminated soil, and contaminated groundwater are estimated to be present in BCV (Note: volume estimates for soils and wastes do not include materials in waste area caps):

S-3 Site	1,600 m^3 waste and contaminated soils 7.1×10^6 m^3 (5740 acre-ft) contaminated groundwater
Oil Landfarm	25,000 m^3 waste and contaminated soils
BYBY	90,000 m^3 waste and contaminated soils 0.4×10^6 m^3 (320 acre-ft) contaminated groundwater

SL 1	110,000 m^3 waste and contaminated soils
BCBG	190,000 m^3 waste and contaminated soils 4.0×10^6 m^3 (3200 acre-ft) contaminated groundwater

In addition, there is an estimated 5.7×10^6 m^3 (4600 acre-ft) of contaminated groundwater in the Maynardville Limestone, and < 1,000 m^3 of contaminated soils and waste materials on the BCV floodplain.

ES.3.3 Nature and Extent of Contamination in Environmental Media and Wastes

The data available for the BCV CA were divided into four functional areas (FAs), each of which contains data that are logically interpreted together because of location and/or contaminant source. Three of the FAs — the S-3 FA, the OLF FA, and the BCBG FA — include data that relate to the three primary waste areas (Fig. ES.2). The fourth FA is the Maynardville Limestone and Bear Creek FA, which is located downgradient of the source FAs and acts as an integrated exit pathway for contaminants migrating away from the source units, via groundwater in the Maynardville Limestone or surface water flow in Bear Creek.

S-3 Functional Area

The S-3 FA includes the soils, groundwater, and surface water at and immediately downgradient of the S-3 Site.

Sources and contaminants. At the S-3 Site FA, primary contaminant sources are (1) a plume of contaminated groundwater derived from infiltration of nitric acid waste water and density-driven flow downward into bedrock, and (2) sludges remaining in place in the former ponds. Thirty years of disposal of concentrated (~1 molar) nitric acid solutions at the S-3 Site has resulted in a reservoir of contaminated groundwater with high (> 10,000 mg/L) total dissolved solids (TDS) in the Nolichucky Shale at this site. Discharge of groundwater from this contaminated plume results in contaminated surface water with elevated TDS (maximum > 1000 mg/L).

Contamination derived from the S-3 Site can be identified in the Maynardville Limestone as far west as Picket W and in surface water at BCK 4.55. Primary contaminants that have migrated away from the S-3 Site include (1) nitrate, uranium, ^{99}Tc, barium, boron, cadmium, strontium, acetone, and tetrachloroethene (PCE) in groundwater, and (2) nitrate, cadmium, uranium, and ^{99}Tc in surface water. Contaminant concentrations in groundwater at the S-3 Site exceed ARARs for inorganic and organic chemicals in drinking water.

S-3 Site conceptual model. At the S-3 Site, contaminated groundwater in the Nolichucky Shale is the main source of contaminants to downgradient receptors: more contaminant mass flux is discharging to the creek than is leaching from waste materials that remain in the former ponds. Historically, during operations at the S-3 Ponds, most of the acidic waste water probably migrated rapidly to the main stem of Bear Creek, NT-1, and Upper East Fork Poplar Creek via shallow groundwater flow. At the present time, contaminants in this plume are migrating in shallow and deep groundwater and discharging to Bear Creek, NT-1, and NT-2 (Fig. ES.5).

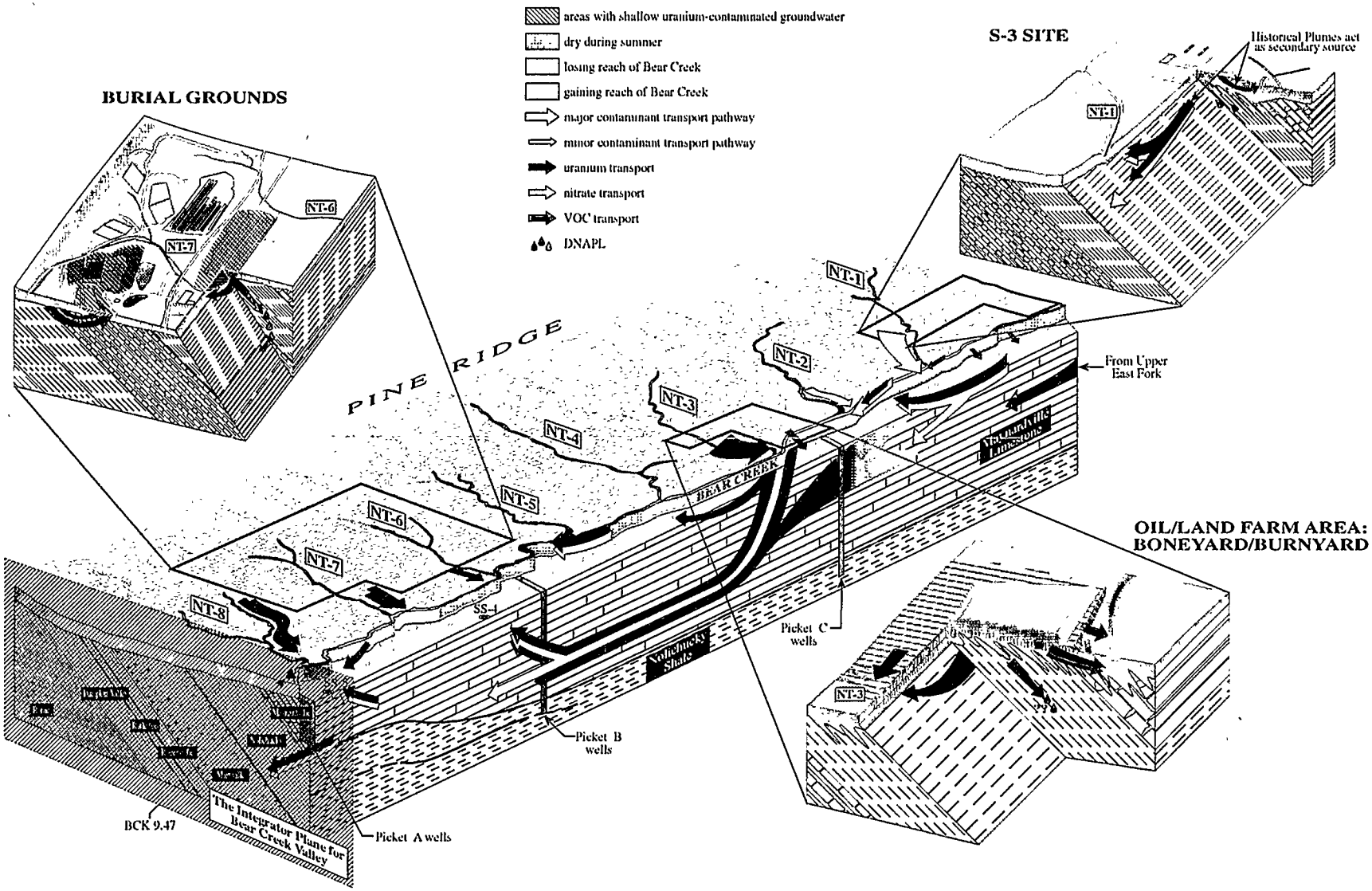


Figure ES.5. Conceptual model for Bear Creek Valley showing the main contaminant migration pathways.

Contaminants have undergone differential retardation that has resulted in different distributions and exit pathways for the primary contaminants: nitrate, metals, uranium, ^{99}Tc, and PCE. Uranium and some metals are made relatively immobile by geochemical reactions and have been held up in the residuum and shallow groundwater close to the S-3 Site. The exit pathway for these contaminants is via discharge of shallow groundwater to Bear Creek. Nitrate, ^{99}Tc, PCE, and the more mobile metals have contaminated bedrock groundwater. The main pathway for these contaminants is along strike flow in the intermediate and deep groundwater intervals, followed by upwelling and/or diffusion to the shallow groundwater interval and discharge to NT-1 and NT-2. Nitrate is least retarded and has traveled the farthest from the S-3 Site — its occurrence in groundwater marks the maximum extent of contamination resulting from the S-3 Site.

All contaminants in groundwater at the S-3 Site have been retarded by matrix diffusion. A reservoir of contaminants in the matrix porosity now exists at the S-3 Site, where these contaminants flow and/or diffuse from the rock matrix into the active flow fractures in each pathway.

The maximum concentrations of PCE found at S-3 Site (> 1% of PCE solubility) indicate the potential for PCE bearing DNAPL in the bedrock formations beneath the ponds.

The plume of contaminated groundwater derived from the S-3 Site can be traced in the Nolichucky Shale as far west as NT-2. However, although the extent west of the plume in shallow groundwater is well known, no data points exist until downgradient of SL 1 to identify the leading edge of the plume in intermediate and deep groundwater. Increasing concentrations of nitrate in shallow wells near the NT-2 catchment over the past 10 years suggest that the center of mass of the nitrate plume may be moving along strike to the west in groundwater below 30 m (100 ft) depth. The probable condition is that the plume in deep groundwater extends no further west than the plume in shallow groundwater and that much of the contaminant mass flux in the plume is discharged to NT-2.

Oil Landfarm Functional Area

The OLF FA encompasses the soils, groundwater, and surface water at and immediately downgradient of four sites: OLF, BYBY, Hazardous Chemicals Disposal Area (HCDA), and SL 1.

Sources and contaminants. Both solid and liquid wastes were disposed of at the OLF FA. There are three primary locations of solid wastes: (1) buried waste materials at BYBY, (2) buried waste materials in the SL 1 trench, and (3) contaminated soils on the former OLF plots. In addition, disposals of liquid wastes at BYBY, HCDA, and OLF have resulted in plumes of volatile organic compound (VOC) -contaminated groundwater.

Contamination at the OLF FA is diverse, including metal, radionuclide, and VOC contamination in groundwater, surface water, soils, and waste materials. Frequently detected contaminants in the OLF FA are as follows:

- At BYBY and HCDA: (1) mercury, beryllium, manganese, nickel, vanadium, PCE, trichloroethene (TCE), 1,2-dichloroethene (DCE), and uranium isotopes in groundwater; (2) mercury, lithium, and uranium isotopes in surface water; and (3) mercury, cadmium, copper, polyaromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), phthalates, uranium isotopes, and ^{99}Tc in soils.

- At OLF: (1) PCBs and uranium in soils and wastes, and (2) 1,1,1-trichloroethane (TCA), 1,1-dichloroethane (DCA), 1,1-DCE, 1,2-DCE, PCE, and TCE in groundwater. There is no surface water contamination that can be attributed to OLF.
- At SL 1: (1) mercury, copper, nickel, PCB-1254, and ^{235}U in soils and wastes, and (2) 1,1-DCA, 1,2-DCE, and vinyl chloride in groundwater. There is no surface water contamination that can be attributed to SL 1.

OLF FA conceptual model. The conceptual models for both OLF and SL 1 are that soils surrounding the waste sites are relatively uncontaminated. Groundwater below and immediately downgradient of each waste area is contaminated with VOCs as a result of liquid waste disposals.

At BYBY, uranium leaches from waste materials (some of which are most likely inundated with groundwater) and contaminated soils to groundwater, which subsequently discharges to surface water in NT-3. Uranium in groundwater that has leached from fill material in the southern portion of BYBY probably migrates directly to the Maynardville Limestone and Bear Creek via shallow groundwater flow (Fig. ES.5). Fate and transport modeling indicates that most inorganic and radiological contaminants in NT-3 have probably reached peak concentrations; however, the presence of a continuous source (leaching from waste materials) suggests that these peak values would be maintained over several hundred years.

The VOC plume at BYBY is partly located in residuum above the Maynardville Limestone and, like uranium, VOCs probably migrate directly into the Maynardville Limestone or Bear Creek. Although VOCs entering groundwater from HCDA or the Burnyard may discharge to surface water in NT-3, the extent of this discharge is low, hence, VOCs volatilize almost immediately.

Bear Creek Burial Grounds Functional Area

Sources and contaminants. At the BCBG FA, both solid and liquid wastes were disposed of in a series of unlined trenches. The waste trenches are grouped into areas BG-A, -B, -C, -D, -F, and Walk-in-Pits (WIP). Uranium dominates the wastes disposed of in each area with a total estimated mass of 18.6 million Kg. Disposals of liquid wastes have also resulted in DNAPL (PCE and TCE) in groundwater that may have reached depths of 180 m (600 ft). Dissolution of DNAPL results in plumes of VOC-contaminated groundwater.

Contamination in the BCBG FA includes VOCs and metals in groundwater, and VOCs, metals, and radionuclides in surface water, soils, waste materials, and leachate from waste trenches. In general, organic contamination of environmental media at BCBG is more widespread than inorganic and radionuclide contamination. Primary contaminants detected at the BCBG are: (1) boron, PCE, TCE, 1,1,1-TCA, and 1,2-DCE in groundwater; (2) beryllium, 1,1,2-TCA, 1,1-DCE, 1,2-DCA, vinyl chloride, 1,1-DCA, 1,1,1-TCA, chloroethane, and uranium isotopes in surface water; (3) arsenic, vanadium, PCBs, acetone, and toluene in soils surrounding the waste areas; and (4) uranium, beryllium, PCBs, TCE, and PCE in wastes. Contaminant concentrations in groundwater at BCBG exceed ARARs for inorganic and organic chemicals in drinking water at many locations.

Contamination of groundwater and surface water is dominated by VOCs at the BCBG FA. Three groundwater plumes were identified: (1) the BG-A plume is dominated by PCE, TCE, and 1,2-DCE, and includes DNAPL; (2) the WIP plume is dominated by PCE; and (3) the plume at the NT-8 catchment is dominated by 1,2-DCE, with lesser concentrations of vinyl chloride.

Radiological contamination is virtually absent from groundwater wells in the BCBG, but uranium is consistently detected in surface water. Collection of leachate in the NT-7 and NT-8 catchments has significantly reduced the concentration of radiological and other contaminants in surface water.

Radiological contamination occurs in soils in the NT-8 floodplain and is probably related to past deposition of contaminated sediments derived from drainage of the BG-B, -C, and -D areas.

BCBG conceptual model. The distribution of contaminants at BCBG reflects the type of waste materials that were disposed. The organic wastes were dense liquids and were disposed of directly into groundwater; uranium is in the solid form and is slowly leaching from trenches. The dominance of the hydrogeologic system by shallow flow restricts inorganic and radionuclide contamination to short flow paths in the shallow groundwater interval, whereas the density-driven flow of DNAPL provides a mechanism for organic contamination to enter the shallow, intermediate, and deep bedrock intervals (Fig. ES.5).

Oils and solvents were disposed of in the BG-A area by pouring the liquids into standpipes in debris- and waste-filled trenches. The bulk of these liquids migrated laterally to surface water and downward to groundwater, ultimately reaching depths of up to 180 m (600 ft) as DNAPL. Free-phase liquids occur in bedrock and probably remain in the trenches as residual droplets that have adhered to waste materials and minerals. Dissolved VOCs in the BG-A and NT-8 plumes have undergone limited chemical or biological degradation. A plume of dissolved PCE is migrating along strike in the Nolichucky Shale to the west of BG-A South. Fate and transport modeling suggests that a PCE plume may take a few hundred years to migrate along strike as far as NT-8.

Maynardville Limestone and Bear Creek Functional Area

The Maynardville Limestone and Bear Creek FA includes (1) soils and sediments in the Bear Creek floodplain, (2) groundwater in the Maynardville Limestone, and (3) surface water in the main stem of Bear Creek and in floodplain springs.

Sources and contaminants. The environmental media in this FA represent the downgradient pathways and receptors of contaminants migrating away from the sources on the Nolichucky Shale. The primary sources of contaminant input to Bear Creek and the Maynardville Limestone from the source sites are:

- S-3 Site: nitrate, radionuclides, and high TDS via discharge from NT-1 and NT-2, shallow groundwater discharges to Bear Creek, and shallow groundwater discharges directly to the Maynardville Limestone.
- BYBY: uranium via discharge from NT-3 and direct runoff to the Floodplain, and uranium and VOCs by shallow groundwater discharge into the Maynardville Limestone.
- SL 1: VOCs via shallow groundwater discharge into the Maynardville Limestone.
- BCBG: VOCs and uranium via discharge from NT-7 and NT-8.
- Past releases of TCE and 1,2-DCE from an unknown site east of BYBY FA or Rust Spoil Area.

- Past releases of TCE and 1,2-DCE from the Fire Training area in the neighboring Upper East Fork Poplar Creek (Fig. ES.1) hydrogeologic regime that may have migrated in karst in the Maynardville Limestone into the Bear Creek hydrogeologic regime at Spoil Area 1.

In addition, the Creekside Debris Burial area and the Bear Creek Road Debris Burial area are two waste areas, first identified during field operations for the BCV RI, with soil contamination on the Floodplain. These sites do not currently contribute to groundwater contamination but may have done so in the past. Primary contaminants in the Maynardville Limestone and Bear Creek FA are:

- nitrate, boron, uranium, strontium, barium, PCE, TCE, 1,2-DCE, and ^{99}Tc in groundwater; concentrations of these contaminants exceed ARARs for drinking water at many locations in the valley upgradient of BCK 9.47;
- barium, cadmium, manganese, uranium, boron, strontium, TCE, 1,2-DCE, and ^{99}Tc in springs and surface water upstream of BCK 9.47;
- nitrate, boron, strontium, and uranium in surface water downstream of BCK 9.47; and
- cadmium, uranium, and PCBs in Floodplain soils and sediments at a few locations [in general, contaminant concentrations are higher in sediments than in soils, and the highest concentrations in soils occur in the top 10 cm (4 in.) of soil].

Nitrate, uranium, and ^{99}Tc contamination occurs close to the S-3 Site and continues west as far as BCK 9.47 and Picket A. Nitrate contamination in groundwater occurs 2590 m (8500 ft) west of Picket A in Picket W, but uranium and ^{99}Tc have not reached this far west. TCE- and 1,2-DCE contaminated groundwater occurs in groundwater wells at the Spoil Area 1 and Rust Spoil Area. Concentrations of TCE and 1,2-DCE in groundwater increase downgradient of Rust Spoil Area at Picket C and adjacent to BYBY. The furthest west that TCE is detected in groundwater is in Picket B; however, discharge to SS-5 is contaminated with trace concentrations of TCE, which may indicate the presence of the leading edge of the TCE plume at Picket A.

Maynardville Limestone conceptual model. At monitoring points downgradient of BYBY (groundwater and surface water), the plumes from the S-3 Site and BYBY source areas are completely commingled (Fig. ES.5). It is only possible to identify BYBY as a contributor to the inorganic and organic Maynardville Limestone contaminant plumes because of the relative concentrations of contaminants in groundwater, surface water, and springs. Progressive changes in relative concentrations of contaminants in groundwater along the valley reflect the inputs to the Bear Creek/Maynardville Limestone system and suggest that after entering Bear Creek contaminants can migrate downward into the Maynardville Limestone (Fig. ES.5).

Surface water in Bear Creek and shallow groundwater in the Maynardville Limestone are closely interrelated and constitute 96% of water flowing along the valley. Contaminants in these media pathways are quickly diluted by rapid recharge of rainwater and inputs from noncontaminated tributaries. Concentrations of contaminants in the intermediate and deep groundwater pathways [30 to 90 m (100 to 300 ft) depth] are not attenuated as rapidly as those in shallow groundwater because this interval is somewhat isolated from inputs from recharge and tributaries. Plumes of groundwater contaminated above maximum contaminant levels in the 30 to 90 m (100 to 300 ft) depth interval are more continuous and extend further along the valley.

Groundwater contamination at Picket W is attributed both to diffuse contamination as a result of infiltration of contaminated surface water in Bear Creek and along strike migration of contaminated groundwater in intermediate and deep groundwater.

ES.4 CONTAMINANT FATE AND TRANSPORT PATHWAYS

The principal contaminant sources in BCV are located on the outcrop of the Nolichucky Shale (S-3 Site, BYBY, and BCBG), a carbonate-rich fractured shale with low permeability. Solid and liquid waste disposals have caused shallow groundwater contamination. Leaching of solid materials, particularly uranium, is a current source of shallow groundwater contamination. Where dense liquids were disposed of at the S-3 Site and BCBG, contamination of deep groundwater in the Nolichucky Shale has occurred. Contaminants migrate away from the waste disposal units using the following pathways (Fig. ES.5):

- Contaminated shallow groundwater at sources on the Nolichucky Shale migrates through fractures along geological strike and discharges to tributaries or directly to Bear Creek causing the tributaries and Bear Creek to become contaminated.
- Contaminants in deep groundwater in the Nolichucky Shale also migrate through fractures along strike and discharge to tributaries. However, contaminant pathways in the deep groundwater can underflow proximal tributaries and/or springs and be a source of contamination in neighboring tributary subwatersheds.
- After entering tributaries, contaminants migrate in surface water directly to Bear Creek. Bear Creek intermittently loses and gains water from groundwater in the Maynardville Limestone throughout the length of the valley. Losing reaches of Bear Creek cause groundwater contamination in the Maynardville Limestone. Gaining reaches of Bear Creek are associated with large springs at the base of Chestnut Ridge, some of which have contaminated discharge (SS-1, -4, -5, and -6).
- Surface water in Bear Creek and shallow groundwater in the Maynardville Limestone constitute 96% of water flowing along the valley. Contaminants in these media pathways are quickly diluted by rapid recharge of rainwater and inputs from noncontaminated tributaries.
- Deep groundwater in the Maynardville Limestone [30 to 90 m (100 to 300 ft) depth] constitutes <4% of water flowing along the valley. Concentrations of contaminants in this and in the deep groundwater pathway are not attenuated as rapidly as those in shallow groundwater; this pathway is an important source of long distance groundwater transport along the valley.
- Contaminant concentrations in shallow groundwater in the Nolichucky Shale and the Maynardville Limestone and in surface water are diluted by recharge during storm events and show seasonal trends of lower concentrations during periods of high rainfall.

Contaminants migrating from the waste sites in BCV converge at BCK 9.47/SS-5 — more than 99% of available water from the upper portion of the valley passes through this location as either surface water or groundwater.

ES.4.1 Integrator Point/Plane Assessment

To determine the contribution of each FA to the valley-wide contaminant flux migrating off site from the BCV CA, an IP assessment was completed at BCK 9.47/SS-5. Using a mass balance calculation, 69% of uranium measured at BCK 9.47 and SS-5 was measured at monitoring stations in tributaries to Bear Creek (gauged flux on Fig. ES.3). The remaining 31% was not measured in the RI (engaged flux) but is expected to be derived from migration of uranium directly to Bear Creek and the Maynardville Limestone via shallow groundwater at the BYBY and S-3 Site sources.

Assuming a similar distribution of the engaged flux as the gauged flux, then ~ 61% of the uranium found in surface water and groundwater at the IP is derived from BYBY. The S-3 Site is the second major contributor of uranium (26%), and this site contributes approximately 94% of the nitrate contamination at the IP. At the IP, 13% of the uranium is derived from BCBG. VOCs at the IP are mainly derived from BCBG; however, most VOCs (82%) discharged to surface water at source areas volatilize before reaching BCK 9.47. Boron was not measured in tributaries in the RI but is probably mostly derived from the BCBG where it was reported to be a contaminant in waste liquids that accompanied uranium tailings disposal and is found in the current leachate at BCBG.

Using these flux data, the portion of the total risk to human health and total hazard at the IP contributed by each waste site was calculated (Fig. ES.6). BYBY contributes most to the human health risk to the IP (38.5%), followed by BCBG (23.0%), and the S-3 Site (17.4%). Engaged uranium fluxes contribute 20.7% of risk at the IP. As discussed above, most of the engaged uranium flux originates in the BYBY (assumed 70%) and the S-3 Site (assumed 30%).

ES.4.2 Anticipated Future Changes

In the absence of remedial action and assuming maintenance of the current leachate collection system at BCBG, contaminant concentrations in most pathways are expected to remain at concentrations similar to those currently observed with four exceptions. These exceptions are:

- Concentrations of uranium and some metals in groundwater discharged to NT-1 are expected to increase in the foreseeable future (100 to 200 years). Concentrations of VOCs and nitrate may have peaked in this pathway but are expected to remain close to current levels for the next 100 years.
- Concentrations of nitrate, uranium, and some metals in groundwater discharged to NT-2 are expected to increase in the foreseeable future (100 to 1000 years).
- Along strike migration in the Nolichucky Shale of a plume of PCE-contaminated groundwater at BCBG may result in discharge of contaminated groundwater to NT-8 in the next 100 years. However, it is anticipated that volatilization of most of the VOCs in surface water, as is observed today, will lessen the impact of this discharge.
- Along strike migration in the Maynardville Limestone of a plume of TCE- and 1,2-DCE-contaminated groundwater at BCBG may result in discharge of increasingly contaminated groundwater at SS-5 and BCK 9.47 for the next 500 years. In addition, migration of this plume to BCK 9.47/SS-5 may result in unacceptable risk from use of groundwater at these locations and cause additional groundwater ARARs to be exceeded in the future.

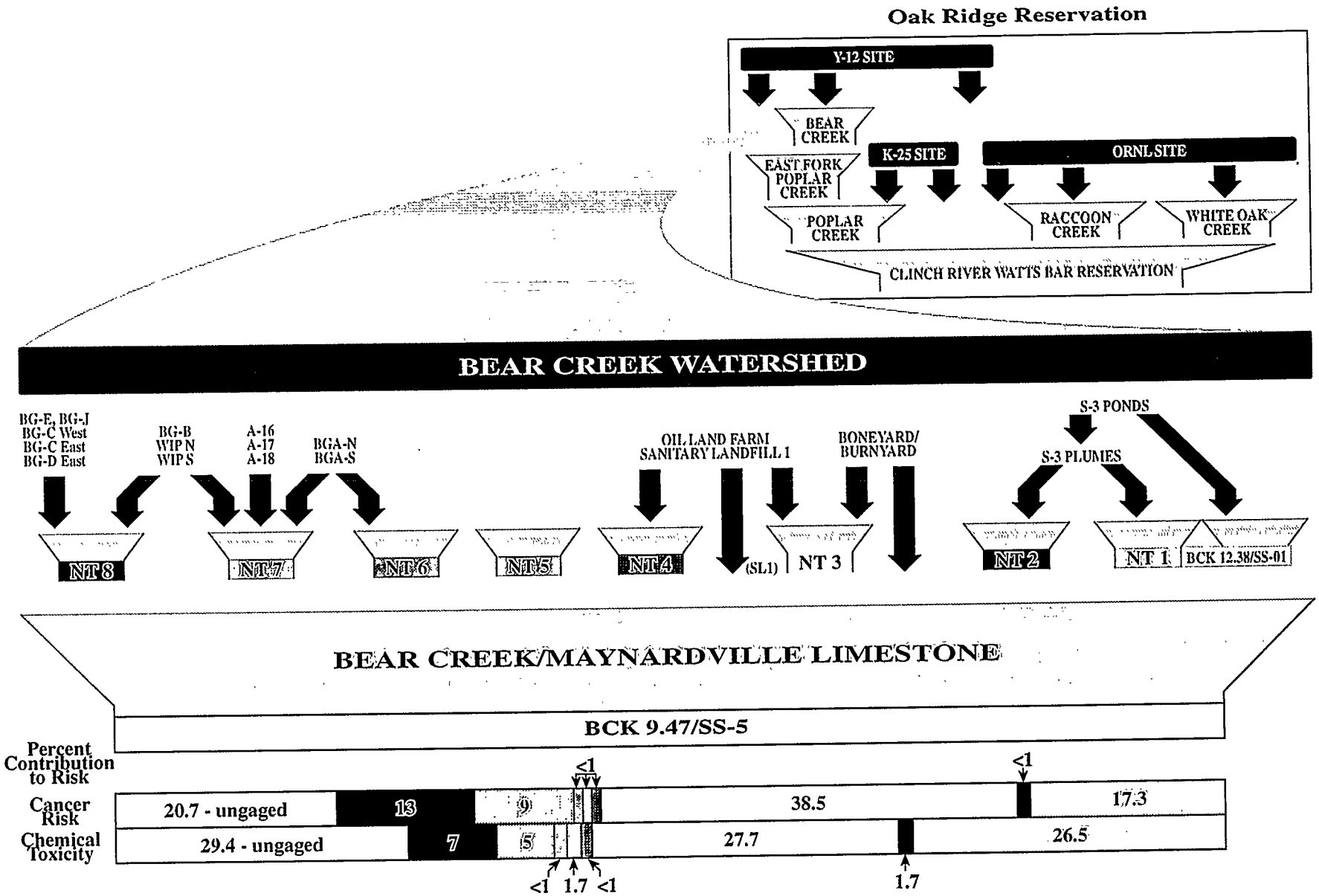


Figure ES.6. Relative contributions from source areas to potential risks and hazards at the IP.

In the absence of remedial actions, the resulting effect of these changes on contaminant fluxes will be to increase the fluxes of uranium, nitrate, some metals, and VOCs at the IP during the foreseeable future. The leading edge of the nitrate plume in BCV has reached Picket W wells ~ 2.3 km west of BCK 9.47 (Fig ES.1). Increased fluxes of contaminants at the IP will most likely result in extension of the plumes of contaminated groundwater west of BCK 9.47 and increased concentrations of contaminants at Picket W.

ES.5 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

ARARs and to-be-considered guidance that may be applicable to BCV have been identified so that remedial actions planned for BCV can be fully protective of human health and the environment. Chemical-specific guidance for the BCV include:

- Environmental Protection Agency's (EPA's) insufficient yield criterion for groundwater classification;
- Safe Drinking Water Act maximum contaminant levels;
- National Secondary Drinking Water Standards secondary maximum contaminant levels;
- EPA rule for natural attenuation of contaminants in groundwater in cases where active remediation is not appropriate; and
- Tennessee Department of Environment and Conservation ambient water quality criteria.

Chemical-specific ARARs for soils and sediments and location- and action-specific ARARs applicable to sensitive resources are usually invoked during remedial action. Thus, these ARARs will be analyzed and discussed as remedial alternatives are screened in the BCV FS.

ES.6 BASELINE RISK ASSESSMENT

ES.6.1 Baseline Human Health Risk Assessment

Conclusions on potential human health risks in BCV are based on four hypothetical land uses for which risks to human health were calculated; these are current hypothetical "unprotected" site maintenance workers at the source areas, future industrial workers, future recreational receptors downstream of BCK 9.47, and future residential receptors (Figs. ES.7 and ES.8).

At BCBG, S-3 Site, and OLF, there is an important distinction between contamination due to buried waste materials and soil contamination resulting from mobilization of contaminants in wastes (secondary contamination). In general, although secondary contamination is present in soils immediately surrounding the wastes, the concentrations of contaminants in these soils are lower and pose potential risks that are orders of magnitude less than those from the neighboring waste materials. Soils surrounding waste units generally pose risks to potential future residents but little risks to potential future industrial or unprotected maintenance workers; whereas exposure to contaminants in wastes poses high risks for potential future residents and future industrial workers. With the exception of BYBY and BG-D, -E, and -J, waste materials are buried and covered with multilayer RCRA caps; therefore, the scenario for exposure of future residents and industrial workers assumes degradation of these caps and eventual uncovering of the wastes.

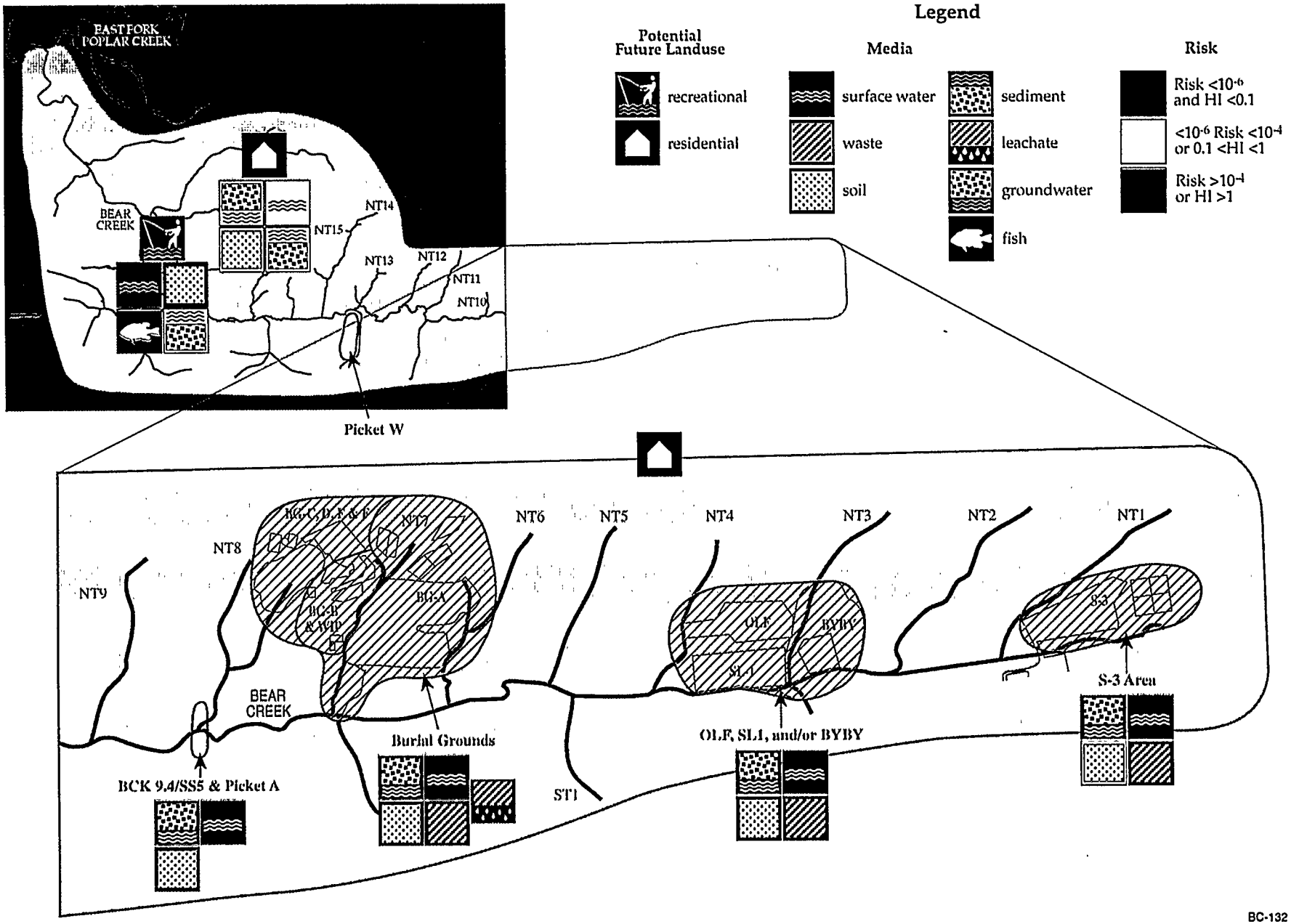


Figure ES.7. Distribution of risks posed to potential future residents and recreational users in Bear Creek Valley.

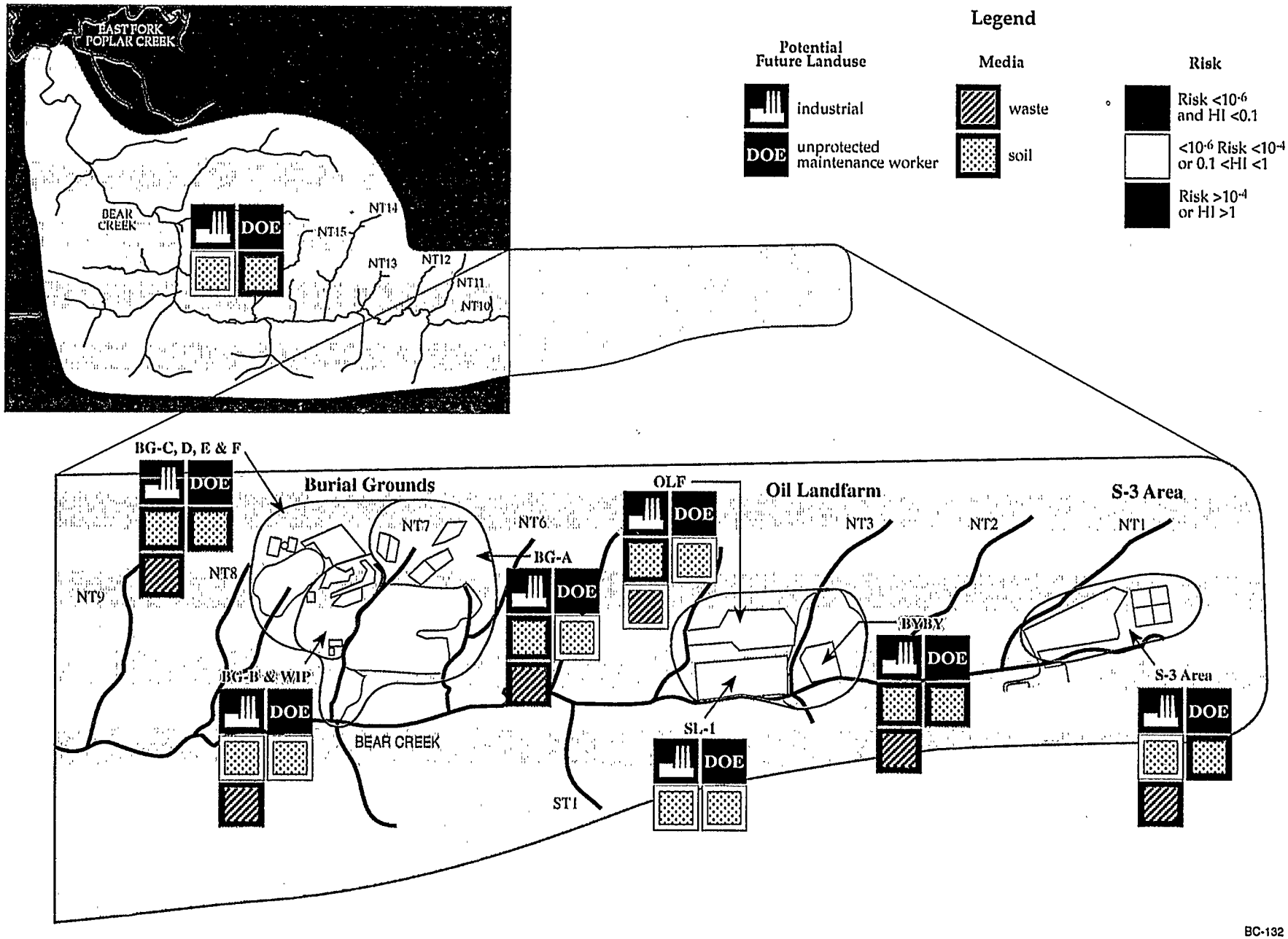


Figure ES.8. Distribution of risks posed to potential future industrial workers and unprotected maintenance workers in Bear Creek Valley.

Current "unprotected" maintenance worker. Risks from exposures to an unprotected maintenance worker (rather than a worker having the level of protection currently required for access at BCV sites) were evaluated to provide a conservative estimate of current risk. Assuming that existing caps at the waste areas are maintained, the only risks exceeding 10^{-4} identified for an unprotected maintenance worker at any of the BCV sites are through exposure to three chemicals of concern (COCs) (^{234}U, ^{235}U, and ^{238}U) found in hot spot soils, where waste material was exposed at the surface, at BYBY, and at BCBG (Fig. ES.8).

Future industrial worker. Risks/hazards to a future industrial worker can occur from exposure to 33 COCs:

- buried and capped wastes at the S-3 Site contain 12 COCs (beryllium, PCB-1248, and radionuclides);
- soils adjacent to the OLF cap contain 4 COCs (arsenic and radionuclides);
- soils at BYBY contain 12 COCs (metals, PAHs, and radionuclides);
- soils adjacent to caps, hot spot soils near BG-D East, and buried wastes at BCBG contain 12 COCs (metals, PCBs, VOCs, and radionuclides); and
- inventoried soils at the Disposal Area Remedial Action (DARA) Solids Storage Unit and the OLF Storage Pad contain 6 COCs (dioxins, PCB-1254, and uranium isotopes) and 4 COCs (beryllium, PCBs, and uranium isotopes), respectively.

Future recreational receptor. Risks to a future recreational user of BCV were evaluated for the BCV Floodplain, starting just west of the BCBG (BCK 9.47) and ending near Highway 95. Only one pathway was estimated to pose potential risks under this scenario: ingestion of fish that have bioaccumulated mercury (i.e., methylmercury) and PCBs (Fig. ES.7). However, there is uncertainty whether the fish analyzed in the assessment were exposed to contamination only from Bear Creek. No COCs associated with exposure to surface water, floodplain soils, and sediments were identified.

Future resident. Although a residential exposure scenario at the source areas is unlikely, it was evaluated to obtain a reasonable maximum exposure estimate of the risk to future human receptors in BCV.

West of BCK 9.47 and Picket A, total pathway risks from aggregated data do not exceed 10^{-4} (Fig. ES.7). Two individual locations have COCs associated with them. These are:

- 1 COC, PCB-1254, in soils at SP04 near Highway 95 in the BCV Floodplain;
- 4 COCs, arsenic, chromium, manganese, and PCB-1254 in sediments in Bear Creek near NT-9 and NT-11; and
- 2 COCs, boron and strontium, considered as naturally occurring and not related to activities in BCV, were identified for well GW-711 at Picket W.

In addition, low activities (< 7 pCi/L) of radium, ^{137}Cs, and ^{228}Th in groundwater at Picket W and arsenic, ^{137}Cs, and ^{238}U in surface water in Bear Creek downstream of BCK 9.47 pose risk between 10^{-6} and 10^{-4}. However, there is a high degree of uncertainty associated with these radiological data, and the lack of other radionuclides usually associated with contamination in BCV (e.g., U and ^{99}Tc) in these wells makes their occurrence at Picket W suspect.

At the IP, total pathway risks are between 10^{-4} and 10^{-6}. Specific risks and hazards are as follows:

- Ingestion of isotopic uranium in groundwater in GW-684 poses a risk between 10^{-6} and 10^{-4} to future residents. Nitrate and uranium in groundwater in this well also result in a potential HI = 1 for future residents.
- Ingestion of PCE, TCE, ^{99}Tc, ^{137}Cs, ^{237}Np, and isotopic uranium in surface water poses a potential risk between 10^{-6} and 10^{-4} to future residents. Ingestion of uranium in surface water at the IP also results in an HI > 1 for future residents with boron, fluoride, and nitrate also contributing to the hazard.
- Soils at transect TS4, located at the confluence of NT-8 and Bear Creek (Fig. ES.1), pose a potential risk > 10^{-4} to future residents via incidental ingestion or external exposure from beryllium, PCB-1260, or isotopic uranium.

East of BCK 9.47, risks and hazards posed to potential future residents are numerous, and at nearly all locations cumulative pathway risks exceed 10^{-4} and/or HIs exceed 1 via exposure to waste, soil, groundwater, or surface water (Fig. ES.7). Potential risks/hazards to future residents can occur from exposure to 94 COCs:

- at the S-3 Site FA: 34 COCs in groundwater, 13 COCs in surface water, 2 COCs in soils, and 17 COCs in buried/capped waste;
- at the OLF FA: 28 COCs in groundwater and 11 COCs in surface water, 10 COCs in OLF soils, 6 COCs in OLF Storage Pad soils, 12 COCs in SL 1 soils, and 22 COCs in BYBY soils;
- at the BCBG FA: 23 COCs in groundwater, 14 COCs in surface water, 41 COCs in leachate, 11 COCs in soils adjacent to caps and in hot spots, 16 COCs in buried waste, 7 COCs in DARA soils; an
- for the Maynardville Limestone and Bear Creek FA: 13 COCs in Bear Creek Road Debris Burial area, and 16 COCs in Creekside Debris Burial area.

In addition to the risk/hazard associated with exposure to chemicals in BCV, the BCBG site presents potential physical hazards associated with the burial of pyrophoric and explosive agents. An incompatibility study conducted in 1984 concluded that it is reasonable to expect that excavation at BCBG would foster additional reactions through re-exposure to air and unavoidable mixing as wastes are handled.

ES.6.2 Ecological Risk Assessment

Ecological risk was estimated for fish, benthic invertebrate, soil invertebrate, and plant communities and representative organisms of populations of small mammals (mice and shrew), piscivores (mink and kingfisher), large herbivores (deer), and predator/scavengers (hawks and fox). The baseline ecological risk assessment identified significant ecological risks from chemicals in water, sediment, soil, and shallow groundwater for one or more receptors. Metals and PCBs are the primary contaminants of potential ecological concern, and source area and floodplain soils, including transects west of 9.47, contribute to these risks (Fig. ES.9).

In characterizing risk to the assessment endpoints established for the BCV baseline ecological risk assessment (e.g. species richness and abundance), a 20% or greater reduction in one of the

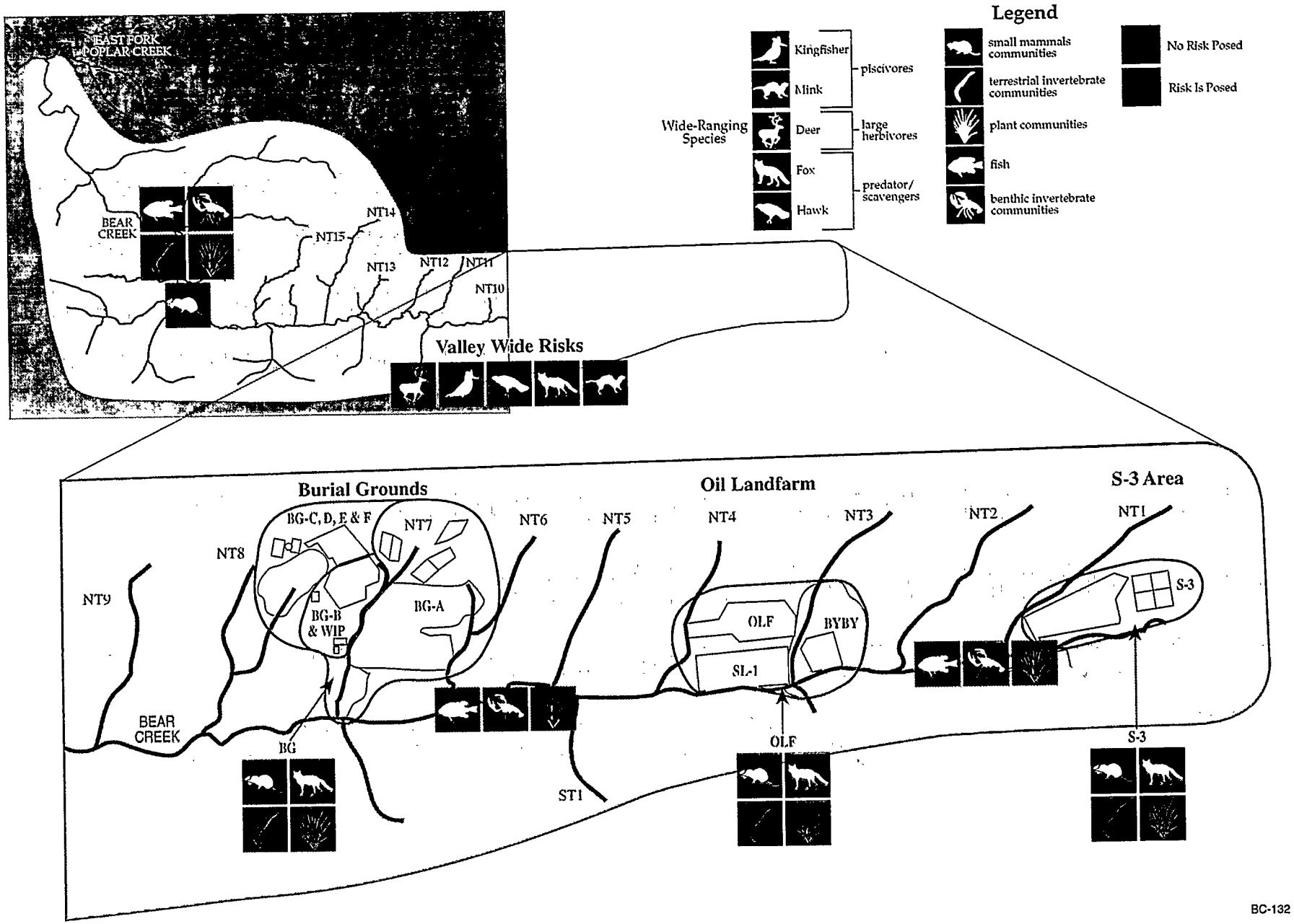


Figure ES.9. Distribution of risks posed to aquatic and terrestrial biota in Bear Creek Valley.

endpoint properties measured in the field or a 20% reduction in survivorship, growth, or reproduction in a toxicity test was considered to be potentially significant. The assessment endpoints and their associated risks for the BCV are:

Reduction in species richness or abundance in fish communities resulting from toxicity. Risks to fish communities were evaluated for Bear Creek, which was divided into four reaches for the baseline ecological risk assessment (Fig. ES.1), and for tributaries NT-2 through NT-8. Both dissolved phase and total concentrations of metals were used in the exposure assessment for fish. The weight of evidence suggests that water from Bear Creek and NT-2 through NT-8 does not pose a significant risk of a 20% reduction in fish species richness or abundance or in the Tennessee dace population due to a toxic effect.

Reduction in species richness or abundance of benthic macroinvertebrate communities resulting from toxicity. Benthic invertebrates exposed primarily to surface water in erosional areas were evaluated separately from those exposed primarily to fine sediments in depositional areas. For benthic invertebrates in erosional areas, the weight of evidence suggests that water in Reaches 1 and 2, NT-2, SS-1, and SS-4 poses a significant risk of a 20% reduction in species richness and abundance due to a toxic effect from high concentrations of calcium, cadmium, manganese, nickel, and uranium. For benthic invertebrates in depositional areas, the weight of evidence suggests that sediment from 3 of 18 sites poses a significant risk due to a toxic effect, probably from manganese and, potentially, selenium and 2,4,5-trichlorophenoxyacetic acid (2,4,5-T). However, it is unlikely that the soft-sediment benthic invertebrate community as a whole is reduced by 20% in species richness or abundance.

Reduction in production of soil/litter invertebrates resulting from toxicity. Risk to soil invertebrates was evaluated for four source areas (S-3 Site, BYBY, combined SL 1 and OLF, and BCBG) and for the Bear Creek Floodplain. Risks of a toxic effect to soil invertebrates from mercury and, possibly, chromium, copper, and zinc, are estimated to be significant in the S-3 Site, SL 1/OLF, BYBY, Creekside Debris Burial area, and Bear Creek Road Debris Burial area.

Reduction in production of terrestrial plant communities resulting from toxicity. The plant communities in the BYBY area near HCDA are probably adversely affected by metals in shallow groundwater if they are exposed by root uptake. Soils at isolated locations along two Floodplain transects in Upper Bear Creek (transects TS3 and TS4, Fig. ES.1)) appear to pose a significant risk to plants.

Reduction in abundance or production of terrestrial wildlife populations resulting from toxicity. Risks to wide-ranging species were evaluated for the BCV as a whole. Risks to small mammals, which have more limited spatial requirements, were evaluated within the source areas and for BCV as a whole. Among the wide-ranging species, only fox were estimated to be significantly at risk of a 20% reduction in population production; this risk results from soil contamination by: antimony at BYBY; mercury at S-3 Site, BYBY, OLF, and Floodplain transect TS1; and PCBs in BCBG and Floodplain transects TS4 and TS10. Shrews are estimated to be significantly at risk of a 20% reduction in population production from high soil concentrations of metals at S-3 Site, BYBY, and OLF and PCBs at BCBG. Shrews are also estimated to be at risk from elevated chromium and PCBs in Floodplain soils in transects west of BCK 9.47. There were no risks to shrew, mouse, deer, hawk, and fox from uptake of radionuclides.

Reduction in abundance or production of piscivorous wildlife populations resulting from toxicity. Because piscivorous wildlife are highly mobile, risks to piscivores were evaluated for the BCV as a whole. Kingfishers inhabiting the watershed were estimated to be significantly at risk of a 20% reduction in population production because of mercury in fish.

ES.6.3 Conclusions about Potential Risk

At nearly all locations in BCV east of the IP, potential cumulative pathway risks posed to future residents exceed 10^{-4} and/or HIs exceed 1 via potential exposure to contaminants in waste, soil, groundwater, or surface water (Fig. ES.7). Cumulative pathway potential risks posed to future industrial workers or unprotected maintenance workers vary between 10^{-6} and 10^{-1} via exposure to buried waste and contaminated soil at hot spots (Fig. ES.8). Contamination both at the waste areas and in the floodplain poses risks to wide ranging predatory animals, fish-eating wildlife, small mammals, soil invertebrates, and plant communities (Fig. ES.9). Contaminants in surface water upstream of BCK 9.47 and in sediments in NT-2, NT-6, and reach 4 of Bear Creek pose risks to benthic invertebrates (Fig ES.9). In addition, ARARs are exceeded in groundwater at many locations east of the IP.

At the IP, potential human health risks posed from use of groundwater or surface water exceed 10^{-6} or an HI>1. The COCs at the IP are uranium, nitrate, boron, and fluoride. In addition, ARARs for nitrate, uranium, and VOCs are most likely exceeded in groundwater.

In the portion of the valley west of the IP, environmental media are contaminated as a result of releases from the waste areas east of the IP, but contamination is slight and poses relatively little risk (Figs. ES.7 to ES.8). West of the IP, the most prevalent contaminants in groundwater and surface water are chloride, fluoride, nitrate, boron, strontium, and uranium, but contamination does not exceed ARARs. For a potential future residential receptor, four COCs (As, Cr, Mn, and PCB-1254) were identified in sediments from Bear Creek at two locations, and one COC (PCB-1254) in soils at one location in the Bear Creek floodplain.

ES.7 REMEDIAL GOAL OPTIONS

Media- and chemical-specific RGOs have been developed for each chemical of concern in BCV. RGOs are target cleanup goals to be used in identifying effective remedial technologies. They are not proposed final cleanup levels. RGOs were calculated for the following three criteria:

- Chemicals of concern identified in the baseline human health risk assessment. For these chemicals of concern, RGOs were calculated to be protective of human health at target risk levels of 10^{-4}, 10^{-5}, and 10^{-6} and target HIs of 0.1, 1, and 3.
- Chemicals of concern identified in the baseline ecological risk assessment. For these chemicals of concern, RGOs represent benchmarks, probable effects levels, ambient water quality criteria, and naturally occurring background levels.
- Chemicals of concern identified as chemicals that exceed ARARs. For these COCs, RGOs represent the ARAR.

In addition, results of fate and transport modeling were used to identify chemicals that are likely to exceed ARARS or preliminary remediation goals as a result of leaching from soils to groundwater

or transport to surface water in the future. These chemicals are also considered chemicals of concern, and the RGOs for these chemicals are considered the maximum contaminant level or preliminary remediation goal in the receptor medium.

The ability to meet RGOs for primary risk drivers will be evaluated in the FS. Based on the results of the baseline risk assessments, primary risk drivers include uranium, nitrate, and VOCs in the upper third section of BCV.

ES.8 TECHNICAL CONSIDERATIONS FOR REMEDIAL ACTIONS

Contamination in groundwater and surface water at, and west of, the IP is derived from migration away from the source sites. A remedial strategy with the goal of reducing contaminant fluxes at the IP to acceptable levels will have two general options: (1) take actions at the IP to mitigate exposures downstream, or (2) take actions upstream and east of the IP that will result in achieving the remedial goals at the IP.

Actions taken at the IP would be groundwater and surface water capture/treatment type actions. Actions taken upstream of the IP would involve interception of contaminant pathways to tributaries (i.e., actions taken closer to the sources) that would result in remediation of nitrate and uranium in contaminated surface water in Bear Creek and groundwater in the Maynardville Limestone. These actions may also be groundwater and surface water treatment actions taken closer to the sources, but could also include source isolation/treatment/removal to mitigate three pathways. In addition, a plume of VOC-contaminated water in the Maynardville Limestone that has no apparent source would also need to be addressed.

The following physical, chemical, and hydrological parameters will need to be addressed to achieve the remedial action objectives for BCV.

ES.8.1 Considerations for Remedial Actions for Groundwater and Surface Water at the Sources

- Large volumes of contaminated groundwater exist in the Nolichucky Shale at the contaminant sources (7.1×10^6 m^3 at the S-3 Site, 0.4×10^6 m^3 at BYBY, and 4.0×10^6 m^3 at BCBG). Due to the fractured nature of the Nolichucky Shale, < 10% of this contaminated volume occurs in fractures that are accessible for withdrawal of water. More than 90% of this volume occurs in the very low permeability matrix and contains the highest concentrations of contaminants. The mechanism for migration of contaminants from the matrix to flowing fractures is by chemical diffusion and is termed matrix diffusion. The result of matrix diffusion is that, if pump and treat technology is used to remediate a plume in fractured bedrock, many times the contaminated volume of water will require pumping before acceptable concentrations can be achieved.
- DNAPL occurs at two locations in the Nolichucky Shale, the S-3 Site and BCBG (Fig. ES.5). The nature of migration of DNAPL in the subsurface means that small droplets of residual DNAPL exist rather than large and identifiable pools of liquids. Thus, identification and extraction of DNAPL is not possible. Dissolution of DNAPL at these sites will, therefore, act as a dispersed source of contamination to groundwater.

- Some of the solid waste at BYBY, BCBG, and most likely at the S-3 Site is inundated by shallow groundwater and will be a continuing source for groundwater contamination unless it is hydraulically isolated from groundwater.
- Contaminated shallow and deep groundwater in the Nolichucky Shale migrates rapidly through discrete fractures or preferential pathways along geological strike to discharge to tributaries or directly to Bear Creek. Most of the groundwater flux most likely flows through a few discrete fracture zones; however, the specific locations and depths of these fracture zones are not known at this time and may be difficult to ascertain.
- Flow in shallow groundwater and tributaries is "flashy." For example, flow in NT-3 varies from extremes of 0 L/s to over 150 L/s (2400 gpm). Average baseflow in NT-3 varies from 0 L/s in summer to almost 10 L/s (160 gpm) during winter months.

ES.8.2 Considerations for Remedial Actions for Groundwater and Surface Water in the Maynardville Limestone

- Water flows through a network of interconnected cavities and fractures up to 150 m (500 ft) deep in the Maynardville Limestone. Most of the groundwater flux most likely flows through a few discrete cavities, however, the flux through these cavities and the specific locations and depths of these cavities are not known at this time and may be difficult to ascertain.
- The total flux of groundwater flow at the IP was calculated as 54,000 m^3 during the 10-month monitoring period for the RI (~65,000 m^3/a or 52.5 acre ft/a).
- Flow in Bear Creek at BCK 9.47 is flashy and varies from extremes of < 1 L/s (~16 gpm) to over 10,000 L/s (16,000 gpm). Average baseflow varies from < 1 L/s in summer to 100 L/s (1,600 gpm) during winter months. Flow in SS-5 is more steady than in Bear Creek and varies from extremes of < 3 L/s (~48 gpm) to over 100 L/s (1600 gpm). Average baseflow varies from < 3 L/s in summer to 10 L/s (160 gpm) during winter months.
- Concentrations of contaminants in BCK 9.47 and SS-5 are relatively dilute. For example, at BCK 9.47, uranium ranges from 52 to 152 μg/L and nitrate ranges from < 1 mg/L to 46.2 mg/L.

ES.8.3 Considerations for Remedial Actions for Soils at Sources

- Large volumes of buried waste materials exist at the BCBG, some of which are potentially pyrophoric or explosive. In addition, large volumes of waste materials and contaminated fill exist at BYBY, SL 1, and the S-3 Site.
- At some locations in BCBG and BYBY, and probably at the S-3 Site, waste materials are inundated by shallow groundwater.
- At some locations in BYBY and BCBG, waste materials occur at the surface of the soil. These locations constitute the most likely areas where direct exposure to waste could occur with unrestricted use.
- Many of the source areas are covered with RCRA caps that limit the possibility of direct exposure to waste materials under the current land use.

ES.8.4 Consideration for Remedial Actions for Soils/Sediments in the Bear Creek Floodplain

- The sampling strategy for floodplain soils and sediments was, by intention, biased towards likely sediment accumulation areas. The relatively small number of samples for the area of land that constitutes the Bear Creek floodplain means that volumes of contaminated soils are not well defined. The data indicate that contaminant concentrations are low and soil volumes are small (most likely < 1000 m^3).

ES.8.5 Relative Importance of Pathways

For actions taken close to the sources, the relative importance of the pathways with regard to the contaminant mass flux is a consideration for which remedial actions will be most effective from a watershed perspective. The following parameters, therefore, also need to be considered:

- Figure ES.3 shows the potential human health risk/hazard from surface water and groundwater at the IP posed by exposure to the individual COCs. Figure ES.3 also lists the relative proportions of the flux of the two principal COCs, nitrate and uranium, derived from sources in BCV. Based on this ranking of source contributions to the total potential risk/hazard at the IP (refer to Sect. 3.2.7 and Appendix E), most of the potential risk/hazard is from uranium migrating from BYBY and the S-3 Site. In addition, most of ungauged flux is most likely from BYBY and the S-3 Site, further increasing the proportion of uranium flux derived from these sites. Nitrate is the second most important COC at the IP and is 94% derived from the S-3 Site.
- Reduction of the contaminant mass flux through shallow groundwater and/or surface water discharge in tributaries at BYBY and S-3 Site will reduce the overall mass flux of uranium and nitrate at the IP and achieve a reduction of potential risks and hazards at this location. For example, a reduction of 70% in the uranium flux from NT-3 and a similar reduction in the ungauged flux derived from this site (assumed to be 70% of the total ungauged flux) would result in a 43% reduction in the total uranium flux at the IP. A reduction of 70% in the contaminant flux from S-3 Site (NT-1 and NT-2) and a similar reduction in the ungauged flux derived from this site (assumed to be 30% of the total ungauged flux) would result in an 18% reduction in the total uranium flux at the IP, and a 66% reduction in the total nitrate flux.
- COCs for ecological receptors in Bear Creek are mainly metals in reaches 1 and 2 that are derived from discharge in NT-1, -2, and -3 (with the exception of mercury for which no sources have been defined in BCV). It can be expected that actions taken to reduce the contaminant flux in any of these pathways will result in a reduction of ecological impacts in Bear Creek east of the IP and reduce impacts to piscivores in all of BCV.

ES.9 DOCUMENT LAYOUT

The BCV RI Report is contained in six volumes. Volume 1, the RI Report, summarizes the extensive data analysis and interpretation that have been completed for the RI. The eight chapters of the Report address (1) the strategy used to satisfy the regulatory requirements in BCV; (2) physical and hydrogeological properties of BCV; (3) results of environmental investigations conducted to determine the nature, extent, fate, and transportation of contamination; (4) ARARs; (5) results of baseline human health risk assessment; (6) results of baseline ecological risk assessment; (7) RGOs derived from the RI; and (8) conclusions.

The RI Report is supported by seven appendices (A through G), contained in five volumes, that provide detailed analysis and discussion corroborating the information provided and conclusions reached in Volume 1. Volume 2 contains three appendices addressing (A) the operational histories of BCV waste sites and detailed analysis of inventory records of the BCBG; (B) the historical database for BCV and a detailed description of the field activities conducted during 1994 and 1995; and (C) the valley-wide hydrogeological conceptual model for BCV. Volumes 3 through 6, each containing one appendix, address (D) nature and extent of contamination in BCV; (E) fate and transport of contaminants in BCV; (F) baseline human health risk assessment; and (G) baseline ecological risk assessment.

F.1 BASELINE HUMAN HEALTH RISK ASSESSMENT REPORT—INTRODUCTION

The overall objective of the Baseline Human Health Risk Assessment (BHHRA) is to document potential risks and provide information necessary for making remediation decisions. The human health risk assessment methodology used in this risk evaluation is based on *Risk Assessment Guidance for Superfund* (RAGS) (EPA 1989a). A quantitative analysis of the inorganic, organic, and radiological site-related contaminants found in various media is used to characterize the potential risks to human health associated with exposure to these contaminants. The results of the BHHRA are used to (1) document and evaluate risks to human health, (2) determine the need for remedial action, (3) determine chemical concentrations protective of current and future human receptors, and (4) support the Feasibility Study (FS) selection and comparison of various remedial alternatives (Energy Systems 1993a).

The Oak Ridge Y-12 Plant (Y-12 Plant) facility is owned by the U.S. Department of Energy (DOE), consists of approximately 800 acres, and is located along the northeastern boundary of the Oak Ridge Reservation (ORR), adjacent to the city of Oak Ridge. The Bear Creek Valley (BCV) Watershed Characterization Area (CA) is located on the DOE-owned property of the Y-12 Plant on the ORR (refer to Appendix B, Fig. B.5). The approximate BCV CA boundary (east to west) is approximately 8 miles long and starts just west of the operational Y-12 Plant facilities, at the hydraulic divide between BCV and Upper East Fork Poplar Creek (UEFPC) (i.e., just east of the S-3 Ponds), and ends at Hwy 95 (refer to Appendix B, Fig. B.5). North-to-south, the BCV CA encompasses the area between the ridge of Pine Ridge and the base of Chestnut Ridge.

The comprehensive BHHRA for the entire BCV CA includes an evaluation of potential risks from exposure to contaminants (using current contaminant concentrations) in all media [i.e., groundwater, surface water, soils, sediments, wastes, leachate, inventoried wastes (including inventoried soils, sediments, and wastes), and fish] for (1) all primary source areas [i.e., S-3 Ponds, Oil Landfarm (OLF), Sanitary Landfill 1 (SLF-1), Boneyard/Burnyard (BY/BY), and Burial Grounds (BGs)], (2) the Floodplain (western BCV) area, (3) the Disposal Area Remedial Action Solids Storage Unit (DARA) and Oil Landfarm Storage Pad (OLF SP) facilities, (4) the Bear Creek Road Debris Burial (BCR DB) and Creekside Debris Burial (CS DB) areas, (5) the Bear Creek floodplain soils and sediments, (6) the BCV groundwater, and (7) the surface water and spring water associated with BCV.

To evaluate the risk to human health from exposure to the contaminants associated with BCV media and provide risk information supportive of the project objectives, four hypothetical land use scenarios were evaluated for the BCV CA: (1) a current hypothetical "unprotected" maintenance worker, (2) a future industrial worker, (3) a future resident (i.e., the future hypothetical reasonable maximum exposure scenario), and (4) a future recreational receptor [evaluated for the Floodplain (western BCV) area only]. It is important to note that for the actual current land use conditions, no completed exposure pathways (nor receptors) have been identified for exposure to the BCV media for these four land uses (i.e., unprotected maintenance worker, industrial worker, resident, nor for recreational use).

The land uses and exposure media evaluated in this Remedial Investigation (RI) BHHRA will support the FS alternatives as well as provide the stakeholders with necessary information to comprehensively evaluate risks in the BCV CA. The reader should note that the FS alternatives for the BCV CA consider the area between (and including) the BGs and the S-3 Ponds to be industrial land use (under current and future land use conditions) and the area west of the BGs (between the BGs and Hwy 95) is considered to be a recreational and/or unrestricted (e.g., residential) land use.

Currently, most areas in the BCV CA are auxiliary facilities and historical Y-12 Plant disposal sites/areas (refer to Appendix A, Fig. A.2). Therefore, personnel visiting or working in the BCV CA have limited exposures and include "maintenance" or "sampler" workers, fully protected from exposure to contamination via adherence to Health and Safety Plans, use of protective equipment when necessary, and Occupational Safety and Health Administration/Superfund Amendments and Reauthorization Act (OSHA/SARA) training. To be conservative (in terms of protecting human health), potential risks from exposures to "unprotected" maintenance workers will be evaluated. [The reader should note that the U.S. Environmental Protection Agency (EPA) Region IV has requested that this "unprotected" worker be evaluated as part of the BCV BHHRA as a means of evaluating a current worst case scenario]. The exposure pathways/routes to be evaluated for the current hypothetical "unprotected" maintenance worker include incidental ingestion of soil, inhalation of dust/particulates and VOCs in soil, dermal contact with the soil, and external exposure to radionuclides in the soil. It is also important to note that the exposure parameters used in this site-specific maintenance worker assessment will also be representative of other potential short-term exposures in the BCV CA (e.g., a trespasser).

A reasonable maximum exposure estimate of the risk to future human receptors in the BCV CA will be evaluated using residential parameters (and current concentrations). Because the BCV CA is located on DOE-owned, Y-12 Plant property of the ORR and the area between the BCV BGs and the S-3 Ponds will be evaluated in the BCV FS as industrial land use only (for current and future land uses), such a conservative scenario (i.e., residential land use) is unlikely. However, the intent of this residential evaluation is to (1) provide managers with a conservative estimate of potential risks to future receptors from exposure to contaminants in the BCV CA media, (2) be consistent with the National Contingency Plan (NCP), and (3) allow for purposes of comparisons across the DOE facilities.

The routes/pathways of exposure to be evaluated for the residential exposure scenario include dermal contact with the soil/sediments, inventoried soils, inventoried wastes, leachate, groundwater, and surface water/spring water; incidental ingestion of the soil/sediments, inventoried soils, and inventoried wastes; ingestion of groundwater, leachate, and surface water/spring water; inhalation of dust/particulates and volatile organic compounds (VOCs) in soil, sediments, inventoried soils, and inventoried wastes; inhalation of VOCs from groundwater, leachate, and surface water/spring water; external exposure to radionuclides in the soil/sediments, inventoried soils, and inventoried wastes; and ingestion of homegrown vegetables.

Risks to human receptors will also be evaluated for a future recreational land use [for the Floodplain (western BCV) area (i.e., the area starting just west of the BGs and ending at Hwy 95)] using current concentrations. Exposure pathways/routes evaluated for future recreational land use include incidental ingestion of soil (i.e., floodplain soils and sediments) and surface water/spring water, inhalation of dust/particulates and VOCs in soil, dermal contact with soil and surface water/spring water, external exposure to radionuclides in the soil, inhalation of VOCs in surface water/spring water, and ingestion of fish.

Risks from exposure to BCV contaminants (using current concentrations) will also be evaluated for future industrial land use. The exposure pathways/routes to be evaluated include incidental ingestion of soils, inventoried soils, and inventoried wastes; inhalation of dust/particulates and VOCs in soils, inventoried soils, and inventoried wastes; dermal contact with the soils, inventoried soils, and inventoried wastes; and external exposure to radionuclides in the soils and inventoried wastes and soils.

This report follows the organization of the standard risk assessment processes described in RAGS (EPA 1989a) and in the *Supplemental Guidance to RAGS: Region 4 Bulletins; Human Health Risk Assessment* (EPA 1995a). First, the data for the various media are evaluated to determine data usability for risk assessment, then site-related contaminants to be considered in the BHHRA are identified. This process is referred to as the selection of chemicals of potential concern (COPCs), and at this point, the representative concentrations for those contaminants to be included in the risk assessment are determined. Next, an assessment of the exposure potential is performed, and exposure pathways/routes are identified. Subsequently, exposure is estimated quantitatively, and the toxicity of the COPCs is appraised. The results of the exposure and toxicity assessments are combined to quantify potential risks, which are summarized in the risk characterization chapter (Chapter F.5).

The following chapters (F.2–F.5) describe the methodology used in evaluating the BCV CA analytical and inventory data, physical characteristics, potential pathways/routes, and receptors to quantify the potential risk to human health from exposure to the BCV CA COPCs.

F.2 IDENTIFICATION OF CHEMICALS OF POTENTIAL CONCERN

The following discussion addresses the data evaluation steps necessary to (1) aggregate the data to best represent the BHHRA functional areas in the BCV CA, in terms of the human health risk assessment; (2) identify a set of site-related contaminants which may significantly contribute to human health risks/hazards for each functional area in BCV; and (3) report analyte concentrations that are representative of the COPCs and of acceptable quality for use in this quantitative BHHRA.

F.2.1 DATA COLLECTION AND COMPILATION CONSIDERATIONS

For purposes of this BHHRA, six functional areas were considered; a functional area encompasses all media in and immediately down-gradient of an area. The six functional areas include: (1) the S-3 Pond area, (2) the BY/BY area, (3) the OLF area, (4) the SLF-1 area, (5) the BGs area, and (6) the Floodplain (western BCV) area (i.e., the area starting just west of the BGs and ending near Hwy-95). For the evaluation of groundwater and surface water, the BY/BY, OLF, and SLF-1 areas are considered as a single functional area because they are located in close proximity to one another. The DARA, OLF SP, BCR DB, and CS DB areas are evaluated separately from the six functional areas listed in this paragraph (because of their locations and because they contain only one potentially contaminated medium—soil). In addition to these functional areas, this BHHRA evaluates surface water, floodplain soils/sediments, and groundwater on a valley-wide basis (i.e., location-by-location and well-by-well) because of large distances between sampling locations; it also provides the reader with valley-wide and location-specific information.

The data and information presented and used in this BHHRA include an extensive database of environmental data derived from historical analytical data (primarily historical groundwater data), historical inventories, and recent RI field activities [i.e., BCV Operable Unit 1 (OU 1) (Energy Systems 1994a), BCV OU 4 (Energy Systems 1993b), Floodplain Soils (Energy Systems 1995a), and BCV Radiological Groundwater sampling activities]. For detailed descriptions of the recent field activities and summaries of the historical analytical data, refer to Appendix B; for descriptions of the historical inventory data/information, refer to Appendix A. Recent analytical data are discussed and evaluated further in Appendix D, Chapter D.4.

F.2.1.1 Source Area and Functional Area Descriptions

Detailed source area descriptions, history, and current conditions are provided in Sect. F.3.1 and in Appendix A, Chapter A.1 (the reader should refer to Appendix A, Fig. A.2, for specific source area geographical location information); brief BCV CA and source area description summaries are provided in the following text.

S-3 Ponds. The S-3 Ponds, constructed in 1951, are located at the head of the Bear Creek watershed and adjacent to the west end of the Y-12 Plant and consist of four unlined surface impoundments with a total storage capacity of 10 million gallons (Energy Systems 1994a). In the past, the ponds received waste effluent from four different sources: (1) liquid wastes generated from Y-12 Plant and other facilities' operations, (2) sludges generated from the in situ neutralization and biodenitrification of the pond waters, (3) sludges generated from the treatment of acid raffinate, and (4) contaminated sediments from upper Bear Creek (sometimes termed "Blue Lagoon sludges").

The waste primarily included nitric acid, nitrate waste, pickling and plating wastes, and miscellaneous liquid wastes associated with routine clean-up operations. Other wastes included machine coolants, caustic solutions, depleted and enriched uranium, other radionuclides, lead skimmings, and various metals. Liquid waste discharges to the ponds were terminated in March 1984. In situ neutralization and biodenitrification of the S-3 Ponds' wastewater were conducted from 1983 through 1984, creating variable amounts of sludge. In 1988, the ponds also received sediments from the Blue Lagoon that had previously been shown to contain uranium, aluminum, and other metals (Turner and Kamp 1984). The S-3 Ponds were closed with a multi-layered Resource Conservation and Recovery Act (RCRA) cap in 1988 and later covered with asphalt to create a parking lot. Waste sludges and groundwater remaining below the RCRA cap are known to contain organics, metals, and radioactive chemicals (Energy Systems 1994a).

Oil Landfarm (OLF). The OLF is located north of SLF-1, approximately 0.8 miles west of the Y-12 Plant. Used for the biological degradation of waste oil and machine coolants via landfarming, the landfarm disposal plots received approximately one million gallons of liquid wastes between 1973 and 1982. Known contaminants in the waste oils and coolants included barium, beryllium compounds, depleted uranium, polychlorinated biphenyls (PCBs), tetrachloroethene, and 1,1,1-trichloroethane (Energy Systems 1994a). After the initiation in 1979 of waste analysis prior to disposal in the landfarm, maximum permissible limits for the disposal of liquids contaminated with PCBs and chlorinated hydrocarbons were established. Uranium and PCB contamination was principally confined to the upper 6 in. of the soil, and the highest concentrations were found in the east and west plots (Herbes 1988, Energy Systems 1993b). Prior to final RCRA closure of the site in December 1990 as a landfill with a multilayered engineered cap (Energy Systems 1994a), soils containing PCB concentrations in excess of 25 ppm were excavated and transported to the OLF SP. Soils at this site remain contaminated with PCBs (< 25 ppm) and uranium (Energy Systems 1994a).

Sanitary Landfill 1 (SLF-1). Located approximately 0.8 mile west of the Y-12 Plant, north of Bear Creek and immediately south of the OLF, the SLF-1 site was used for the disposal of combustible and decomposable solid wastes from 1968 until April 1983 (Energy Systems 1993b, Bailey 1995a). The treatment of this waste as nonradioactive was based on health physics surveys, the regulatory limits of that time, and the assumption that correct disposal procedures were observed (Bailey 1996). Little recorded information exists for this site. Trenches were excavated to depths of approximately 20 ft and backfilled to approximately 15 ft above grade. Approximately 35,315 yd^3 (105,000 tons) of refuse including materials such as paper, cardboard, plastics, rubber, wood, brush, animal bedding, organic garbage, textile products, and asphalt roofing materials were disposed of at the landfill during its operational history (Energy Systems 1993b). Although administrative controls were used to exclude the disposal of toxic chemicals and other contaminated materials, it is possible that some of these materials were disposed of in the landfill (Energy Systems 1987). In 1985 the site was closed by grading, capping with 2 ft of clay and topsoil, and establishing a vegetative cover (Energy Systems 1994a).

Boneyard/Burnyard (BY/BY). The BY/BY consisted of three sites used as disposal areas for waste from the Y-12 Plant: the Boneyard, the Burnyard, and the Hazardous Chemical Disposal Area. The BY/BY received solid, liquid, and gaseous waste materials from 1943 to 1981 (Energy Systems 1994a). Located just east of the OLF, the Boneyard consisted of a series of unlined earthen trenches that served as an active waste-disposal site from 1943 to 1970 (Energy Systems 1994a). The Boneyard received unknown quantities of organic and radioactive chemicals, metals, debris, acids, beryllium, and construction spoil material. Metal chips were ignited with solvents in burn pans in the southwest corner of the Boneyard. Once filled, the trenches were covered with topsoil and seeded with grass.

The Burnyard was located directly southwest of the Boneyard, consisted of 2 acres, and received sanitary refuse including solids, liquids, and sludges from plant operations from 1943 to 1968 (Energy Systems 1994a). These materials were burned daily (Bailey 1995b); once filled, this area was also covered with a soil layer.

The Hazardous Chemical Disposal Area was built directly over the Burnyard for the disposal of wastes posing physical hazards within the Y-12 Plant from 1975 to 1981. Solid, liquid, and gaseous wastes were burned or neutralized in the Hazardous Chemical Disposal Area. The two sources of the Hazardous Chemical Disposal Area waste were gas cylinders and laboratory chemicals (acids, bases, organic chemicals, water-reactive compounds, and explosive compounds such as picric acid, benzoyl peroxide, and ether). Some chemical residues from this site were removed periodically and transported to the BGs (Energy Systems 1993b). In 1989 the Hazardous Chemical Disposal Area was covered with a RCRA-type cap (Energy Systems 1991).

Bear Creek Burial Grounds (BGs). Located approximately 2 miles west of the Y-12 Plant, the BGs encompass approximately 350 acres and consist of multiple unlined trenches that received a variety of wastes from 1955 through 1989. The principal waste-disposal units were designated as BG-A, BG-B, BG-C, BG-D, BG-E, BG-J, Walk-In Pits (North and South), Oil Retention Ponds (ORPs) 1 and 2, and the Uranium Vaults; each unit is collectively referred to in this document as the Burial Grounds. BGs-A, -B, -C, -D, -E, and -J consisted of a series of trenches used for the disposal of diverse liquid and solid wastes (Energy Systems 1994a), some of which were classified. Since the primary intent of the BGs was to sequester radioactive contamination, comprehensive inventory records regarding other waste types were not maintained; therefore, much uncertainty exists regarding the identities and quantities of waste disposals in the BGs (Energy Systems 1994a). Known contaminants include U, Th, Be, Li, Tc, Hg, oils (some containing PCBs), coolants, solvents, acids, caustics, salts, shop waste, debris, asbestos, cleaning solutions, and paints. Many of these substances contained varying amounts of radioactive contamination. In addition, some of the wastes were pyrophoric, explosive, and/or incompatible. The two ORPs were constructed in 1971 and 1972, respectively, to prevent downstream transport of soil (some with PCB contamination) from BG-A. Currently capped areas include BG-A, the ORPs, the Walk-In Pits, BG-C West, most of BG-B, and part of BG-C East.

Bear Creek Valley Floodplain (Floodplain). The Floodplain extends along the length of Bear Creek from Bear Creek kilometer 12.10 to the intersection of White Wing Road and Hwy 95. The floodplain is defined by the low relief surface on the alluvium from the banks of the low-water channel to the base of the valley walls. The distal extent of the floodplain is demarcated by the observable increase in the slope of the valley walls. Importantly, the floodplain represents a dynamic system with features that are continually being created or destroyed. During flooding events, sediments suspended in Bear Creek are carried over the creek's banks and deposited in the floodplain. Over time, the sediments are gradually moved downstream. Because the stream's velocity is high and suspended sediments occur in low concentrations, sedimentation rates are typically low (Energy Systems 1995). Sampling and analysis of sediments and soils in the Floodplain have demonstrated the presence of several analytes, primarily uranium and PCBs (Energy Systems 1995).

Disposal Area Remedial Action Solids Storage Unit (DARA). Located north of Bear Creek Road and approximately 1.5 mile west of the Y-12 Plant complex, the DARA unit began use in June 1989 as a temporary storage facility for contaminated materials generated from disposal area remedial actions. The DARA unit is filled to its capacity of 4000 yd^3 and contains sediments and soils contaminated with PCBs, toxic metals, low levels of depleted uranium and VOCs, and excavation wastes generated during RCRA closure of ORPs 1 and 2 (DOE 1993a). The contaminated

soils and sediments were typically saturated with free liquids. No ignitable, reactive, or corrosive wastes are stored at the DARA unit (DOE 1993a). Wastes placed in the DARA unit were highly contaminated with PCBs at concentrations up to 6000 ppm (DOE 1993a).

The unit consists of reinforced concrete floors and walls, a pre-engineered metal frame, siding, and roof. The concrete is lined with dual impermeable synthetic membranes separated by a liquid collection system for leak detection. All liquid on the pile drains to sumps located on either side of the building and is subsequently pumped to tanks in the DARA Liquid Storage and Treatment Unit. The liquid is then removed for treatment at a Y-12 facility (DOE 1993a).

Oil Landfarm Storage Pad Facility (OLF SP). Located approximately 1 mile west of the Y-12 Plant and accessible from Bear Creek Road, the OLF SP unit provides long-term, albeit interim, storage for contaminated soils and solid excavation wastes that were generated during RCRA closure of the OLF and ORPs at the Y-12 Plant. The first disposals (in 1989) were placed on the concrete pad that was later enclosed inside a Rub Vinyl building stretched over a metal frame that provided a roof and walls. Contaminants included organic chemicals, heavy metals, pesticides, PCBs (>25 ppm), and low levels of depleted uranium. At this time, there are no plans to add more waste to the facility, which is filled to capacity (approximately 570 yd^3).

Bear Creek Road Debris Burial Area (BCR DB). The BCR DB is located west of the Y-12 Plant and south of the BY/BY, near the intersection of Old Bear Creek Road and Bear Creek Road. No plant records have been located to date that describe the disposals made to the BCR DB. In fact, the site was discovered during sampling activities at the Floodplain. This burial site is approximately 300 ft by 100 ft and contains construction debris and coal ash, partially burned coal, cafeteria waste (dishes, crockery, bottles, etc.), and miscellaneous wastes, including small amounts of laboratory glassware. Dense vegetation has covered the site (Walker 1996).

Creekside Debris Burial Area (CS DB). The CS DB is located along Bear Creek, approximately 300 ft from the point at which the southern portion of NT-1 enters the creek. This burial area contains primarily construction debris, some of which is visible. Low levels of uranium and PCBs have also been detected. Although only a small area (approximately 75 ft by 75 ft) is exposed, the adjacent elevations and landform morphologies suggest that the site may extend eastward toward the Y-12 plant (Walker 1996).

F.2.1.2 Groundwater and Leachate Data

Groundwater. The groundwater data have been taken quarterly from 1986 to the present, primarily as a part of the Groundwater Protection Program's Y-12 Plant Groundwater Monitoring Program. The data from these monitoring efforts are reported annually in the Y-12 Plant Groundwater Quality Assessment Reports. The nonradiological data taken as part of the Groundwater Monitoring Program sampling efforts were used in this BHHRA. Radiological groundwater data were recently taken for a selection/subset of BCV groundwater wells (for wells representing each source area and the Maynardville limestone exit pathway), and these radiological data were used in this BHHRA; the historical radiological groundwater data were determined to be inadequate for use in the BCV RI, BHHRA, and FS, principally because the result uncertainties and result minimum detectable activities were, in most cases, too high. The reader should refer to Appendix B, Chapter B.7, and Appendix D, Sect. D.4.2 and Chapter D.5, for a thorough discussion of the groundwater data (and data quality) used in the BCV RI and BHHRA. Other recent

groundwater data (organic, inorganic, and radiological data) were taken as part of the BCV OU1 sampling efforts (Energy Systems 1994a) and are also included in the BHHRA groundwater data sets.

Leachate. Historical (1993) BGs leachate data (representing shallow groundwater in the BGs) were obtained from the Y-12 Environmental Restoration (ER) Site-OREIS (Oak Ridge Operations Office Environmental Information System) [i.e., Bechtel Environmental Information Data Management System (BEIDMS)]. The quality of these data were not evaluated by the Lockheed Martin Energy Research Corporation (LMER) Risk Analysis Section; refer to Appendix D, Sects. D.8.5 and D.8.6, for an evaluation of the quality of these data. No validation qualifiers were available for these data; however, lab qualifiers were used/applied when available. In addition to these historical data, good quality (refer to Appendix D), recent (1995), radiological leachate data were available and used in this BHHRA.

F.2.1.3 Surface Water, Spring Water, and Fish Data

Surface water. The majority of the surface water (and spring water) data used in this BHHRA were taken recently as part of the BCV OU4 sampling efforts (i.e., RI field activities) (Energy Systems 1993b); National Pollutant Discharge Elimination System (NPDES) compliance data were also used. In addition, a few radiological surface water samples were taken as part of the 1995 radiological groundwater sampling effort. Appendix B, Chapter B.4, and Appendix D, Sect. D.4.3, provide a thorough discussion of the surface water data (and data quality) used in the BCV RI and BHHRA. The reader should note that total uranium concentrations (mg/L) were not available for all surface water sampling locations; total uranium was not analyzed for in the BCV OU4 sampling activities, but data (for many surface water locations) are available from Groundwater Monitoring Program sampling activities.

Fish. The fish fillet data used in this BHHRA (1994 to 1995) were taken as part of the Biological Monitoring and Abatement Program; data through 1993 are reported in the Biological Monitoring Program Report on BCV (Energy Systems 1995b). These fish fillet data include mercury, PCB-1254, and PCB-1260 concentrations in Rock bass and Redbreast fish fillets at the BCK-0.6 and -4.5 creek locations (these fish are not routinely observed above BCK-4.5).

F.2.1.4 Soil, Floodplain Soil, and Sediment Data

The nature and extent of soil contamination in BCV were evaluated from data taken as part of two RI field activity sampling events: BCV OU1 (Energy Systems 1994a) and the Floodplain soils/sediments (Energy Systems 1995a) RI field activities. Appendix B, Chapter B.3 (source area soils) and Chapter B.5 (floodplain soils/sediments), and Appendix D, Sect. D.4.1, provide thorough discussions of the data collected (including sampling locations; Appendix B, Fig. B.50) and the data quality [including quality assurance/quality control (QA/QC) and validation] used in the BCV RI and BHHRA.

The source area soils data taken as part of the BCV OU1 field activities were taken primarily at locations adjacent to the capped source areas to determine the nature and extent of surface erosion to that area and/or lateral movement of the contamination (refer to Appendix B, Chapter B.3); for uncapped areas (e.g., BY/BY), soil samples were taken at identified contaminated hot spot locations. Further information regarding the sampling location rationale is provided by Energy Systems (1994a). Soil samples were taken at and adjacent to the S-3 Ponds, BY/BY, OLF, SLF-1, BGs, and in two newly identified areas, BCR DB and CS DB.

The floodplain soils and sediments data taken as part of the Floodplain soils sampling efforts (Energy Systems 1995a) were intended to address possible impacts (i.e., contamination) of upstream sources (refer to Appendix B, Fig. B.50, for sampling locations). Data collected for floodplain soils and sediments and creek and tributary sediments were used in this BHHRA.

F.2.1.5 Historical Waste Inventory and Soil Inventory Data

S-3 Ponds soil/sediment/sludge waste inventory data. In preparation for closure of the S-3 Ponds in 1988, sediments from the "Blue Lagoon" in Bear Creek were placed in the southwest cell of the S-3 Ponds. Historical characterization data are available for these creek sediments (Turner and Kamp 1984). In addition, historical data are available for the soil/sludge wastes of the former ponds (Energy Systems 1994a). These data were used to develop a source term for the S-3 Ponds (to develop representative contaminant concentrations for the S-3 Ponds as a whole) (refer to Appendix A, Sect. A.1.3.1 and Table A.3, for detailed descriptions of the source term data used in the RI and this BHHRA).

BGs waste inventory data. A substantial effort was undertaken to estimate the primary wastes, quantities of wastes, and representative soil concentrations for the waste contaminants (i.e., the source term) for the waste materials delivered to the BGs during their operation (1950s to 1980s). The primary sources of these data are the classified inventory (Bailey 1983) and the data on the Waste Management Inventory-Manifest System. A detailed description of the inventory review, inventory summary, and estimations of waste quantities and contaminant concentrations for each BG area (e.g., BG A-North) is given in Appendix A, Sect. A.1.3.5 and Chapter A.7 (also refer to Appendix A, Tables A.13 to A.27).

DARA soil inventory data. The DARA facility is filled to capacity with approximately 4000 yd^3 of contaminated soils, sediments, and wastes from the remediation activities during the RCRA closure of the BGs ORPs 1 and 2 (including sediments from Tributary 7). Historical soils data for DARA were taken as part of the *DARA Sampling and Analysis Plan* (DARA 1993), obtained from BEIDMS, and are reported in summary format only in a memorandum (Mattie 1994). These summarized soils data [i.e., minimum, maximum, mean, and 95% upper confidence limit (UCL95) concentrations] were used to develop the source term for the DARA (raw data were not available), and these summarized data are available for detected analytes only. No inorganic analytes were measured/analyzed for the DARA soils and only isotopic uranium was measured [i.e., total uranium (mg/kg) was not measured]; organic data are also available [refer to Mattie (1994) for details on the analytical analyses performed and Appendix A, Sect. A.1.3.5 and Table A.12, for detailed descriptions of the DARA source term data used in this RI and BHHRA].

OLF SP soils data. The OLF SP facility is filled with approximately 570 yd^3 of contaminated soils and wastes generated during the RCRA closure of the OLF and ORPs (DOE 1993a). Historical (1989) soils data (Bohrman 1989) are stored electronically on BEIDMS and contain concentrations of isotopic uranium, PCBs, and inorganic contaminants; VOCs and semivolatile organic compounds (SVOCs) were analyzed for but were nondetectable and were not included in the database. Because no lab or validation qualifiers are available, all reported analytes were considered to be detected. Appendix A, Sect. A.1.3 and Table A.7, provide descriptions of the data and discussions of the data quality used in this BCV RI and BHHRA.

OLF soils-in-place data. OLF soils-in-place are soils contaminated with low-level PCBs and uranium remaining beneath the multilayer RCRA cap (RCRA closure in December 1990). Historical (1985, 1986, and 1989) soils data are available (Bohrman 1989) for PCBs and total uranium and are

stored electronically on BEIDMS. These data were used to develop the source term for the OLF. No validation qualifiers are available for these data; however, lab qualifiers were used/applied when appropriate. Appendix A, Sect. A.1.3 and Table A.8, present detailed descriptions of these historical soils data (and a discussion of the data quality) used in the BCV RI and BHHRA.

F.2.2 DATA EVALUATION CONSIDERATIONS

As a reminder, for the purposes of this BHHRA, the BCV CA comprises six functional areas (S-3 Ponds, OLF, SLF-1, BY/BY, BGs, and western Floodplain area); the DARA, OLF SP, BCR DB, and CS DB areas; and the valley-wide groundwater, surface/spring water, and floodplain soils/sediments. All data (soils, surface water, groundwater, etc.) were aggregated in this BHHRA to best represent these source areas in terms of a risk evaluation. Some data (surface water, groundwater, and floodplain soils and sediments) were also evaluated on a location-by-location/well-by-well basis to provide the reader and the FS with valley-wide (and location-specific) risk information.

Most data for this RI were obtained electronically by Science Applications International Corporation (SAIC) from the Y-12 ER Site-OREIS (i.e., BEIDMS); some data were input manually from historical documents/inventories (refer to Sect. F.2.1.5 for specific information on the sources of these historical data). Data for this BHHRA (with the exception of the historical waste and soil inventory data sets discussed in Sect. F.2.1.5) were obtained from SAIC by the LMER Risk Analysis Section after the data had been through rigorous data quality evaluation, minimum detectable activities and uncertainty screens (for radionuclides), background screening/comparison, and weight-of-evidence analysis; i.e., after site-related contaminants were identified. Appendix D, Chapter D.4, presents the detailed methodologies used in these screenings/evaluations and the results of these evaluations.

Site-related contaminants for the BCV RI, including the BHHRA, were determined for each medium for each sampling location in the BCV CA; the details of this process (i.e., identifying site-related contaminants) are described in Appendix D, Chapter D.4. In general, site-related contaminants are determined by collecting available historical and new data, evaluating the quality of the data, identifying detected analytes, screening the analyte concentrations against appropriate background concentrations, and applying additional sample-specific weight-of-evidence (e.g., best professional judgment) criteria. The identified BCV site-related contaminants (refer to Appendix D, Chapter D.4) were obtained from SAIC by the Risk Analysis Section and were evaluated in this BHHRA.

Specifics on the background data used for this RI (and BHHRA) and the details of the screening processes are described in Appendix D, Chapter D.4. Data from the Background Soil Characterization Project (Energy Systems 1993c) horizons A, B, and C for the Dismal Gap and Nolichucky formations were combined to form the background data set for the BCV soils data (refer to Appendix D, Sect. D.4.1); the soil background values used in this RI are reported in Appendix D, Table D.5. Background/reference data for the BCV sediments were collected as part of the floodplain soils/sediments (Energy Systems 1995a) RI field activities (sampling); the sediment background values used in this RI are reported in Appendix D, Sect. D.4.1, Table D.5a.

Historical nonradiological groundwater data taken as part of the Groundwater Monitoring Program for the Y-12 Plant were used to represent groundwater background concentrations (Energy Systems 1996a); the groundwater background values used in this RI are reported in Appendix D,

Table D.10. Background surface water data from NT-13 were taken as part of the Groundwater Monitoring Program for the Y-12 Plant; the surface water background values used in this RI are reported in Appendix D, Table D.12. The historical inventoried soil/waste data (i.e., S-3 Ponds soil/sediment/sludge waste data, OLF SP soil data, DARA soil data, OLF soils-in-place data, and BGs waste inventory data) and the hot-spot soils data (for BY/BY, BGs, BCR DB, and CS DB) were not screened against background.

F.2.3 DATA EVALUATION AND PREPARATION

Essential nutrients. Essential nutrients (Ca, Mg, Fe, K, and Na) were not considered to be site-related contaminants (refer to Appendix D, Chapter D.4), and risks were not assessed in this BHHRA for essential nutrient data taken as part of the RI field activities; for the historical inventoried soil and waste data and for the hot-spot soil data, these essential nutrients are assessed qualitatively in the toxicity assessment chapter of this BHHRA (refer to Sect. F.4.7.4). Toxicity profiles and toxic levels of these essential nutrients are provided in Sect. F.4.7.4 also. EPA Region IV also considers chloride, phosphorus, and iodine to be essential nutrients (EPA 1995a); however, these analytes were considered as site-related contaminants (if above background) and were evaluated qualitatively in this RI/BHHRA due to the late issuance of this guidance (referring to essential nutrients) relative to the BCV RI project schedule. Summaries of essential nutrient concentrations per medium are available in Appendix D tables; the summary of all data (including essential nutrient information for the historical inventoried data and hot-spot data) is located in Tables F.1 to F.9.

Detection criteria, detection limits, and calculations. When calculating summary statistics for the nonradiological site-related contaminants (Sect. F.2.4) and the COPCs (Sect. F.2.5), one-half of the detection limits for nondetects were used (EPA 1989a). For detailed information on the range of detection limits for each analyte (and complete lists of all analytes analyzed for) for the BCV groundwater, surface water, soils, and floodplain soils/sediments, refer to Appendix B and Tables B.7, B.12, B.5, and B.31, respectively. For radiological site-related contaminants and COPCs, if the result/concentration was less than the reported uncertainty or less than the minimum detectable activity, the analyte was considered to be a nondetect at that value (at the reported result concentration) and was used as such in summary statistics calculations; negative radiological results/concentrations were set to zero and considered to be nondetects (refer to Appendix D, Chapter D.4, and Figs. D.2 and D.3).

For the historical waste and soil inventory data (i.e., data described in Sects. F.2.1.5 and F.2.3.4), all (with the exceptions noted in Sect. F.2.3.4) reported and/or estimated analyte concentrations were considered to be detected (i.e., all contaminants were considered to be detected and site-related).

Tentatively identified compounds (TICs). Appendix B, Chapter B.8 provides discussions regarding the TICs found in the various BCV data sets; TICs were not evaluated in this BHHRA.

Specific chemical and radiological assumptions and assignments. In general, the following assignments and assumptions were made for the site-related contaminants in the BCV BHHRA data sets; assumptions and assignments specific to a particular data set are reported in Sects. F.2.3.1 to F.2.3.4. Synonyms for site-related contaminants were changed to be consistent within this BHHRA. Chromium was evaluated as chromium VI (the laboratory did not distinguish valences; therefore, the most toxic form of each analyte was evaluated to be protective of human health. Uranium isotope

($^{234, 235, 238}U$) concentrations (pCi/g and pCi/L) were calculated from total uranium concentrations (mg/kg and mg/L) using specific activities [and assuming a natural isotopic distribution (NRC 1988)] when specific isotopic data were not available. Similarly, ^{232}Th concentrations were calculated from total thorium metal concentrations when isotopic ^{232}Th data were not available. Radiological $^{89/90}Sr$ was evaluated as ^{90}Sr, $^{239/240}Pu$ was evaluated as ^{240}Pu, and radium (total alpha) was evaluated as ^{226}Ra.

Mercury was evaluated as elemental mercury (with the exception of the dermal evaluation in which it was evaluated as inorganic mercury salts); this assumption was made because there is a toxicity value for elemental mercury only. Nickel was evaluated as nickel soluble salts and total uranium was evaluated as uranium soluble salts because of available toxicity information. Ammonia nitrogen concentrations were converted to ammonia concentrations. Chlordane and alpha-, gamma-, and technical-chlordanes were evaluated as chlordane. Bis(2-chloro-1-methyl-ethyl)ether was evaluated as the technical form; boron was evaluated as boron & borates only; 1,2-dichloroethene was evaluated as mixed-isomers (when cis- and trans- were not specified); dimethylbenzene was evaluated as a xylene mixture; and Aroclors 1221, 1232, 1242, 1248, and 1260 were evaluated as PCBs (these analytes will be referred to as PCBs throughout this BHHRA; e.g., PCB-1221). Other chemical assignments and assumptions are discussed in Sects. F.4.3-F.4.5.

F.2.3.1 Groundwater and Leachate Data

Groundwater. Site-related contaminants for groundwater were identified and evaluated in this BHHRA. The reader should refer to (1) Sect. F.2.1.2 for a description of the groundwater data used in this BHHRA; (2) Appendix B, Chapter B.7, and Appendix D, Sects. D.4.2 and Chapter D.5, for a thorough discussion of the data quality; and (3) Appendix D, Sect. D.4.2 for the specific results of the background and weight-of-evidence comparisons/screens.

For this BHHRA, groundwater data were selected and aggregated to best represent each of the source areas/functional areas, based on high groundwater risks, hazard quotients, and/or concentrations (i.e., groundwater data from the most contaminated wells were used to represent each source area). Groundwater data aggregates were constructed to represent each source area as follows [note: the wells/locations listed in italics have radiological data taken as part of the 1995 radiological sampling efforts and/or as part of the BCV OU1 RI field activities]: **S-3 Ponds** (using GW-100, -101, -103, -122, -127, -236, *-243*, -244, -245, -246, -247, -276, -277, -309, -346, -526, *-537*, *-615*, and -618); **BY/BY, OLF, and SLF-1** (using GW-003, *-005*, -007, -010, *-087*, -225, -226, -229, -364, -365, and *-794*; *SL1-01*; and *BY-02, -03, -04, -06, and -09*); **BGs** (using *GW-014*, -027, -039, *-040*, -046, -053, -068, -071, -082, -242, *-258, -291, -623, -624, and -626*; and *BG-01, -02, -03, -04, -12, -13*); and **Floodplain (western BCV) area** (using *GW-710, -711, -712, -713, -714, and -715*).

The groundwater data in Picket wells were also evaluated separately to support the BCV FS and provide the reader with Maynardville exit-pathway risk information and were aggregated as follows [note: the wells listed in italics have radiological data taken as part of the 1995 radiological sampling efforts and/or as part of the BCV OU1 RI field activities]: **Picket A** (using GW-054, -056, -057, -683, *-684*, and -685); **Picket B** (using GW-621, -694, -695, 703, -704, and *-706*); **Picket C** (using GW-064, -723, -724, -725, -736, -737, -738, -739, and -740); and **Picket W** (using *GW-710, -711, -712, -713, -714, and -715*).

Data from groundwater wells were also evaluated on a well-by-well basis to provide the reader and the FS with valley-wide and location-specific risk information.

Leachate. Site-related contaminants were identified for the BGs leachate representing shallow groundwater in the BGs using the historical (1993) BGs leachate data and recent (1995) radiological leachate data. Sect. F.2.1.2 provides a more thorough description of the leachate data used in this BHHRA, and Appendix D, Sects. D.8.5 and D.8.6 presents discussions of the data quality and data evaluations. The reader should note that the quality of these data was not evaluated by the Risk Analysis Section, and a background screen/comparison was not performed on the leachate data. Validation qualifiers were not available for the 1993 historical data; however, lab qualifiers were used/applied when available. Four leachate sampling locations were individually evaluated in this BHHRA: (1) Seep 1, (2) Seep 2 (south manhole), (3) Seeps 3&4 (north manhole), and (4) Seep C-west Toe (middle manhole). New (1995) radiological leachate data were not collected for Seeps 3&4; therefore, uranium isotope concentrations ($^{234,235,238}U$) were calculated using the historical data for this sampling location by converting from total inorganic uranium (mg/kg) to isotopic uranium (pCi/g) using specific activities (and assuming a natural isotopic distribution). No inorganic data were available for Seep 1, and for Seeps 1, 2, and C-west Toe, many of the measured isotopic radionuclides were nondetects.

F.2.3.2 Surface Water, Spring Water, and Fish Data

Surface/spring water. Site-related contaminants for surface water (and spring water) were identified and evaluated in this BHHRA. For additional information, the reader should refer to (1) Sect. F.2.1.3 for a description of the surface water data used in this BHHRA; (2) Appendix B, Chapter B.4, and Appendix D, Sect. D.4.3, for a thorough discussion of the data quality and validation; and (3) Appendix D, Sect. D.4.3, for the specific results of the background and weight-of-evidence comparisons/screens.

Surface water data for this BHHRA were selected and aggregated based on the geographical sampling location to best represent each of the source areas/functional areas. Surface water data aggregates were constructed to represent each source area as follows [note, the locations listed in italics (all surface water locations in this case) have radiological data taken as part of the 1995 radiological sampling efforts and/or as part of the BCV OU4 RI field activities]: **S-3 Ponds** (using *SS-1, BCK-12.36, BCK-S3, and NT-1*); **BY/BY, OLF, and SLF-1** (using *NT-2, NT-3, and BCK-11.97*); **BGs** (using *NT-7, NT-8, SW-01, and SW-02*); and **Floodplain (western BCV) area** (using *SS-6e, SS-6w, SS-7, SS-8, BCK-0.63, and BCK-4.55*). The surface water and spring water data at BCK-9.4 and SS-5 were also evaluated as an aggregate to support the BCV FS and the current valley-wide contaminant migration Integration Point Assessment in the RI (Appendix E, Chapter E.3).

Data from surface and spring water sampling locations were also evaluated on a location-by-location basis to provide the reader and the FS with valley-wide and location-specific risk information.

Fish. The fish fillet data used in this BHHRA were taken as part of the Biological Monitoring and Abatement Program and are reported (through 1993) in the Biological Monitoring and Abatement Program report on BCV (Energy Systems 1995b). These fish fillet data include mercury, PCB-1254, and PCB-1260 concentrations in Rock bass and Redbreast fish (fillets) at the BCK-0.6 and -4.5 creek locations (1987 to 1995). For purposes of this BHHRA, the most recent data (1994 to 1995) were chosen to best represent the current conditions of potential contamination in BCV fish. Upon evaluation of these most recent data (only Rock bass data are available from 1992 to 1995), it was noted that there are large seasonal variations in the mercury and PCB fillet concentrations; therefore, to be protective of human health, the maximum detected fillet concentrations for mercury

and for the two PCBs in the 1994 to 1995 data will be used in this BHHRA. These fish fillet data will be evaluated for the Floodplain (western BCV) area and will be aggregated to include all fish types (male and female Rock bass) for all locations (BCK-0.6 and -4.5) for the two most recent years of data (1994 to 1995).

F.2.3.3 Soil, Floodplain Soil, and Sediment Data

Site-related contaminants for soils and sediments were identified and evaluated in this BHHRA. For additional information, the reader should refer to (1) Sect. F.2.1.4 for a description of the soils and sediments data used in this BHHRA; (2) Appendix B, Chapters B.3 and B.5, and Appendix D, Sect. D.4.1, for a thorough discussion of the data quantity and quality (including QA/QC and validation); and (3) Appendix D, Sect. D.4.1, for the specific results of the background and weight-of-evidence comparisons/screens.

For this RI and BHHRA, the source area soils data were selected and aggregated to best represent each of the six functional areas and the OLF-SP, DARA, BCR DB, and CS DB areas. The soils data in the BGs were assigned to specific locations (e.g., BGs A-south) when possible. Soils data from 0 to 8 ft were aggregated/combined for each sampling location and used in this BHHRA. [Note: the hot-spot soils data for the four locations (BY/BY, BGs, BCR DB, and CS DB) were taken from approximately 0 to 0.5 ft.]

Floodplain sediment data were evaluated for each sampling location, and soils data were evaluated for each transect. Soils data for all locations within a transect were aggregated to represent site-related contaminants for each transect. In addition, soil and sediment data collected west of the BGs (between the BGs and Hwy 95) were aggregated (soils separately from sediments) and evaluated for the Floodplain (western BCV) area in this BHHRA. All available floodplain soils data (from 0 to 32 in.) were aggregated for each sampling location and used in this BHHRA.

F.2.3.4 Historical Waste Inventory and Soil Inventory Data

S-3 Ponds soil/sediment/sludge waste inventory. Site-related contaminants were identified for the S-3 Ponds soil/waste using the historical Ponds soil/sludges and Blue Lagoon sediment data; an estimated source term was determined (refer to Appendix A, Sect. A.1.3.1 and Table A.3). All contaminants listed in the data set (i.e., source term) are considered site-related contaminants in this BHHRA. Sect. F.2.1.5 provides a description of the S-3 Ponds soil/waste data used in the BHHRA, and Appendix A, Sect. A.1.3.1, presents detailed discussions of the development of this source term data set. A background screen/comparison was not performed on this historical soil/waste data. Concentrations were available in this historical data set for chromium VI and total chromium; therefore, the total chromium reported in the data set was evaluated as chromium III in this BHHRA.

BGs waste inventory. Site-related contaminants [i.e., any/all contaminants identified in the BGs waste inventory (Appendix A, Chapter A.7 and Tables A.13–A.27)] were identified for the BGs buried wastes using historical records of disposals. Sect. F.2.1.5 provides a more thorough description of the BGs waste inventory data used in the BHHRA, and Appendix A, Sect. A.1.3.5 and Chapter A.7, presents detailed discussions of the development of the source term data set. A background screen/comparison was not performed on these estimated historical waste inventory data. Chromium compounds listed in the BGs inventory was evaluated as chromium VI, ether was evaluated as ethyl ether, mixed acids were evaluated as aqueous hydrogen chloride, trichloroethane was evaluated as 1,1,2-trichloroethane, and Freon was evaluated as Freon-113 in this BHHRA. In

addition, total U, Th, and Tc concentrations (mg/kg) were reported; therefore, radiological $^{234,235,238}U$, ^{232}Th, and ^{99}Tc concentrations (pCi/g) were calculated using specific activities.

DARA soils inventory. Site-related contaminants were identified using the 1993/1994 historical summarized soils data for DARA (Mattie 1994) currently stored electronically on BEIDMS. Any detected analyte in the DARA soils is considered to be a site-related contaminant in this BHHRA. Sect. F.2.1.5 describes the DARA soils data used in this BHHRA. Information was not available to evaluate the quality of the summarized data, and a background screen/comparison was not performed on these historical soil data. Only detected analytes were reported for the historical summarized DARA soils data (Mattie 1994), and because of the uncertainty of how the reported UCL95 concentrations were calculated, the maximum detected concentrations for each SRC will be used in this BHHRA.

OLF SP soils inventory. Site-related contaminants for the OLF SP soils were identified using the historical (1989) soils data stored electronically on BEIDMS. All analytes reported were considered to be site-related contaminants in this BHHRA. Sect. F.2.1.5 describes the OLF SP soils data used in this BHHRA, and Appendix A, Sect A.1.3.2, presents a discussion of the data quality. Information was not available to evaluate the quality of the data, and a background screen/comparison was not performed on these historical soils/waste data. Only inorganic, PCBs, and isotopic uranium data are available in the database.

OLF soils-in-place inventory. Site-related contaminants were identified for the OLF soils-in-place using the historical (1985, 1986, and 1989) soils data located on BEIDMS; any detected analyte is considered to be a site-related contaminant. Sect. F.2.1.5 provides a description of the OLF soils-in-place data used in this BHHRA, and Appendix A, Sect. A.1.3.2, discusses the data quality. Information was not available to evaluate the quality of the data, and a background screen/comparison was not performed on these historical soils/waste data. PCBs, PCB-1254, PCB-1260, and total uranium were the only measured and reported analytes in these historical soils data. For purposes of the BHHRA, isotopic uranium concentrations (pCi/g) were calculated using the total uranium concentrations and specific activities (assuming a natural isotopic distribution).

F.2.4 SCREENING SITE-RELATED CONTAMINANTS AGAINST PRELIMINARY REMEDIATION GOALS

A Preliminary Remediation Goal (PRG) is a concentration derived from a specific excess cancer risk level (carcinogenic PRG) or a hazard quotient (HQ) (noncarcinogenic PRG). PRGs are (1) chemical-specific concentration goals for a specific land use and medium (e.g., residential use of groundwater) and (2) risk-based screening levels (i.e., initial concentration guidelines protective of human health) that are based on readily available information and comply with applicable or relevant and appropriate requirements (ARARs) (EPA 1991a).

The objective of the PRG screen is to identify those site-related contaminants most likely to contribute significantly to human health risks and HQs (EPA 1995a, 1989a). For this BHHRA, site-related contaminants with maximum detected concentrations less than the chemical-specific PRG for residential uses of water and soil (i.e., risks < 1.0E-06 and/or HQ < 0.1) are not considered to be COPCs (EPA 1995a, 1989a).

Tables F.1–F.13 contain data summaries of the detected site-related contaminants (including frequency of detection, percent detection, minimum and maximum detected concentrations) for each

of the BCV source areas/functional areas and for the well-by-well/location-by-location groundwater, surface water, and floodplain soils and sediments. These tables also contain the residential PRGs for water or soil at a risk level of 1.0E-06 and an HQ level of 0.1; PRGs were taken from *Preliminary Remediation Goals for Use at the U.S. Department of Energy Oak Ridge Operations Office* (Energy Systems 1996b). Site-related contaminants with maximum detected concentrations less than the PRGs (1) will not be included on the BCV BHHRA COPC tables, (2) are not considered to contribute significantly to carcinogenic risks and noncarcinogenic hazards, and (3) are not considered further in this BHHRA in accordance with EPA guidance (EPA 1995a). In addition, if an analyte was detected less than 5% of the time (e.g., frequency of detection < 1/20), it was not considered a COPC in this BHHRA (EPA 1989a, Energy Systems 1996c). Furthermore, the screening level(s) for lead used in the PRG screen to identify COPCs for this BHHRA was 400 mg/kg and 15 μg/L for soil and water, respectively (EPA 1995a). In addition, a concentration is not available and therefore is not listed for some contaminants (e.g., varsol, mop waters, asbestos) in the "waste inventory (soil)" medium listed in the BGs areas (refer to Appendix A, Chapters A.7 and A.8); these contaminants are reported on Table F.5 for informational purposes only but cannot be evaluated quantitatively in this BHHRA.

F.2.5 SUMMARY OF CHEMICALS OF POTENTIAL CONCERN

Tables F.14–F.39 list the BCV human health COPCs and summary statistics for each medium in each source area/functional area (Tables F.14–F.31) and for well-by-well/location-by-location analyses (Tables F.32–F.39). Quantitative and qualitative COPCs tables are provided for each area. The quantitative COPCs (i.e., approximately 98 chemicals) have EPA-approved or -suggested toxicity values and therefore can be evaluated quantitatively in terms of risks/hazards to human health in this BHHRA. Approximately 84 COPCs must be evaluated qualitatively because no EPA-approved toxicity values exist for these analytes; these qualitative COPCs will not be considered further in this BHHRA [refer to BEIAS 1995 for toxicity profiles (qualitative information) on many of these COPCs].

Each table (Tables F.14–F.39) contains the frequency of detection; minimum and maximum nondetected concentrations; minimum, maximum, and mean detected concentrations; the distribution type (L=lognormal and N=normal distribution); and the UCL95 concentration. Except where specifically noted in Sect. F.2.3, the UCL95 concentrations were calculated for the COPCs and used as the representative concentrations in this BHHRA (EPA 1989a). (The reader should note that for small sample sizes, the calculated UCL95 concentration is often larger than the maximum detected concentration; in these cases, the maximum concentration was used as the representative concentration and is listed under the "UCL95" column in the BHHRA tables.) In addition, for the "waste inventory (soil)" medium listed in the BGs areas, some contaminants with EPA-approved toxicity values (e.g., carbon tetrachloride and methanol) are listed on the qualitative table (Table F.23); these site-related contaminants are reported on these tables for informational purposes only but cannot be evaluated quantitatively in this BHHRA because estimated contaminant concentrations are not available (refer to Appendix A, Chapters A.7 and A.8, for specifics on the development of the BGs waste inventory source term concentrations). Furthermore, for the floodplain soils (by transect, Table F.36), quantitative COPCs are not identified for every transect; therefore, some transects are not included on the tables.

F.2.6 IDENTIFICATION OF UNCERTAINTIES IN THE SELECTION OF COPCS AND ESTIMATION OF REPRESENTATIVE EXPOSURE CONCENTRATIONS

The data evaluation process associated with the selection of COPCs involves compliance with established procedures and guidance as well as the development of decisions and assumptions based on historical information, disposal records, and best professional judgment concerning the data; uncertainties are associated with each of these factors. The background concentrations (refer to Appendix D, Chapter D.4) and PRGs used to screen analytes are also subject to uncertainty. In addition, the determination of the chemical form of certain analytes is subject to various assumptions. For example, because the analytical technique used is limited in its ability to determine the oxidation state of chromium in the field, the conservative assumption is generally made during the COPCs selection process that all detected chromium is in the oxidized form (chromium VI), by far the most toxic form of the element. Another area of uncertainty involves the qualitative evaluation of essential nutrients, many of which do not have available toxicity values. Finally, the toxicity values used in the derivation of PRGs are subject to change as additional information based on scientific research becomes available; these periodic changes in toxicity values may cause the PRG values to change as well.

The selection of COPCs in this BHHRA relied primarily on field measurements of analytes in primary and secondary media assessed for the RI and on historical inventory data and information. The sources of site-related contaminants are addressed in the selection of contaminants in exposure media for current environmental conditions. However, under future land use conditions, other contaminants not currently accounted for, particularly those that are either currently contained or that have slow transport velocities, may appear in secondary media at concentrations that could contribute to the calculated risk.

Uncertainty can also be introduced in the data aggregation process of estimating a representative exposure concentration in the analyzed media. First, the frequency of detection is determined for each analyte. One-half of the detection limit is used as a proxy value for all nondetected nonradiological values. For analytes with at least one detected concentration, a statistical test (Shapiro-Wilk test) is performed to determine if a normal or lognormal distribution best fits the concentration distribution. If the distribution is lognormal, nondetects are reassigned a value between zero and one-half of the detection limit based on the Lifereg SAS (SAS Institute 1990) procedure which attempts to extrapolate the lower tail of the lognormal distribution. Based on the Shapiro-Wilk test results, the analyte's mean concentration and UCL95 on the mean concentration are calculated according to the appropriate distribution (i.e., normal or lognormal). The maximum detected concentration is then compared against the UCL95 concentration; the smaller of these two measures is used as the analyte's exposure concentration. This method may overestimate the exposure concentration. In addition, when the resulting individual contaminant risks are summed, the compounding conservatism may result in an overestimate of the UCL95 of the summed risk.

Some uncertainty is associated with the contaminant concentrations detected and reported by the analytical laboratory. The quality of the analytical data used in the risk assessment depends on the adequacy of the set of procedures that specify how samples were selected and handled and how strictly these procedures were followed. QA/QC procedures (Kimbrough 1990) are used to minimize uncertainties; however, sampling errors, laboratory analysis errors, and data analysis errors can occur. Moreover, some current analytical methods are limited in their ability to achieve detection limits appropriate for use in risk assessment. Therefore, risks may be overestimated as a result of analyte concentrations being reported at the method detection limit, which may be greater than the concentration at which adverse health effects would occur.

A high, although unquantifiable, amount of uncertainty is associated with identifying site-related contaminants and COPCs in the BGs and in the determination of their representative concentrations. These uncertainties occur because most of the contaminant information for the BGs is based on historical and potentially incomplete inventory records and personnel interviews (refer to Appendix A, Chapter A.7).

Representative concentrations and other statistics were calculated in this BHHRA based on the assumption that the samples collected were truly random samples; in most cases, the data for the media in the BCV CA were not taken randomly but rather to identify high site-related contaminant concentrations. Seasonal variations in the data may also exist (especially with the groundwater and surface water data) which may not have been captured in the calculation of the COPCs concentrations.

In addition, in the evaluation of the various media, environmental concentrations were assumed to be constant (i.e., concentrations were not reduced by loss due to removal processes, such as volatilization, leaching, and/or biodegradation). Therefore, exposure concentrations are assumed to be 100% of the measured or estimated concentrations in the media.

F.3 EXPOSURE ASSESSMENT

An exposure assessment combines information about site characteristics and site-related data/information with the exposure assumptions used by the risk assessor. The objectives of the exposure assessment are to determine or estimate the magnitude, frequency, and duration of potential human exposure to site-related COPCs by:

- characterizing the exposure setting,
- identifying exposure pathways, and
- quantifying exposures.

The risk assessor (1) characterizes the exposure setting in an effort to identify the potentially exposed human receptors, the activity patterns, and any other characteristics that might increase or decrease their likelihood of exposure; (2) identifies exposure pathways based on the characterization of the exposure setting [each exposure pathway identifies a unique mechanism by which a population may be exposed to the contaminants (e.g., swimming, showering, private well use, etc.)]; (3) quantifies the exposure to a contaminant by estimating concentrations to which a receptor may be exposed; and (4) calculates a chemical-specific intake (or dose) for each exposure pathway as part of the quantification of exposure.

Once the appropriate exposure pathways and scenarios/land uses have been identified, the risk assessor must select the appropriate equations and associated parameter values to calculate the amount of contaminant that could be in contact with the body (e.g., skin, lungs, etc.) per unit body weight per unit time (i.e., intake or dose) for each exposure pathway. The output of this activity is used in conjunction with the output of the toxicity assessment (refer to Chapter F.4) to quantify risks/hazards to receptors during risk characterization (refer to Chapter F.5).

F.3.1 CHARACTERIZATION OF EXPOSURE SETTING

Characterization of the exposure setting involves identifying the general physical characteristics of the site (e.g., climate, vegetation, soil types) and the characteristics of the populations on or near the site. This characterization ensures that all potential contaminant migration pathways and potential receptors are evaluated in the risk assessment. Details of the physical and environmental characteristics (e.g., geography, demography, climate, topography, etc.) of the Y-12 Plant and BCV can be found in Appendix C of this RI Report; a brief description of the BCV CA follows.

The Y-12 Plant facility is owned by DOE, consists of approximately 800 acres, and is located along the northeastern boundary of the ORR, adjacent to the city of Oak Ridge. The BCV Watershed CA is located on the DOE-owned property of the Y-12 Plant on the ORR. The approximate BCV CA boundaries (east to west) start just west of the operational Y-12 Plant facilities, at the hydraulic divide between BCV and UEFPC, and end at Hwy 95; the BCV CA is approximately 8 miles long (refer to Appendix B, Fig. B.5). North-to-south, the BCV CA approximately encompasses the area between the ridge of Pine Ridge and the base of Chestnut Ridge. The BCV CA includes (1) five primary source areas (S-3 Ponds, OLF, SLF-1, BY/BY, and BGs), (2) the Floodplain (western BCV) area, (3) the DARA and OLF SP facilities, (4) the BCR DB and CS DB areas, (5) the Bear Creek floodplain soils and sediments, (6) the groundwater, and (7) the surface water (including spring

water) associated with BCV. Descriptions of the source areas/functional areas within the BCV CA are provided in the following text.

F.3.1.1 S-3 Ponds

The S-3 Ponds were constructed in 1951 and operated from that year until March 1983. Located at the head of the Bear Creek watershed and adjacent to the west end of the Y-12 Plant, the Ponds consisted of four unlined surface impoundments with a total storage capacity of 10 million gallons and covered an area of approximately 160,000 ft^2. The excavations during pond construction did not extend down to bedrock (Energy Systems 1994a). The Ponds received waste effluent from four different sources: (1) liquid wastes generated from Y-12 Plant and other facilities' operations, (2) sludges generated from the in situ neutralization and biodenitrification of the pond waters, (3) sludges generated from the treatment of acid raffinate, and (4) contaminated sediments from upper Bear Creek (sometimes termed "Blue Lagoon sludges").

An underground pipeline (now termed the Abandoned Nitric Acid Pipeline) constructed in 1951 was used to pump effluent containing nitric acid, depleted and enriched uranium, various metal nitrates, salts, and lead skimmings to the S-3 Ponds. This pipeline was flushed with water and plugged with grout or concrete in 1983 (Energy Systems 1994b).

Although complete and accurate records of the types and amounts of waste disposed of in the S-3 Ponds are not available, the waste has been generally classified as toxic, corrosive, and/or radioactive and consisted primarily of nitric acid, nitrate waste, pickling and plating wastes, and miscellaneous liquid wastes associated with routine clean-up operations (e.g., mop water). Other wastes included dilute acid, machine coolants, caustic solutions, acids with a pH of less than 2.0, biodenitrification sludges, and possibly metals (e.g., barium, lead, chromium, strontium), several radionuclides (including technetium and uranium), and VOCs. During the mid-1950s, uranyl nitrate solutions containing small amounts of plutonium were discharged into the ponds. Depleted uranium in nitric acid solution and technetium contained in raffinate may have been placed in the ponds while they remained in operation. The effluent received by the S-3 Ponds was usually acidic to prevent the buildup of solid sludges (Energy Systems 1994b). Non–Y-12 wastes contained, but may not have been limited to, ^{137}Cs, $^{57,60}Co$, californium, americium, iodine isotopes, ^{237}Np, ^{95}Nb, nickel isotopes, $^{238,239}Pu$, ^{109}Ru, ^{90}Sr, $^{228,230,232}Th$, ^{99}Tc, ^{95}Zr, and uranium isotopes and daughters. The waste stream concentrations of these radionuclides ranged from parts per billion to parts per million.

Influent discharge rates varied throughout the period of operation, and the amount of waste was significantly reduced when a nitric acid recovery system became operational in 1976. The estimated 2.7 million gallons of liquid waste that entered the ponds in 1983 therefore represented a reduced volume. At this time, characterization monitoring at the S-3 Ponds began in response to a Memorandum of Understanding (DOE 1983) signed by DOE, the EPA, and the Tennessee Department of Environment and Conservation (DEC.).

The Blue Lagoon consisted of two small lagoons that formed southwest of the S-3 Ponds in the mid-1970s and acted as settling basins for precipitates and sediments from the upstream S-3 Ponds area (McMahon 1988). In partial response to a Compliant and Order issued by the Commissioner of the Tennessee Department of Health and Environment (now known as DEC.) (DEC. 1983), an extensive in situ characterization of the lagoon sediments was conducted and documented by Turner and Kamp (1984). The report concluded that radioactivity (chiefly uranium) was the main contaminant of concern and that the lagoon sediments were rich in aluminum and contained elevated levels of several metals. The Blue Lagoon sediments were excavated and placed in the southwest

cell of the S-3 Ponds, and each truckload of sediment placed in the ponds was characterized by sampling and laboratory analyses (McMahon 1988).

In situ neutralization and biodenitrification of the S-3 Ponds' wastewater were conducted from 1983 through September 1984 ultimately reducing nitrate levels in the pond water to below 50 ppm. Liquid waste discharges into the ponds were terminated in March 1984. The contents of the Ponds were next allowed to settle, and from 1985 to 1986, the supernatant was pumped to the S-3 Ponds Treatment Facility for removal of trace metals and organic chemicals.

Water and sludges in the S-3 Ponds have been characterized before and after neutralization/biodenitrification remediation (Jeter 1983, Kimbrough and Turner 1987). In general, pond water remained highly acidic and dominated by nitrate anions, with extremely high concentrations of cationic constituents (e.g., Ca, Mg, K, Mn, and Al) and moderately high concentrations of trace metals. Past analyses of the pond waters indicated that concentrations of organic compounds could have been highly variable over the period of operation (Energy Systems 1994a).

In 1988, a RCRA closure plan (DOE 1988) prepared for the S-3 Ponds included in-place stabilization of the sludges. Prior to the 1988 RCRA closure, the S-3 Ponds were approximately 17 ft deep and contained variable amounts of sludge, ranging from 2 to 5 ft in thickness, that were produced by the neutralization and in situ denitrification of the pond wastewater.

The S-3 Ponds were closed with a multilayered RCRA cap in 1988 and later covered with asphalt to create a parking lot. Groundwater below the S-3 Ponds site is known to be contaminated with nitrate, metals, organics, and radioactive chemicals (Energy Systems 1994a), and the sludges remaining below the RCRA cap are known to contain metals and radioactive chemicals (Energy Systems 1994a). Final closure under RCRA was accepted by DEC. on November 15, 1990. DEC. issued a RCRA postclosure permit for the S-3 Ponds on September 30, 1991 (Energy Systems 1994a), and an agreed order was signed by Energy Systems, DOE, and DEC. in 1993 that specifically resolved the appeal of the permits and states that RCRA requirements are ARARs under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (King 1996).

F.3.1.2 Oil Landfarm

Located north of SLF-1 and Bear Creek Road, approximately 0.8 miles west of the Y-12 Plant, the OLF was a series of disposal plots (numbered 1 to 24) used from 1973 to 1982 for the biological degradation of waste oil and machine coolants via landfarming, a process involving the application of waste oils and coolants to nutrient-adjusted soil during the dry months of the year (April to October). The plots were cultivated frequently to maintain aerobic conditions for the enhancement of waste biodegradation.

Approximately one million gallons of liquid wastes [583,500 gallons waste coolant; 430,800 gallons waste oil including mineral oil (Union Carbide 1984)] were disposed of during the site's operational history (Turner et al. 1991). The machine coolants included nonsoluble oils and water-soluble mixtures consisting of approximately 5% oil and 95% water. Other wastes included oily mop waters, waste tanker oils, wastes from cooling tower basins, oils skimmed from the ORPs in the BGs, and unidentified miscellaneous liquid wastes. Because operating instructions mandated the application of different types of oils to different plots, both the composition and volume of liquid

waste varied from plot to plot (Energy Systems 1993b). In general, the east plots received more total liquid waste application than the west, which in turn received more than the north plots.

Because the typical composition of waste oils and coolants generated at the Y-12 Plant (Turner et al. 1991) is considered representative of the oily wastes disposed of in the OLF plots (Energy Systems 1994a), the landfarm waste oils and coolants may contain high levels of Ca, Fe, Na, Si, P, Cl, Zn, and Pb. Machine coolants contain barium at concentrations 10 to 50 times higher than in the oils. Known contaminants in the oils and coolants included beryllium compounds, depleted uranium, PCBs, tetrachloroethene, and 1,1,1-trichloroethane.

Historical monitoring at the site was conducted from 1975 to 1987 as part of a DOE program to identify groundwater contamination sources at the Y-12 Plant (Energy Systems 1994a). Before 1979, waste oils and coolants were not analyzed specifically for contaminants before application to the OLF. In 1979, following the identification of PCBs in a sample from one of the landfarm's disposal sources, oils were analyzed for U, Be, Th, and PCBs prior to landfarm disposal (Energy Systems 1994a). Subsequently, oils containing > 5 mg/L of PCBs were shipped for commercial disposal or stored for future incineration.

In December 1981, the analyses of wastes were expanded to include chlorinated hydrocarbons, and a maximum permissible concentration of 3% was established for concentrations of chlorinated solvents in the waste oils.

Results from several rounds of sampling for PCBs in OLF soils since 1981 revealed that the highest level of PCB concentration was 110 μg/g (Energy Systems 1993b), with the highest concentrations in the east and west plots (Energy Systems 1993b). The PCB contamination was principally confined to the upper 6 in. of the soil. An analysis of 200 soil samples collected in 1985 (Energy Systems 1994a) revealed the highest mean uranium concentration of 204 μg/g in one eastern disposal plot (Energy Systems 1994a, DOE 1993a). As with PCBs, uranium concentrations declined rapidly with increasing soil depth (Energy Systems 1993b).

Characterization monitoring was performed from 1983 until 1986 for the purpose of evaluating the extent of contamination in soils, stream sediments, groundwater, and surface water (Energy Systems 1994a). Analysis in 1983 of a number of cores from monitoring wells installed around the perimeter of the OLF identified organic contaminants including toluene, methylene chloride, tetrachloroethylene, PCBs, and trans-1,2-dichloroethene (Bechtel 1983). Soil analyses showed elevated levels of beryllium, uranium, several heavy metals, VOCs, and PCBs in five of the OLF plots (Bohrman 1989). VOCs have been detected in groundwater from wells bordering the OLF.

In 1989, soils contaminated in excess of 25 ppm PCBs were excavated at 6-in. depth increments as needed to a total depth of 0.5 to 1.5 ft (Bohrman 1989) and transported to the OLF Soils Containment Pad, also referred to as the Oil Landfarm Storage Pad (OLF SP) (DOE 1993a). Excavated areas shown to contain ≤ 25 ppm PCB were backfilled with clean borrow soil (Bohrman 1989). Final RCRA closure of the site as a landfill with a multilayered engineered cap (Energy Systems 1994a) was certified by DEC. in December 1990. Soils at the OLF remain contaminated with PCBs (< 25 ppm) and uranium (Energy Systems 1994a). The Part B approval has been submitted but has not yet been approved (Smith 1995a). If final rule administrative disposition of the Part B Permit application is made, groundwater monitoring requirements will apply to this site (Energy Systems 1994a).

F.3.1.3 Sanitary Landfill 1

Located approximately 0.8 mile west of the Y-12 Plant, north of Bear Creek and immediately south of the OLF, the SLF-1 site was used for the disposal of combustible and decomposable solid wastes from 1968 until April 1983 (Energy Systems 1993b, Bailey 1995a). The treatment of this waste as nonradioactive was based on health physics surveys, the regulatory limits of that time, and the assumption that correct disposal procedures were observed (Bailey 1996). Little recorded information exists for this site. Trenches were excavated to depths of approximately 20 ft and backfilled to approximately 15 ft above grade. Approximately 35,315 yd^3 (105,000 tons) of refuse, including materials such as paper, cardboard, plastics, rubber, wood, brush, animal bedding, organic garbage, textile products, and asphalt roofing materials, were disposed of at the landfill during its operational history (Energy Systems 1993b). Although administrative controls were used to exclude the disposal of toxic chemicals and other contaminated materials, it is possible that some of these materials were disposed of in the landfill (Energy Systems 1987). In 1985 the site was closed by grading, capping with 2 ft of clay and topsoil, and establishing a vegetative cover (Energy Systems 1994a).

F.3.1.4 Boneyard/Burnyard

The BY/BY consisted of three sites used as disposal areas for waste from the Y-12 Plant: the Boneyard, the Burnyard, and the Hazardous Chemical Disposal Area. Located just east of the OLF, the Boneyard consisted of a series of unlined earthen trenches and served as an active waste disposal site from 1943 to 1970 (Energy Systems 1994a). Unknown quantities of wastes were disposed of in the Boneyard, including organic and radioactive chemicals, metals, debris, acids, and beryllium; some of these materials were ignitable. Magnesium and other metal chips were disposed of in burn pans in the southwest corner of the Boneyard, and ignitable solvents were used to initiate the burn. The remaining residue was covered with soil and compacted until the trenches were filled. The trenches then were covered with topsoil and seeded with grass. The remaining land in the Boneyard was used to dispose of construction spoil material such as concrete and rebar.

The Burnyard was located directly southwest of the Boneyard, consisted of 2 acres, and received sanitary refuse including solids, liquids, and sludges from plant operations from 1943 to 1968 (Energy Systems 1994a). The site consisted of two unlined trenches (each approximately 300 ft long and 40 ft wide) that received an estimated annual volume of 4000 yd^3 of sanitary refuse including solids, liquids, and sludges from plant operations. Empty pesticide containers, metal shavings, solvents, oils, and lab chemicals may also have been disposed of at this site. The Burnyard was used as a place to accumulate and burn trash. Wastes were ignited daily with oils and other flammable liquids. Although past records do not indicate the disposal of PCB-containing wastes at this site, it is possible that transformer oils containing PCBs were burned there (Energy Systems 1994a, Bailey 1995b and 1996). Additional contamination from dioxin and furans may have occurred since these agents are produced when PCBs are burned at relatively low temperatures. Once filled, the trenches were covered with a soil layer.

The Burnyard is no longer visible because the Hazardous Chemical Disposal Area was built on top of it in 1975. The Hazardous Chemical Disposal Area was a small unlined surface impoundment established on approximately 2 acres directly southwest of the Boneyard. Wastes received were generally those that posed safety hazards within the Y-12 Plant. Solid, liquid, and gaseous wastes were burned or neutralized in the Hazardous Chemical Disposal Area from 1975 to 1981; these wastes were broadly characterized as ignitable, reactive, corrosive, toxic, highly flammable, or inert (Energy Systems 1994a).

As stated previously, the Hazardous Chemical Disposal Area received waste material that posed safety hazards within the Y-12 Plant; these wastes came from two sources: gas cylinders with leaking or damaged valves and laboratory chemicals considered reactive or explosive. Gas cylinders containing noncorrosive gases were allowed to leak into the atmosphere or were bled off. Those containing corrosive gases were bled through neutralizing slurries. The lab chemicals included acids, bases, organic chemicals, water-reactive compounds, and explosive compounds such as picric acid, benzoyl peroxide, and ether. Bottles of chemicals were broken under water spray in a concrete vessel that was open to the atmosphere. After the explosion or chemical reaction had taken place, the effluent was discharged into a small unlined surface impoundment and allowed to percolate through the soil. The chemical residue remaining in the concrete vessel was removed periodically and transported to the BGs (Energy Systems 1994a). Less than 5 tons of waste were disposed of annually in the Hazardous Chemical Disposal Area (Energy Systems 1993b). In 1989 the Hazardous Chemical Disposal Area was covered with a RCRA-type cap (Energy Systems 1991); no soil remediation occurred before the cap installation.

A 1985 investigation conducted by Bechtel National, Inc., on sediment samples collected downstream of the Boneyard identified elevated levels of mercury, uranium, several polynuclear aromatic hydrocarbons, and phthalates (Energy Systems 1994a). Analysis of groundwater downgradient of the area also suggested the possibility of migration of a number of contaminants from the Hazardous Chemical Disposal Area-BY/BY, including organic compounds and uranium (Turner et al. 1991).

F.3.1.5 Burial Grounds

The Bear Creek BGs are located approximately 2 miles west of the Y-12 Plant, cover an area of approximately 350 acres. and consist of several principal waste disposal units designated as BG-A, BG-B, BG-C, BG-D, BG-E, BG-J, Walk-In Pits (North and South), two Oil Retention Ponds, and the Uranium Vaults but are referred to in this document collectively as the Burial Grounds (or BGs). The Uranium Vaults were identified only recently; no historical records concerning their use have been located, and it is assumed that the vaults were never used as an active disposal site. Units A, B, C, D, E, and J consisted of a series of trenches (14 to 25 ft below grade) used for the disposal of liquid and solid wastes (Energy Systems 1994a), some of them classified. Since the primary intent of the BGs was to sequester radioactively contaminated material generated from the nuclear weapons production operations at the Y-12 facility, comprehensive inventory records regarding other waste types were not maintained; therefore, much uncertainty is associated with the identities and quantities of waste disposals in the BGs (Energy Systems 1994a). Known contaminants include U, Th, Be, Li, Tc, Hg, oils (some containing PCBs), coolants, solvents, acids, caustics, salts, shop waste, debris, asbestos, cleaning solutions, and paints. In addition, volumes of waste oils and coolants were employed routinely to bathe uranium chips prior to disposal, and some of these liquids probably contained PCBs.

Disposal in the BGs began in 1955; hazardous waste disposals were discontinued in 1981, and radiological waste disposals continued until 1991 (Energy Systems 1994a). The last disposal in the BGs consisted of sewage sludge from Oak Ridge in 1993. Large volumes of solid waste and solvents, mop waters, machine coolants, and oils were disposed of in the first disposal site, BG-A. However, no records have been found detailing the composition of initial disposals made in BG-A (trenches #1 to #5). In 1961, a surface tank was installed in BG-A to hold waste oils and coolants. The accumulations were burned, and liquids that did not burn were drained into adjacent trenches from 1961 to 1968. Because some oils burned at this site contained PCBs, dioxin/furan contamination resulting from burning of PCBs at low temperatures is likely present. Between 1970 and 1981,

volatile solvents including alcohol, tetrachloroethene, trichloroethene, and Freon were also disposed of at the southeastern end of the BG-A, termed the isolation area. Oil disposal ceased in the BGs in 1979. Other wastes received by BG-A included asbestos, beryllium, lithium, benzene, methyl ethyl ketone, technetium, depleted uranium, carbon foam, solid waste contaminated with depleted uranium, thorium, and some enriched uranium-contaminated materials (Energy Systems 1994a, Bailey 1987). BG-A was closed in place as a landfill and covered with a RCRA-engineered cap in 1989 (Energy Systems 1994a). In November 1990, DEC. granted approval for the final closure of BG-A (Energy Systems 1994a).

ORPs 1 and 2 were constructed in 1971 and 1972, respectively, to prevent downstream transport of oil (some with PCB contamination) from BG-A North. Both ponds were closed and capped under an approved RCRA closure plan in 1989 (Energy Systems 1994a). During closure operations, 3842 yd^3 of sludge, sediment, and soil were excavated from ORP 1, ORP 2, and North Tributary-7 (Energy Systems 1994a) and placed in the DARA Solids Storage Unit.

In 1962 the series of trenches in BG-B was opened and used for disposal of thorium saw fines, PCB-contaminated liquids, depleted uranium metallic chips and oxides, and some classified materials; the unit reached disposal capacity in 1968 (Energy Systems 1993b, 1994a). The area received a partial cap consisting of native soils during the 1980s (Bailey 1996). A roped-off section of BG-B indicated where extremely pyrophoric and explosive materials were buried; because of the hazardous nature of these chemicals, the location was left untended for a number of years (Bailey 1987). Several vents were installed in BG-B to prevent the buildup of hydrogen gas (Bailey 1995b), and a cap was completed over the area in 1994 (DOE 1994).

BG-C consisted of a western and an eastern portion and was opened in 1962 for the disposal of asbestos, Li, Tc, Be, beryllium oxide, Th, uranium-contaminated debris, uranium chips, solid waste contaminated with these chemicals, small quantities of acid and oils, and with small amounts of enriched uranium (Energy Systems 1993b, 1994a; Bailey 1987). BG-C West was closed in place in 1989 as a landfill and covered with a RCRA-engineered cap (Energy Systems 1993b). Part of BG-C East has been capped as well (DOE 1994).

From 1966 to 1981, the Walk-In Pits were established as an area for the disposal of a variety of chemicals that included incompatible, explosive, and pyrophoric agents; PCB-contaminated oils; unspecified laboratory wastes; thorium; beryllium; benzene; and uranium metal saw fines (Energy Systems 1994a). However, from 1981 to 1989, the Walk-In Pits were used solely for the disposal of uranium metal saw fines (Bailey 1995a, Smith 1996). In 1994 a cap was completed over the Walk-in Pits (DOE 1994).

In 1968 BG-D was opened to replace BG-B for the disposal of depleted uranium chips and oxides (Energy Systems 1993b, 1994a). BG-D was operated until 1989, and as recently as 1995, subsidence and stressed vegetation have been observed at the area (Smith 1995b).

BG-E and BG-J were opened in the early 1980s for the disposal of depleted uranium chips, oxides, and metals (Energy Systems 1993b, Bailey 1995a). Disposals made to BG-J through 1983 were also estimated to include debris and inorganic salts (Energy Systems 1994a). Areas E and J were used for the disposal of chips, metals, and oxides until sometime after 1988 when the BGs were no longer used (Bailey 1996).

Groundwater quality data collected during historical and characterization monitoring verified the presence of contaminants in groundwater at the BGs (Energy Systems 1994a). The BGs are

drained by three tributaries that may serve as sources for contaminant entry into Bear Creek surface water as well (Energy Systems 1994a).

F.3.1.6 Bear Creek Valley Floodplain

The Floodplain extends along the length of Bear Creek from Bear Creek kilometer 12.10 to the intersection of White Wing Road and Hwy 95. The floodplain is defined by the low relief surface on the alluvium from the banks of the low-water channel to the base of the valley walls. The distal extent of the floodplain is demarcated by the observable increase in the slope of the valley walls. Importantly, the floodplain represents a dynamic system with features that are continually being created or destroyed. During flooding events, sediments suspended in Bear Creek are carried over the creek's banks and deposited in the floodplain. Over time, the sediments are gradually moved downstream. Because the stream's velocity is high and suspended sediments occur in low concentrations, sedimentation rates are typically low (Energy Systems 1995).

Sampling and analysis of sediments and soils in the Floodplain have demonstrated the presence of several analytes, primarily uranium and PCBs (Energy Systems 1995).

F.3.1.7 Disposal Area Remedial Action Solids Storage Unit

Located north of Bear Creek Road and approximately 1.5 miles west of the Y-12 Plant complex, the DARA unit is accessed by way of the BGs access road. The DARA unit was constructed in early 1989 and accepted for use in June 1989 for the temporary storage of contaminated materials generated from disposal area remedial actions. These materials included sediments and soils contaminated with PCBs, extraction procedure toxic metals, low levels of depleted uranium and VOCs, and excavation wastes generated during RCRA closure of ORPs 1 and 2 (DOE 1993a). No ignitable, reactive, or corrosive wastes are stored at the DARA unit (DOE 1993a).

The unit consists of reinforced concrete floors and walls, pre-engineered metal frame, siding, and roof. For leak detection, the concrete is lined with dual impermeable synthetic membranes separated by a liquid collection system. Evidence has suggested that the liners have leaked (DOE 1993a), and investigations are underway to further investigate this possibility (Smith 1996). All liquid on the pile drains to two sumps located on either side of the building; water collected there is pumped to tanks in the DARA Liquid Storage and Treatment Unit and then removed for treatment at a Y-12 facility (DOE 1993a). Diversion channels and ditches around the DARA Solids Storage Unit intercept and divert surface run-on away from the facility. The DARA Solids Storage Unit is filled to its capacity of 4000 yd^3; approximately 50 yd^3 of the material (tree stumps, contaminated personnel protection equipment, and other waste generated during ORP closure activities) are stored at the unit in boxes and drums.

Excavated sediments from the ORPs and Tributary 7 were placed in the facility from July 1989 through October 1989. Most of the wastes placed in the DARA Solids Storage Unit were saturated with free liquid. Sediments from the Seep 1 area that were placed in the DARA unit were highly contaminated with PCBs at concentrations up to 6000 and perhaps 17,000 ppm (DOE 1993a).

As part of RCRA closure activities, large quantities of water from ORP 2 were pumped into the unit's east end in early November 1989, essentially flooding the facility (DOE 1993a). In January 1990, free liquids originating from well installation activities just south of the unit were used to reflood the area when high PCB concentrations (22,000 ppm) were found.

Solids from a gravity separator located at the nearby DARA Liquid Storage and Treatment Unit are added to the DARA unit periodically by opening an underflow valve and operating a sludge removal pump.

F.3.1.8 Oil Landfarm Storage Pad

Located approximately 1 mile west of the Y-12 Plant and accessible from Bear Creek Road, the OLF SP unit provides long-term, albeit interim, storage for contaminated soils and solid excavation wastes that were generated during RCRA closure of the OLF and ORPs at the Y-12 Plant. According to the *Resource Conservation and Recovery Act (RCRA) Part B Permit Application for Waste Piles at the Oak Ridge Y-12 Plant* (DOE 1993a), the OLF SP consists of a concrete storage pad partly above the grade of the surface (to intercept and divert surface run-ons away from the facility). When disposals to the unit were first made in 1989, the OLF SP was covered with a tarp which was subject to collection of rain water and subsequent infiltration. In January 1990 the currently existing Rubb Building was constructed, providing roof and walls. A 3- to 4-ft concrete wall, lined with two very low density polyethylene liners, serves as a dike by surrounding the periphery of the storage pad. The waste pile has a synthetic liner and is contained inside a Rub Vinyl building stretched over a metal frame with two entrances for personnel and equipment. Access to the building is controlled, and a chain-link fence topped with barbed wire surrounds the unit.

Soils stored in the OLF SP were contaminated with hazardous, radioactive wastes or a combination of both. The contaminants include organic chemicals, heavy metals, pesticides, PCBs (>25 ppm), and low levels of depleted uranium. The waste is not suspected of possessing ignitable, corrosive, explosive, or reactive characteristics. The OLF SP is filled with soils to its maximum capacity of approximately 570 yd^3. Soils in the east end were excavated in 1989 from Tributary 7 immediately north of the Oil Haul Road; these soils were dried considerably prior to placement in the OLF SP. Soils relatively free of liquids were excavated from the OLF in 1989 and placed in the OLF SP. No other soils or liquids have been placed in the unit since January 1990. No plans are underway to add more waste to the unit, and the current waste in the OLF SP will remain until the institution of appropriate treatment and/or disposal measures.

F.3.1.9 Bear Creek Road Debris Burial and Creekside Debris Burial

Bear Creek Road Debris Burial Area. The BCR DB is located west of the Y-12 Plant, and south of the BY/BY, near the intersection of Old Bear Creek Road and Bear Creek Road. No plant records have been located to date that describe the disposals made to the BCR DB. In fact, the site was discovered during sampling activities at the Floodplain. This burial site is approximately 300 ft by 100 ft and contains construction debris and coal ash, partially burned coal, cafeteria waste (dishes, crockery, bottles, etc.), and miscellaneous wastes, including small amounts of laboratory glassware. Dense vegetation has covered the site (Walker 1996).

Creekside Debris Burial Area. The CS DB is located along Bear Creek, approximately 300 ft from the point at which the southern portion of NT-1 enters the creek. This burial area contains primarily construction debris, some of which is visible. Low levels of uranium and PCBs have also been detected. Although only a small area (approximately 75 ft by 75 ft) is exposed, the adjacent elevations and landform morphologies suggest that the site may extend eastward toward the Y-12 Plant (Walker 1996).

F.3.1.10 Groundwater

The groundwater zone underlying the Bear Creek Hydrologic Regime consists of an upper saturated zone composed of unconsolidated materials and shallow bedrock and a lower saturated zone consisting of the six formations of the Conasauga Group. Depth to groundwater in the Bear Creek Hydrologic Regime varies both spatially and temporally, and the configuration of the water table generally follows the surface topography, being at high elevations beneath hills and at lower elevations in the valley bottoms.

Groundwater movement in the Bear Creek Hydrologic Regime is influenced locally by the surface drainage system and its associated solution cavities. A groundwater divide exists between the Bear Creek Hydrologic Regime and UEFPC Hydrologic Regime and is located just east of the S-3 Ponds and Spoil Area 1 sites. North of the S-3 Ponds groundwater movement is toward the south and southeast, while groundwater movement south of the Ponds is to the southwest and northeast along the valley axis, defining the groundwater divide. Groundwater in the zone underlying Bear Creek flows southwest along the valley axis. Recharge to groundwater in the BCV area is primarily from local precipitation, and recharge to the bedrock zone is most effective in places where the unconsolidated zone is thin or very permeable, such as on Pine Ridge (believed to be a major recharge area for the formations of the Conasauga Group in the BCV). Natural groundwater discharge in the BCV is through streams, springs, and evapotranspiration. Bear Creek, its tributaries, and the solution cavity system along Bear Creek are the major discharge areas for shallow and intermediate depth groundwater moving through the interbedded strata of the BCV. Groundwater discharges sustain the base flow of Bear Creek (Energy Systems 1994a).

The nature and extent of groundwater contamination in Bear Creek Valley have been determined by the analysis of sampling data obtained from approximately 250 wells distributed over nearly 700 acres. These wells were classified as either shallow (< 100 ft) or deep (> 100 ft).

Contaminant plumes emanating from the headwater source areas have been identified through extensive groundwater sampling throughout the BCV. The primary contaminants are nitrate, VOCs, metals, and uranium, and data suggest that the primary source of the contaminants (with the exception of VOCs) is the S-3 Ponds (DOE 1994). Secondary contaminant plumes containing primarily VOCs are associated with the OLF, the BY/BY, and the BGs. The majority of groundwater contamination is confined to the relatively shallow water table and bedrock groundwater system, with the possible exception of contaminants from the S-3 Ponds and dense nonaqueous phase liquids associated with the BGs.

F.3.1.11 Surface water and spring water

Formed in the shallow alluvium overlying the Maynardville limestone, the Bear Creek channel is typified by losing reaches where surface water discharges from the creek to the groundwater system and gaining reaches where groundwater discharges to the creek (Energy Systems 1994a). A solution cavity system within the Maynardville limestone, which conducts flow westward under Bear Creek, plays an important role in contaminant transport because contaminants in the surface water can be lost to the system, which extends outside the Bear Creek Hydrologic Regime (Energy Systems 1994a).

Surface water in the Bear Creek watershed receives surface and subsurface drainage containing organic and inorganic chemical contaminants from the BGs, OLF, BY/BY, S-3 Ponds, construction-related land disturbances, and several large springs. Actions taken in recent years to

reduce the contaminant influx from several of these sources into Bear Creek include closure and capping, which have led to an improved quality of the surface water in Bear Creek (Energy Systems 1993b).

Portions of Bear Creek have been demonstrated to contain a variety of analytes including tetrachloroethene, toluene, trichloroethene, other organic compounds, Al, Ba, Be, B, Cd, chloroethane, Cu, cyanide, Pb, Li, Mg, Mn, Hg, Ni, nitrate, K, Ag, Na, sulfate, Sr, Tc, isotopic uranium, vinyl chloride, and Zn (Energy Systems 1993b, 1994a). In addition, increased levels of PCBs were observed in fish and caged clams in 1987, indicating the presence of biologically available PCBs in Bear Creek surface water (Southworth et al. 1992). Several analytes have been detected at levels in excess of the EPA water quality criteria for the protection of aquatic life (Energy Systems 1993b). The primary releases to surface water are likely related to the S-3 Ponds, as suggested by the decrease in contaminant concentrations downstream from that site (Energy Systems 1993b).

F.3.2 IDENTIFICATION OF EXPOSURE PATHWAYS AND SCENARIOS

Completed and potential exposure pathways are identified by evaluating all exposure pathway components (source, transport medium, exposure point, routes of exposure, and potential receptors) relative to current and future land use. For an exposure pathway to be considered complete, each of these components must be identified and linked to each of the other components. A potential exposure pathway is one that may occur (i.e., may be complete) in the future. Routes of exposure and potential receptors are crucial in identifying the validity of an exposure pathway.

As indicated in the BCV Conceptual Site Model for Human Receptors (refer to Fig. F.1), several exposure scenarios were selected for evaluation in the BCV BHHRA; each scenario is discussed in detail in the following text. The exposure scenarios are designated as either current or future land use. The current exposure scenario evaluates those exposure pathways that are considered to occur or have the potential to occur using measured contaminant concentrations for the medium(a) of interest. The future exposure scenarios evaluate exposure pathways that are not currently occurring but have the potential to occur at a later date. In this BHHRA, current measured (or estimated) contaminant concentrations were used to represent concentrations in the medium(a) of interest in the future.

Under the current conditions, most areas in the BCV CA are auxiliary facilities and historical Y-12 Plant disposal areas. Therefore, personnel visiting or working in the BCV CA have limited exposures and include "maintenance" or "sampler" workers, fully protected from exposure to contamination via adherence to Health and Safety Plans, the use of protective equipment when necessary, and OSHA/SARA training. To be conservative in terms of protecting human health, and upon request of EPA Region IV (as a means of evaluating a current worst case scenario), potential risks to an "unprotected" maintenance worker will be evaluated in this BHHRA. Exposures to COPCs in uncapped soils (including uncapped source area soils, hot-spot soils, and floodplain soils) will be evaluated for this current hypothetical receptor. Exposures to the buried and/or capped wastes/soils, groundwater, sediments, and surface water are not considered to be completed exposure pathways for the current "unprotected" maintenance worker. The exposure pathways/routes to be evaluated for the this receptor include incidental ingestion of soil, inhalation of dust/particulates and VOCs in soil, dermal contact with the soil, and external exposure to radionuclides in the soil.

Risks from exposure to BCV COPCs will be evaluated for future industrial land use. Exposure to appropriate media including source area soils, hot-spot soils, floodplain soils, and capped and/or inventoried wastes and soils will be evaluated for the future industrial worker. [Note: for an industrial worker to be exposed to buried wastes and soils, he/she would have to dig through existing multilayer RCRA and soils caps (or the caps would have to deteriorate to the point where they are not providing a protective barrier).] The exposure pathways/routes to be evaluated include incidental ingestion of soils, inventoried soils, and inventoried wastes; inhalation of dust/particulates and VOCs from soils, inventoried soils, and inventoried wastes; dermal contact with the soils, inventoried soils, and inventoried wastes; and external exposure to radionuclides in the soils and inventoried wastes and soils.

Risks will be evaluated for a future recreational land use for the Floodplain (western BCV) area only. Exposure to BCV COPCs in the Floodplain (western BCV) area media including floodplain soils, Bear Creek sediments, surface water, and fish will be evaluated for the future recreational receptor. Exposure pathways/routes to be evaluated for the future recreational land use include incidental ingestion of floodplain soil/sediment, incidental ingestion of surface water (while swimming), inhalation of dust/particulates and VOCs in soil/sediment, dermal contact with soil/sediment, dermal contact with surface water (while swimming), external exposure to radionuclides in the soil/sediment, inhalation of VOCs from surface water (while swimming), and ingestion of fish.

A reasonable maximum exposure estimate of the risk to future human receptors in the BCV CA will be evaluated using a residential exposure scenario. Because the BCV CA is within the DOE-owned, Y-12 Plant property of the ORR and because the area between the BCV BGs and the S-3 Ponds will be evaluated in the BCV FS as industrial land use only (for current and for future land uses), such a conservative residential scenario is unlikely. However, the intent of this residential evaluation is to (1) provide managers with a conservative estimate of potential risks to future receptors from exposure to contaminants in the BCV CA media, (2) be consistent with the NCP, and (3) provide for comparisons across DOE facilities.

Exposure to COPCs in all available media including soils, hot-spot soils, floodplain soils and sediments, groundwater (and BGs leachate), surface water, capped inventoried wastes and soils, and homegrown vegetables (contaminant concentrations are modeled for this medium) will be evaluated for the future resident. The routes/pathways of exposure evaluated for the residential exposure scenario include dermal contact with the soil/sediments, inventoried soils, and inventoried wastes; dermal contact with groundwater, leachate, and surface water (while showering); incidental ingestion of the soil/sediments, inventoried soils, and inventoried wastes; ingestion of groundwater, leachate, and surface water; inhalation of dust/particulates and VOCs in soil/sediments, inventoried soils, and inventoried wastes; inhalation of VOCs from groundwater, leachate, and surface water (all indoor uses); external exposure to radionuclides in the soil/sediments, inventoried soils, and inventoried wastes; and ingestion of homegrown leafy vegetables. The reader should note that for a resident to be exposed to buried wastes or soils he/she would have to dig through existing multilayer RCRA and soil caps or the caps would have to deteriorate to the point where they are not providing a protective barrier.

For the actual current land use conditions in the BCV CA, no completed exposure pathways (nor receptors) have been identified for exposure to the BCV media for these four land uses (i.e., unprotected maintenance worker, industrial worker, resident, or recreational use). For a summary of the receptors, exposure media, and exposure pathways/routes evaluated in this BHHRA, refer to the BCV human health conceptual site model in Fig. F.1.

F.3.3 QUANTIFICATION OF EXPOSURE

In the context of risk to human health, exposure is defined as the direct contact of a person with a chemical or physical agent. To quantify exposure, one must determine exposure concentrations and calculate chemical intakes for the various exposure pathways identified for the site. The exposure concentrations and potential exposure pathways for the BCV media are considered quantitatively in this chapter.

The UCL95 exposure concentrations for each of the COPCs for each source area/functional area in this BHHRA were determined and are reported in Sect. F.2.5 and in Tables F.14–F.39. Uncertainties associated with the determination of these representative exposure concentrations are discussed in Sects. F.2.3, F.2.5, and F.2.6. The representative concentrations of the COPCs (i.e., the UCL95 concentrations) are the concentrations used to quantify exposures (intakes) via the exposure pathways identified for this BHHRA in Sect. F.3.2.

Exposure to contaminants can be evaluated quantitatively by developing the chronic daily intake (CDI) of a chemical (also termed "intake" or "dose" for exposure to radionuclides); the CDI, intake, and dose will all be termed "intake" throughout this BHHRA. For this BCV BHHRA, the intake is the amount of a contaminant that an individual takes into his/her body per day via ingestion, inhalation, or dermal contact, and it is the total exposure to a radionuclide. The first consideration in deriving the intake is the methodology employed in the development of an exposure concentration (refer to Sect. F.2.5), which is the amount of each chemical in the various media to which receptors are exposed. To calculate the intake, one evaluates the exposure concentration in the context of the scenario, exposure pathway, and chemical-specific exposure variables, such as duration of exposure and intake rate. Once the intakes for the various pathways are determined, risk and HQs can be calculated. The quantification of exposure and calculation of the intake for the hypothetical current "unprotected" maintenance worker, the hypothetical future industrial worker, recreational receptor, and resident are discussed in Sects. F.3.3.1–F.3.3.4, respectively. In general, the intake is determined using the following equations:

$$\text{Intake (nonradionuclides)} = (CS \times IR \times EF \times ED)/(BW \times AT),$$

$$\text{Intake (radionuclides)} = CS \times IR \times EF \times ED,$$

where

Intake = chronic daily intake (for nonradionuclides) and
= intake or dose (for radionuclides),
CS = contaminant concentration in the medium,
IR = intake rate,
EF = exposure frequency,
ED = exposure duration,
BW = body weight,
AT = averaging time.

Note: to evaluate the noncarcinogenic effects from exposure to COPCs in the BCV CA media, the HQ [the ratio of the exposure dose (i.e., intake) to the reference dose (RfD)] is calculated for each COPC. To evaluate the carcinogenic risk from exposure to BCV COPCs in the various media, the risk is calculated for each COPC [the multiplication of the exposure dose (i.e., intake and/or dose)

by the slope factor, which is a chemical-specific value based on carcinogenic dose-response data]. Detailed discussions of the risk and HQ calculations can be found in Sect. F.5.1.

Tables F.40–F.43 list the exposure variables (parameters) associated with each exposure pathway/route considered for the four land uses evaluated in the BCV BHHRA. The specific equations used to calculate the intakes, risks, and HQs are also given in these tables. The variables (parameters) used in each exposure equation have been derived from standards (e.g., standard intake rates, skin surface areas, and adherence factors) (EPA 1989a, 1989b, 1991a, 1991b, 1992a).

For this BHHRA, potential residential and recreational exposures to soil, sediment, and waste (via incidental ingestion) were evaluated using adult and child parameters; the intakes for potential exposures to all other media (via other pathways/routes) were determined using adult exposure parameters (Energy Systems 1996c). The soil ingestion exposure pathway/route is the only pathway evaluated in this BHHRA with a significant difference in the ratio of intake to body weight for an adult and a child (EPA 1991a). Therefore, to be conservative in terms of protecting human health, for the carcinogenic (risk) evaluation, an age-adjusted intake rate was determined for residential and recreational exposure to soil, sediment, and waste via incidental ingestion (EPA 1991a). For example, the child ingestion rate (200 mg/day) and body weight (15 kg) were assumed for 6 years, while an adult ingestion rate (100 mg/day) and body weight (70 kg) were assumed for 24 years. For evaluating noncarcinogenic hazards (HQs) from incidental ingestion of soil/sediment/waste, the adult and child were evaluated separately (EPA 1991a, Energy Systems 1996c).

F.3.3.1 Current "Unprotected" Maintenance Worker

The evaluation of the risk to the hypothetical "unprotected" maintenance worker uses site-specific information (specific to current ongoing activities in BCV) to determine the appropriate exposure parameters to use in estimating potential risks (and hazards) in the BCV CA for this receptor. The majority of the current activities in the BCV CA include groundwater well maintenance, repairs, drilling, and inspection; quarterly groundwater sampling; Biological Monitoring and Abatement Program sampling activities; mowing; cap repairs; surface water (including tributaries) sampling; biota sampling; and site inspections. Personal communications with representatives from these different organizations resulted in estimated exposure frequencies from 24 to 1000 hours per year. An average of all the exposure frequencies for these activities of 286 h/year (i.e., 36 d/year) was used to represent the exposure frequency of the "unprotected" maintenance worker in this BHHRA. The exposure parameters used in this maintenance worker assessment will also be considered representative of other potential short-term exposures in the BCV CA (e.g., a trespasser).

The potential exposure pathways/routes for the current "unprotected" maintenance worker include incidental ingestion of soil, inhalation of dust/particulates and VOCs in soil, dermal contact with the soil, and external exposure to radionuclides in the soil. Table F.40 lists the exposure parameters used to calculate intakes associated with each of these exposure pathways.

F.3.3.2 Future Industrial Worker

The potential exposure pathways/routes for the future industrial worker include incidental ingestion of soils and wastes, inhalation of dust/particulates and VOCs in soils and wastes, dermal contact with the soils and wastes, and external exposure to radionuclides in the soils and wastes. Table F.41 lists the exposure parameters that are used to calculate intakes and are associated with each of these exposure pathways.

F.3.3.3 Future Recreational Receptor

The potential exposure pathways/routes for the future recreational receptor include incidental ingestion of soil (and sediment), incidental ingestion of surface water (including spring water) while swimming, inhalation of dust/particulates and VOCs in soil (and sediment), dermal contact with soil (and sediment), dermal contact with surface water (and spring water) while swimming, external exposure to radionuclides in the soil (and sediment), inhalation of VOCs in surface water (and spring water) while swimming, and ingestion of fish. Table F.42 lists the exposure parameters used to calculate intakes associated with each of these exposure pathways.

F.3.3.4 Future Resident

The potential exposure pathways/routes associated with the hypothetical future on-site resident include dermal contact with the soil, sediments, and wastes; dermal contact with groundwater, leachate, and surface water (and spring water) while showering; incidental ingestion of the soil, sediments, and wastes; ingestion of groundwater, leachate, and surface water (and spring water); inhalation of dust/particulates and VOCs in soil, sediments, and wastes; inhalation of VOCs from groundwater, leachate, and surface water (and spring water) for all indoor uses; external exposure to radionuclides in the soil, sediments, and wastes; and ingestion of home-grown leafy vegetables. Table F.43 lists the exposure parameters used to calculate intakes associated with each of these exposure pathways.

F.3.4 IDENTIFICATION OF EXPOSURE ASSESSMENT UNCERTAINTIES

At best, quantification of exposure provides an estimate of the chemical intake for various exposure pathways identified at the site. Several uncertainties associated with the various components of the exposure assessment include uncertainties about the exposure pathway equations, exposure parameters, land use scenarios, and sampling and analysis of the media. The reader should also refer to Sect. F.2.6 for a discussion of the uncertainties associated with the development of representative exposure concentrations for each COPC.

For each primary exposure pathway chosen for analysis in this BHHRA, assumptions are made concerning the parameters, the routes of exposure, the amount of contaminated media an individual can be exposed to, and intake rates for different routes of exposure. In the absence of site-specific data, the assumptions used are consistent with EPA-approved parameters and default values which are assumed to be representative of the potentially exposed populations (EPA 1989a, 1989b, 1991a, 1991b, 1992a, 1995a); site-specific data were used to estimate exposure parameters for the BCV maintenance worker. All contaminant exposures and intakes are assumed to be from the site-related exposure media (i.e., no other sources contribute to the receptor's health risk). Even if these assumptions are true, other areas of uncertainty may apply. Selected intake rates and population characteristics (i.e., weight, lifespan, activities) are assumed to be representative of the exposed population. Most exposure parameters have been selected so that errors occur on the side of conservatism. When several of these upperbound values are combined in estimating exposure for any one pathway, the resulting risks can be in excess of the 99th percentile and therefore outside the range that may be reasonably expected. Therefore, the consistent conservatism employed in the estimation of these parameters generally leads to overestimation of the potential risk.

In addition, there is uncertainty associated with the estimation of an exposure parameter for the site-specific maintenance worker scenario. The main uncertainty is in the estimation of the frequency

of exposure. This exposure frequency parameter is variable; it depends on what specific BCV activity is being performed (e.g., cap maintenance). The 36 d/year exposure frequency chosen for this receptor is considered to be conservative in terms of protecting human health.

F.3.5 SUMMARY OF EXPOSURE ASSESSMENT

This exposure assessment combines information concerning site characteristics and site-related data/information to develop the exposure assumptions and quantify exposures (i.e., intakes) to be used in characterizing potential human health risks and hazards in this BHHRA. The objectives of the exposure assessment include determining/estimating the magnitude, frequency, and duration of potential human exposure to site-related COPCs by (1) characterizing the exposure setting, (2) identifying potential receptors, (3) identifying exposure pathways, and (4) quantifying exposures.

For purposes of this comprehensive BHHRA, the BCV CA includes (1) five primary source areas (S-3 Ponds, OLF, SLF-1, BY/BY, and BGs), (2) the Floodplain (western BCV) area, (3) the DARA and OLF SP facilities, (4) the BCR DB and CS DB areas, (5) the Bear Creek floodplain soils and sediments, (6) the groundwater, and (7) the surface water (including spring water) associated with BCV. Exposures to current concentrations (UCL95 concentrations) of COPCs in all media (i.e., groundwater, surface water, soils, sediments, wastes, leachate, inventoried wastes/soils/sludges, and fish) within each source area and/or functional area were evaluated.

Four land uses were evaluated in this exposure assessment: a current hypothetical "unprotected" maintenance worker (site-specific to the BCV CA), a future industrial worker, a future recreational receptor, and a future resident. For a summary of the exposure pathways/routes evaluated in this BHHRA, for each medium for each receptor, refer to Sects. F.3.3.1–F.3.3.4 and to the human health conceptual site model presented in Fig. F.1.

F.4 TOXICITY ASSESSMENT

The purpose of this toxicity assessment is to evaluate the potential for chemicals of concern (COCs) to cause adverse health effects in exposed individuals. Where possible, it provides an estimate of the relationship between the extent of exposure to a particular COC and the increased likelihood of severity of adverse health effects as a result of that exposure, relative to a baseline. The toxicity assessment generally involves two steps: (1) determining whether exposure to an agent can cause an increase in the incidence of a particular health effect (and whether that health effect will occur in humans) and (2) characterizing the relationship between the received dose of the contaminant and the incidence of adverse health effects in exposed populations.

F.4.1 TOXICITY INFORMATION AND EPA GUIDANCE FOR NONCARCINOGENS

Noncarcinogenic effects are evaluated by comparing an exposure experienced over a specified time period (e.g., 30 years) with an RfD or reference concentration (RfC) derived for a similar exposure period. The RfDs available for the COPCs present in the BCV CA media are listed in Table F.44. In this BHHRA, RfCs were converted to RfD units of mg/kg-d by using the inhalation rate and body weight of an adult [i.e., RfC × 20 m^3/d × (1/70 kg) = RfD)] (EPA 1995a).

To evaluate the noncarcinogenic effects from exposure to COPCs in the BCV CA media, the HQ [the ratio of the exposure dose (i.e., intake) to the RfD] is calculated for each COPC. This noncarcinogenic HQ assumes that, below a given level of exposure (i.e., the RfD), even sensitive populations are unlikely to experience adverse health effects. If the exposure dose exceeds this threshold [i.e., if intake/RfD exceeds one (1.0)], there may be concern for potential noncarcinogenic health effects. The level of concern does not necessarily increase linearly as the HQ approaches or exceeds unity because the HQ is not a percentage or probability.

Chronic RfDs are developed for protection from long-term exposure to a chemical (7 years to a lifetime); subchronic RfDs are used to evaluate short-term exposure (2 weeks to 7 years) (EPA 1989a). The reader should note that the numerical values derived for chronic and subchronic RfDs are often identical and that in the majority of the cases where they are not identical, the chronic RfD is less than the subchronic RfD (i.e., it is more conservative in terms of protecting human health to use the chronic RfD). For the purposes of this BHHRA, chronic RfDs have been used for the assessment of the future resident, industrial worker, recreational receptor, and current hypothetical "unprotected" maintenance worker.

F.4.2 TOXICITY INFORMATION AND EPA GUIDANCE FOR CARCINOGENS

For carcinogens, risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the carcinogen (i.e., the term "incremental" refers to excess individual lifetime cancer risk). Cancer risk from exposure to contamination is expressed as excess cancer risk—cancer incurred in addition to normally expected rates of cancer development. An excess cancer risk of 1.0E-06 indicates that each person has a one in one million excess chance to incur cancer from exposure to this contamination level over a 70-year lifetime. Based on their property of emitting ionizing radiation, all radionuclides are human carcinogens.

To evaluate the carcinogenic risk from exposure to BCV COPCs in the various media, the risk is calculated for each COPC by multiplying the exposure dose (i.e., intake and/or dose) by the slope

factor, which is a chemical-specific value based on carcinogenic dose-response data. Excess cancer risks between 1.0E-06 and 1.0E-04 are considered to be within EPA's range of concern (also referred to as the EPA target risk range) (EPA 1989a); risks within this target risk range are consistent with the clean-up goals of the CERCLA, and remedial action is generally not warranted relative to risk (EPA 1991c). Cancer risks above 1.0E-04 are considered regulatorily unacceptable by the EPA (1989a); risks that exceed the target risk range indicate that a FS is required to determine if remediation is warranted (EPA 1991c). Because the slope factors are the UCL95 on the probability of a carcinogenic response, the carcinogenic risk estimate represents an upper confidence bound estimate. Therefore, there is only a small 5% probability that the actual risk will be higher than the estimate presented, and the actual risk may well be less than the estimate. Slope factors used in the evaluation of risk from exposure to carcinogenic BCV COPCs are listed in Tables F.45 and F.46.

For radionuclides, ^{235}U for example, the chemical-specific slope factors that include contributions from short-lived daughter products were used; these slope factors are referred to as the +D SFs (slope factors) and are listed, when applicable, in Table F.46 (EPA 1989a).

F.4.3 ESTIMATION OF TOXICITY VALUES FOR DERMAL EXPOSURE

Oral RfDs and slope factors are adjusted for the evaluation of the dermal exposure pathway (EPA 1989a, 1995a); it is conservative, in terms of protecting human health, to adjust the toxicity values in the manner described in the following discussion. Most RfDs and slope factors are expressed as the amount of substance administered per time and body weight; however, dermal exposure to chemicals in soil and water are expressed as absorbed doses.

For the dermal assessments in this BHHRA, the oral RfD and/or oral slope factor for each chemical (BCV COPCs) was adjusted by the percent gastrointestinal absorption efficiency (%GI) for that chemical. The measured %GIs are available for only a limited number of chemicals; for those chemicals where a %GI is currently not available in the literature, 80% was used for VOCs, 50% for SVOCs, and 20% for inorganics (EPA 1995a). Wide ranges of %GI values can be found for some chemicals, and in the absence of chemical-specific absorption data, estimates are often made based on data for related chemical structures; most organic compounds are readily absorbed.

Adjustments to the oral RfDs and slope factors used in the dermal assessments, which favor conservatism, were made. The oral RfD was multiplied by the %GI/100, and the slope factor was divided by the %GI/100 to give the absorbed dose RfD and absorbed dose slope factor, respectively. These toxicity values (listed in Tables F.44 and F.45) were then used in the evaluation of risk to human health from dermal exposure to the BCV COPCs.

F.4.4 ESTIMATION OF TOXICITY VALUES FOR POLYCYCLIC AROMATIC HYDROCARBONS AND DIOXINS

Several polycyclic aromatic hydrocarbons (PAHs) identified as BCV COPCs were evaluated quantitatively in this BHHRA, although they do not have EPA-approved toxicity values, based on their relative potency to that of benzo(a)pyrene (EPA 1995a). This methodology (described in EPA 1995a) uses the EPA-approved toxicity values for benzo(a)pyrene (refer to Table F.45) and the PAH-specific toxicity equivalency factors to estimate surrogate toxicity values for several PAHs. The toxicity equivalency factors methodology was also used in this BHHRA for several chlorinated dioxins and furans, as recommended by EPA (1995a); the EPA-approved toxicity values for

2,3,7,8-tetrachlorodibenzo-p-dioxins were used along with dioxin- and furan-specific toxicity equivalency factors to estimate surrogate toxicity values for several dioxins and furans (EPA 1995a). Tables F.14–F.39 list the PAHs, dioxins, and furans identified as COPCs for this BCV BHHRA.

F.4.5 CHEMICALS WITHOUT EPA TOXICITY VALUES

Slope factors and RfDs are not currently available for all detected chemicals in the BCV CA because their carcinogenic and/or noncarcinogenic effects have not yet been determined. These chemicals may contribute to carcinogenic and noncarcinogenic effects from exposure to the contaminated BCV media, but their effect cannot be quantified at the present time. In addition, epidemiological studies have indicated that several chemicals are not carcinogenic; consequently, these species do not have slope factors. A qualitative summary of toxicity information for some BCV COPCs without toxicity values can be found in Sect. F.4.7; in addition, a qualitative summary of the available information for many of these COPCs can be found in *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation* (BEIAS 1995). EPA Region IV approved the use of previously withdrawn toxicity values for the following BCV BHHRA COPCs: 1,1,1-trichloroethane, trichloroethene, and tetrachloroethene. Therefore, these COPCs were evaluated quantitatively in this BHHRA.

F.4.6 METHODOLOGY AND UNCERTAINTIES RELATED TO TOXICITY INFORMATION

The methodology used in developing a noncarcinogenic toxicity value (RfD or RfC) involves identifying a threshold level below which adverse health effects are not expected to occur. The RfD/RfC values are generally based on studies of the most sensitive animal species tested (unless adequate human health data are available) and the most sensitive endpoint measured. Uncertainties do exist in the experimental data set for such animal studies. From these studies, the experimental exposure representing the highest dose level tested at which no adverse effects were demonstrated [the no observed adverse effect level (NOAEL)] was derived; in some cases, only a lowest observed adverse effect level (LOAEL) is available. The RfD and/or RfC is derived from the NOAEL (or LOAEL) for the critical toxic effect by dividing the NOAEL (or LOAEL) by uncertainty factors. These factors usually are in multiples of 10, with each factor representing a specific area of uncertainty in the extrapolation of the data. For example, an uncertainty factor of 100 is typically used when extrapolating animal studies to humans; additional uncertainty factors are sometimes necessary when other experimental data limitations are found. Because of the large uncertainties (10 to 10,000) associated with some RfD/RfC toxicity values, exact safe levels of exposure for humans are not known. For noncarcinogenic effects, the amount of human variability in physical characteristics is important in determining the risks that can be expected at low exposures and in determining the NOAEL (EPA 1989a).

A two-part evaluation exists for assessing the carcinogenic potential of a chemical: (1) the likelihood that a chemical is a carcinogen (i.e., a weight-of-evidence assessment) and (2) the quantitative dose-response relationship (i.e., slope factor); uncertainties occur with each evaluation. Chemicals fall into one of five groups on the basis of weight-of-evidence studies using human and laboratory animal research (EPA 1989a, 1995b, 1995c): (1) Group A, known human carcinogen; (2) Group B, probable human carcinogen (based on limited human data or sufficient evidence in animals but inadequate or no evidence in humans); (3) Group C, possible human carcinogen;

(4) Group D, not classified as to human carcinogenicity; and (5) Group E, evidence of no carcinogenic effects to humans.

The slope factor for a chemical is a plausible upperbound estimate of the probability of a response per unit intake of a chemical over a lifetime and is used to estimate an upperbound lifetime probability of an individual developing cancer as a result of exposure to a particular level of a potential carcinogen. The slope factor is derived by applying a mathematical model to extrapolate from a relatively high administered dose (to animals) to the lower exposure levels expected for humans. The slope factor represents the UCL95 on the linear component of the slope (generally the low-dose region) of the tumorigenic dose-response curve, in the low-dose region. A number of low-dose extrapolation models have been developed, and EPA generally uses the linearized multistage model in the absence of adequate information to support other models; the linear equation is valid only at low risk levels (i.e., risks below 1E-02). For sites with very high chemical concentrations (i.e., with risks above 1.0E-02) an alternate calculation is required using the one-hit equation (EPA 1989a):

$$[\text{risk} = 1 - \exp(-\text{CDI} \times \text{SF})].$$

Uncertainty is present in the values used to represent the dose-response relationship. These uncertainties are chemical-specific and are embedded in the toxicity values. These factors are incorporated to represent sources of uncertainty that include the source of the data, duration of the study, extrapolations from short-term to long-term exposures, intrahuman or interspecies variability, and other special considerations.

For several analytes, toxicity information for either the noncarcinogenic or carcinogenic health effects to humans is currently unavailable in EPA's Integrated Risk Information System (IRIS) or *Health Effects Assessment Summary Tables* (HEAST). The carcinogenic potential has not been evaluated for some chemicals lacking EPA-approved toxicity values. In addition, some analytes have been assigned a weight-of-evidence classification for carcinogenicity (EPA 1989a) but have not been assigned a slope factor. Therefore, until and unless additional toxicity information allows the derivation of toxicity factors, potential risk from certain analytes cannot be quantified.

The uncertainty associated with the toxicity factors for noncarcinogens is measured by the uncertainty factor, the modifying factor, and the confidence level. The toxicological data (slope factors and RfDs) for dose-response relationships of chemicals are frequently updated and revised, which can lead to overestimation or underestimation of risks. These values are often extrapolations from animals to humans, which also induce uncertainties in toxicity values because differences can exist in chemical absorption, metabolism, excretion, and toxic response between animals and humans. EPA considers differences in body weight, surface area, and pharmacokinetic relationships between animals and humans to minimize the potential to underestimate the dose-response relationship; however, more conservatism is usually incorporated in these steps. In particular, toxicity factors that have high uncertainties may change as new information is evaluated. Therefore, a number of the chemicals of concern, particularly the ones with high uncertainties, may be subject to change. Finally, the toxicity of a contaminant could vary significantly with the chemical form present in the medium(a) of concern. A contaminant may currently be included as a COPC based on the assumption that the contaminant is in its most toxic form. For instance, in the analytical analyses for metals, risks may be overestimated because metals that are present are conservatively assumed to be in their most toxic forms.

The risk of increased incidence of cancer from exposure to low-level radiation is estimated by application of a risk factor to either the radiation external exposure dose or the radionuclide intake. Regardless of the type of risk factor used, the same basic uncertainties remain. These uncertainties are related to the model used for determining the health effects of radiation exposure. The model used most frequently for determining risk from radiation exposure is the linear nonthreshold model, which assumes some increased risk for any increment of radiation exposure with no threshold below which effects are not seen. As the most conservative model for evaluating radiation risk, this model uses historical data from high-dose radiation exposures (such as from the survivors of the atomic bombs) and extrapolates risk from these high exposures to the low-level environmental or occupational dose ranges.

The current EPA-recommended radiation risk factors are based on the 1980 National Academy of Sciences Biological Effects of Ionizing Radiation Committee (BEIR) report, also referred to as BEIR III (NAS 1980). BEIR III recommendations were increased slightly by EPA to reflect recent information on the health effects of exposure to ionizing radiation. In early 1990, the National Academy of Sciences published the results of the most recent studies of the health effects of ionizing radiation, the BEIR V report (NAS 1990), which increases the estimates of cancer risk by a factor of 3 to 5 over the BEIR III report. These increases are based primarily on a re-evaluation of the doses received by atomic bomb victims.

F.4.7 SUMMARY OF TOXICITY INFORMATION/PROFILES FOR BCV CHEMICALS OF CONCERN

The chemical-specific information in Sects. F.4.7.1–F.4.7.4 provides general information as well as a chemical-specific discussion about health effects related to those COCs identified in this BHHRA; both carcinogenic and noncarcinogenic health effects are considered. Toxicity profiles are also provided for a selection of BCV COPCs which can be evaluated only qualitatively due to the absence of toxicity values. Toxicity information in this chapter is from human and laboratory animal research and from occupational studies to characterize likely health effects resulting from exposure to the BCV contaminants. The majority of the information pertaining to specific contaminants was taken from *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation* (BEIAS 1995) prepared by the Biomedical and Environmental Information Analysis Section of the Health Sciences Research Division of Oak Ridge National Laboratory; references for each toxicity profile are included at the end of each profile. The reader can refer to the BEIAS Toxicity Profiles report (1995) for additional information regarding specific chemicals. Tables F.44–F.46 summarize the toxicity information for the BCV COPCs, when quantitative information (i.e., slope factors and RfDs) are available.

F.4.7.1 Inorganics

Antimony

Antimony is a naturally occurring metalloid element that displays both metallic and nonmetallic properties and exists in valence states of 3 and 5. Metallic antimony and a few trivalent antimony compounds are the most significant regarding exposure potential and toxicity. It is used in metallurgical processes, paints and enamels, various textiles, rubber, and fire retardation (antimony trioxide). Antimony is a common urban air pollutant, and exposure to antimony may occur via inhalation and by ingestion of contaminated food (BEIAS 1995).

The primary target organ for acute oral exposure to antimony appears to be the gastrointestinal tract (irritation, diarrhea, vomiting), and targets for long-term exposure are the blood (hematological disorders) and liver (mild hepatotoxicity). Inhalation exposure to antimony affects the respiratory tract (pneumoconiosis, restrictive airway disorders), with secondary targets being the cardiovascular system (altered blood pressure and electrocardiograms) and kidneys (histological changes). Only limited evidence exists for reproductive disorders due to antimony exposure (BEIAS 1995).

EPA has calculated subchronic and chronic oral reference doses of 4E-4 mg/kg/day based on decreased longevity and alteration of blood chemistry in rats chronically exposed to potassium antimony tartrate in drinking water. Although some data indicate that long-term exposure of rats to antimony trioxide and trisulfide increased the incidence of lung tumors, EPA has not evaluated antimony or antimonials for carcinogenicity, and a weight-of-evidence classification is currently unavailable (BEIAS 1995).

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-77, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Arsenic

Arsenic is a metallic, steel-gray, crystalline, brittle, trivalent and pentavalent, solid, poisonous element that is commonly used in pesticides (BEIAS 1995).

Water soluble inorganic arsenic compounds are absorbed through the gastrointestinal tract and lungs. Symptoms of acute inorganic arsenic poisoning in humans are nausea, anorexia, vomiting, epigastric and abdominal pain, and diarrhea. In addition, dermatitis, muscle cramps, cardiac abnormalities, hepatoxicity, bone marrow suppression and hematologic abnormalities, vascular lesions, and peripheral neuropathy have also been reported. Severe exposures can result in acute encephalopathy, congestive heart failure, stupor, convulsions, paralysis, coma, and death. Possible reproductive effects include a high frequency of spontaneous abortions and reduced birth weights. Occupational exposure studies show a clear correlation between exposure to arsenic and lung cancer mortality (BEIAS 1995).

The reference dose for chronic and subchronic oral exposures (0.0003 mg/kg/day) is based on a no-observed-adverse-effects level of 0.0008 mg/kg/day and lowest-observed-adverse-effects level of 0.014 mg/kg/day for hyperpigmentation, keratosis, and possible vascular complications in a human population consuming arsenic-contaminated drinking water. No subchronic and chronic reference concentrations have been derived for arsenic. EPA has placed inorganic arsenic in weight-of-evidence classification Group A, human carcinogen (BEIAS 1995).

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-77, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Barium

Barium is a divalent alkaline-earth metal found only in combination with other elements in nature; the most important of these combinations is the peroxide, chloride, sulfate, carbonate, nitrate, and chlorate. The most likely source of barium in the atmosphere is from industrial emissions. Due to the element's tendency to form salts with limited solubility in soil and water, it is expected to have a residence time of hundreds of years and is not expected to be very mobile. Acidic conditions, however, will increase the solubility of some barium compounds facilitating their movement from the soil to the groundwater. Trace amounts of barium were found in more than 99% of the surface water and finished drinking water samples (average values of 43 μg/L and 28.6 μg/L, respectively) across the United States (BEIAS 1995).

The soluble salts of barium are toxic to mammalian systems. They are absorbed rapidly from the gastrointestinal tract; deposited in the muscles, lungs, and bone; and excreted primarily in the feces. At low doses, barium acts as a muscle stimulant and at higher doses affects the nervous system eventually leading to paralysis. Acute and subchronic oral doses of barium cause vomiting and diarrhea, followed by decreased heart rate and elevated blood pressure. Higher doses result in cardiac irregularities, weakness, tremors, anxiety, and depression. Acute doses of approximately 0.8 grams can be fatal to humans causing death from cardiac and respiratory failure (BEIAS 1995).

EPA has calculated a chronic and subchronic oral reference dose of 0.07 mg/kg/day based on a no-observed-adverse-effects level of 0.21 mg/kg/day in humans. An inhalation reference concentration of 0.005 mg/m^3 for subchronic and 0.0005 mg/m^3 for chronic exposure was calculated by EPA based on the no-observed-adverse-effects level for developmental effects in humans. In addition, barium has not been evaluated for evidence of human carcinogenic potential (BEIAS 1995).

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-77, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Beryllium

Beryllium is a naturally occurring metal used in a number of industries. Exposure to beryllium occurs primarily in the workplace or in areas surrounding mining, processing, and metal-working facilities.

Inhalation is the primary route of exposure to beryllium. Humans inhaling large doses of beryllium can develop acute berylliosis, characterized by rhinitis, pneumonitis, pulmonary inflammation, and proliferative changes in the lung (Goyer 1986, Daugherty 1992). Chronic exposure of humans to beryllium has been linked with the development of chronic berylliosis, a disease characterized by the development of granulomatous lesions in the lung progressing to interstitial fibrosis. Granulomas have also appeared in the skin, liver, spleen, lymph nodes, myocardium, skeletal muscles, kidney, bone, and salivary glands (Daugherty 1992). Alterations in immune system functioning have also been documented in individuals with chronic beryllium disease, manifested as transformed lymphocytes and granulomatous hypersensitivity.

Limited data suggest that the oral toxicity of beryllium is low. No adverse effects were reported in mice in a lifetime drinking water bioassay (Daugherty 1992). A sufficient number of studies is not available to evaluate the reproductive or developmental toxicity of beryllium (ATSDR 1988). The results of genotoxicity assays are mixed, with differing results depending on the beryllium compound studied and the test species evaluated. Several epidemiologic studies have suggested an association between workers exposed to beryllium via inhalation and risk of lung cancer (Daugherty 1992). Beryllium and various beryllium-containing compounds have been identified as carcinogenic by the International Agency for Research on Cancer (1980) and EPA (1987). EPA has placed beryllium in weight-of-evidence class B2.

References:

ATSDR (Agency for Toxic Substances and Disease Registry). 1988. *Toxicological Profile for Beryllium*, U.S. Department of Health and Human Services, Public Health Service.

Daugherty, M. L. 1992. *Toxicity Summary for Beryllium*, Biomedical and Environmental Information Analysis Section, Health and Safety Research Division, Oak Ridge National Laboratory.

EPA (U.S. Environmental Protection Agency). 1987. *Health Assessment Document for Beryllium*, EPA/600/8-84/026F.

Goyer, R. A. 1986. Toxic effects of metals, **in**: *Casarett and Doull's Toxicology: The Basic Science of Poisons*, 3d ed., New York: Macmillan Publishing Company.

IARC (International Agency for Research on Cancer). 1980. *IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans. Vol. 23, Some Metals and Metallic Compounds*, Lyon: World Health Organization.

Boron

Boron is a brownish-black powder and may be either crystalline or amorphous. It does not occur free in nature and is found in the minerals borax, colemanite, boronatrocalcite, and boracite. Boron is slightly soluble in water under certain conditions. In addition, boron is used in metallurgy as a degasifying agent and alloyed with aluminum, iron, and steel to increase hardness. It is also a neutron absorber in nuclear reactors (Sittig 1981).

Systemic effects of exposure to boron vary greatly with the type of compound (boric acid, borax, etc.). Acute poisoning in man from boric acid or borax is usually the result of application of dressing, powders, or ointment to large areas of burned or abraded skin or accidental ingestion. The signs are nausea, abdominal pain, diarrhea, and violent vomiting, sometimes bloody, which may be accompanied by headache and weakness. In severe cases, shock with fall in arterial pressure, tachycardia, and cyanosis occur. Marked central nervous system irritation, oliguria, and anuria may be present. Little information is available on chronic oral poisoning, although it is reported to be characterized by mild gastrointestinal irritation, loss of appetite, disturbed digestion, nausea, possibly vomiting, and erythematous rash. The rash may be "hard" with a tendency to become purpuric (Sittig 1981). An EPA weight-of-evidence classification was not found in the available literature.

Reference:

Sittig, M. 1981. *Handbook of Toxic and Hazardous Chemicals*, Noyes Publications, Park Ridge, NJ.

Cadmium

Cadmium is a naturally occurring element found worldwide in soils and rocks. The primary sources of environmental cadmium contamination are from smelters and from the burning of fossil fuels in power plants.

Cadmium is absorbed more efficiently through the lungs than by the gastrointestinal tract. Acute oral exposures to cadmium can cause vomiting, diarrhea, and abdominal pain. Longer term oral exposure to cadmium affects the kidneys and possibly the skeletal system (Young 1991). Inhalation exposure to cadmium may result in effects that include headache, chest pains, muscular weakness, pulmonary edema, and death (Young 1991). Longer-term inhalation exposure also results in kidney damage (ATSDR 1989; EPA 1980, 1984).

Limited evidence shows possible adverse spermatogenic effects of cadmium in occupationally-exposed workers (Barlow and Sullivan 1982). The results of genotoxicity and mutagenicity tests with cadmium are inconclusive. Some assays show positive results (certain mammalian cell culture assay systems), while other assays report negative findings (mouse bone marrow and mouse micronucleus assays) (ATSDR 1989).

The IARC has concluded that there is limited evidence indicating that cadmium and cadmium-containing compounds are carcinogenic in humans (IARC 1982). This determination was based on occupational epidemiology studies that have shown an increased risk of lung cancer in workers exposed to cadmium via inhalation. EPA has placed cadmium in weight-of-evidence class B1.

References:

ATSDR (Agency for Toxic Substances and Disease Registry). 1989. *Toxicological Profile for Cadmium*, U.S. Department of Health and Human Services, Public Health Service.

Barlow, S. M. and F. M. Sullivan. 1982. *Reproductive Hazards of Industrial Chemicals: An Evaluation of Animal and Human Data*, Academic Press, New York.

EPA (U.S. Environmental Protection Agency). 1980. *Ambient Water Quality Criteria for Cadmium*, EPA 440/5-80-025, Office of Water Regulations and Standards, Criteria and Standards Division.

EPA. 1984. *Health Effects Assessment for Cadmium*, EPA 540/1-86/038, Office of Research and Development.

IARC (International Agency for Research on Cancer). 1982. *IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans. Supplement 4, Chemicals, Industrial Processes and Industries Associated with Cancer in Humans*, Lyon: World Health Organization.

Young, R. A. 1991. *Toxicity Summary for Cadmium*, Biomedical and Environmental Information Analysis Section, Health and Safety Research Division, Oak Ridge National Laboratory.

Chromium

Chromium is a metal that occurs in nature primarily as the mineral chromite. Chromium exists in several valence states. The trivalent (III) and hexavalent (VI) valence states are the only two of

any biological significance (Amdur et al. 1991). Trivalent chromium is considered an essential element in man and animals.

Acute animal studies indicate that chromium III compounds are consistently less toxic than chromium VI (Friberg et al. 1986), but neither oxidation state is very toxic by the oral route (Daugherty 1992). No adverse effects were observed in long-term drinking water studies in rats.

Chromium compounds (and particularly hexavalent compounds) are very strong skin irritants and sensitizers in humans, producing dermatitis, dermatosis, eczema, erythema, and skin ulceration. Exposure to chromium has caused respiratory effects such as nasal irritation, nasal ulcers, nasal perforation, asthmatic attacks, pneumoconiosis, bronchitis, and chronic lung congestion in humans under various occupational conditions (Daugherty 1992). Both hexavalent and trivalent chromium compounds are known to be nephrotoxic with some reports indicating that they may be also hepatotoxic and neurotoxic (EPA 1984).

Chromium compounds (III and VI) have induced developmental effects in hamsters and mice (but only at maternally toxic doses) and testicular effects in rabbits after intraperitoneal, intravenous, or subcutaneous injections (EPA 1984). Bacterial test systems have consistently demonstrated that chromium VI compounds are directly mutagenic while chromium III compounds are not (EPA 1984). An increased frequency of chromosome aberrations in lymphocytes from workers exposed to chromates during production of such compounds has been reported (EPA 1984). Several occupational epidemiology studies have shown that occupational exposure to chromium is associated with an increase in lung cancer deaths for workers. Evidence also suggests increased risk of developing nasal, pharyngeal, and gastrointestinal cancers (IARC 1980, Daugherty 1992). EPA has not given chromium III a weight-of-evidence classification; however, chromium VI has been placed in weight-of-evidence group A (BEIAS 1995).

References:

Amdur, M. O., J. Doull, and C. D. Klassan, eds. 1991. *Casarett and Doull's Toxicology: The Basic Science of Poisons*, 4th ed. New York: Pergamon Press.

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Values for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-76/R1, Risk Assessment Program, Health Science Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Daugherty, M.L. 1992. *Toxicity Summary for Chromium*, Biomedical and Environmental Information Analysis Section, Health and Safety Research Division, Oak Ridge National Laboratory.

EPA (U.S. Environmental Protection Agency). 1984. *Health Assessment Document for Chromium*, EPA-600/8-83-014F.

Friberg, L., G. Nordberg, and V. Vouk, eds. 1986. *Handbook on the Toxicology of Metals*, 2d ed. Amsterdam: Elsevier Science Publishers.

IARC (International Agency for Research on Cancer). 1980. *IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans. Vol. 23, Some Metals and Metallic Compounds*, Lyon: World Health Organization.

Fluoride

Fluoride is the soluble form of fluorine and is a naturally occurring compound. In surface water, levels of naturally occurring fluoride usually range from 0.01 to 1.5 mg/l, and the level of fluoride in soils is usually between 200 and 300 mg/kg. Fluorides are commonly added to municipal water supplies and toothpaste to aid in the prevention of dental cavities. Fluoride is also used to help make steel, chemicals, pesticides, ceramics, lubricants, and plastics (ATSDR 1991).

Dermal exposure to fluorides (in the form of fluoride or hydrogen fluoride) may produce severe irritation. Teeth mottling occurs in children chronically exposed to fluoride at doses above 2 mg/kg during the development of their deciduous and permanent teeth. The skeletal system is the primary target system for intermediate and chronic exposures because of fluoride deposition. Humans chronically exposed to 2.4 to 6.0 mg/m^3 had serious bone damage throughout their bodies. Exposure to high levels of fluoride may also cause disturbances in calcium metabolism which is necessary for the functional integrity of the voluntary and autonomic nervous system. Cardiac arrhythmias have been observed in fluoride poisonings (ATSDR 1991).

The optimal level for water fluoridation is 0.7 to 1.2 mg/L, with primary and secondary contaminant levels of 4 and 2 mg/L, respectively (ATSDR 1991).

Reference:

ATSDR (Agency for Toxic Substances and Disease Registry). 1991. *Draft Toxicological Profile for Fluoride*, U.S. Department of Health and Human Services, Public Health Service.

Lead

Lead has been used by humans for thousands of years because of its malleability, resistance to corrosion, and abundance. This metal can be a component of solder, paint, and gasoline, but these uses have declined dramatically in recent years as awareness of the toxicity associated with lead exposure has increased. Currently in the United States, the predominant use of lead is in batteries. Lead occurs at an average concentration of 10 mg/kg in soil, but soil levels are substantially elevated in many areas exposed to emissions from smelters and automobiles or in areas where lead-containing paint chips have fallen onto soils (BEIAS 1995).

Inhalation and oral RfD values for lead have not been derived by the EPA because it has not been possible to establish the NOAEL or LOAEL for this metal. Health effects have tentatively been associated with blood levels of as low as 10 µg/dL (BEIAS 1995).

In the absence of an oral or inhalation RfD for lead, the EPA has developed an uptake/biokinetic model to estimate blood lead levels on the basis of total lead uptake from exposures via diet, drinking water, air, soil, and paint. Application of this model to potential exposures is not discussed in this report' however, further information can be obtained from EPA (BEIAS 1995).

At blood levels greater than 40 µg/dL, lead can cause miscarriage, sterility in males, anemia, and damage to the central nervous system and kidneys. Lead exposure resulting in these high blood levels is rare today. Blood levels of 30 µg/dL and higher have been associated with defects in vitamin D metabolism and with lowered intelligent quotient scores in children. At blood levels of 20 µg/dL and lower, the effects become more difficult to define. Some studies report a dose-related

increase in blood pressure in adult males starting at blood levels of about 10 μg/dL. Additionally, the fetus and young children are particularly sensitive to lead toxicity; even low-level lead exposure during pregnancy and early childhood can cause reduced birth weight, premature birth, and delayed development (BEIAS 1995).

Lead can cause varied toxicological effects, depending on the level of exposure. From studies on rats and mice, the EPA has previously classified lead as a Group B2, probable human carcinogen. However, the doses that induce cancer are higher than those associated with other health effects of lead, such as reproductive toxicity, developmental toxicity, and increased blood pressure (BEIAS 1995).

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Values for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-76/R1, Risk Assessment Program, Health Science Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Lithium

Lithium is an alkali metal similar to magnesium and sodium in its properties and has a molecular weight of 6.941. It does not occur in nature in its elemental form primarily because it readily reacts with water to form lithium hydroxide. Lithium is found in minerals such as spodumene, petalite, and eucryptite; in natural waters (particularly mineral waters); and in foods (BEIAS 1995).

Inorganic salts or oxides of lithium have many uses. Lithium carbonate and lithium borate are used in the ceramics industry, and lithium chloride and fluoride are used in welding and brazing fluxes. Lithium carbonate is used extensively as a therapeutic agne in treating manic depressive disorders and has also been used as an antigout medication. Lithium chloride was used in the 1940s as a salt substitute for patients on a low-salt diet, but its use was discontinued following occurrence of lithium intoxication and death in some patients. In addition, lithium hydride is used as nuclear reactor coolant (BEIAS 1995).

Soluble lithium compounds are readily absorbed through the gastrointestinal tract but not the skin; distribution is rapid to the liver and kidneys but slower to other organ systems. Signs and symptoms of lithium toxicity include anorexia; diarrhea; alopecia; weight gain; thirst; pretibial edema (sodium retention); polyuria; glycosuria; aplastic anemia; tremors; acne; muscle spasms; and, rarely, dysarthria, ataxia, impaired cognition, and pseudotumor cerebri. The nervous system is the primary target organ of lithium toxicity. Neurologic effects occurring during prolonged therapy often include minor effects on memory, motor activity, and associative productivity. Movement disorders, proximal muscle weakness, gait disorders, incontinence, corticospinal tract signs, and a Parkinsonian syndrome have been reported as well. Long-term lithium therapy has been shown to cause permanent brain damage in several patients (BEIAS 1995).

The oral toxicity of most lithium compounds is relatively low; oral LD_{50} values for several compounds and animal species range from 422 to 1165 mg/kg. However, no information was found in the available literature on the subchronic, chronic, or developmental/reproductive toxicity of lithium compounds by the inhalation route; therefore, subchronic and chronic inhalation reference concentrations have not been derived for lithium. Furthermore, little information was found in the available literature on the carcinogenicity of lithium compounds, although three patients on chronic

lithium therapy developed leukemia, and one developed a thyroid tumor. However, given the lack of available information, lithium has not been classified by EPA as to its potential carcinogenicity (BEIAS 1995).

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-77, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Manganese

Manganese is an essential trace element in humans that can elicit a variety of serious toxic responses upon prolonged exposure to elevated concentrations either orally or by inhalation. The central nervous system is the primary target. Initial symptoms are headache, insomnia, disorientation, anxiety, lethargy, and memory loss. These symptoms progress with continued exposure and eventually include motor disturbances, tremors, and difficulty in walking—symptoms similar to those seen with Parkinsonism. These motor difficulties are often irreversible. Based on human epidemiological studies, values of 0.8 mg/kg/day for drinking water exposure and 0.34 mg/m^3 in air for inhalation exposure have been estimated as lowest-observed-adverse-effect levels for central nervous system effects (BEIAS 1995).

Effects on reproduction (decreased fertility, impotence) have been observed in humans with inhalation exposure and in animals with oral exposure at the same or similar doses that initiate the central nervous system effects. An increased incidence of coughs, colds, dyspnea during exercise, bronchitis, and altered lung ventilatory parameters have also been seen in humans and animals with inhalation exposure. A possible effect on the immune system may account for some of these respiratory symptoms (BEIAS 1995).

Because of the greater bioavailability of manganese from water, separate reference doses for water and diet were calculated. A chronic and subchronic reference dose for drinking water of 0.005 mg/kg/day has been calculated by EPA from a human no-observed-adverse-effect level of 0.005 mg/kg/day, which was determined from an epidemiological study of human populations exposed for a lifetime to manganese concentrations in drinking water ranging from 3.6 to 2300 µg/L. A chronic and subchronic reference dose of 0.14 mg/kg/day for dietary exposure has been calculated by EPA from a human no-observed-adverse-effects level of 0.14 mg/kg/day, which was determined from a series of epidemiological studies. Large populations with different concentrations of manganese in their diets were examined. No adverse effects that were attributable to manganese were seen in any of these groups. For both the drinking water and dietary values, the reference dose was derived from these studies without uncertainty factors since manganese is essential in human nutrition and the exposure of the most sensitive groups was included in the populations examined. EPA indicates that the chronic reference dose values are pending change (BEIAS 1995).

Some conflicting data exist on possible carcinogenesis following injections of manganese chloride and manganese sulfate in mice. However, the EPA weight-of-evidence classification is D, not classifiable as to human carcinogenicity based on no evidence in humans and inadequate evidence in animals (BEIAS 1995).

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-77, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Mercury

Mercury exists in many inorganic and organic compounds, as well as in its elemental form. According to the National Research Council (1978), mercury compounds in the environment often occur as an insoluble sulfide, bound to soil or sediment through association with organic matter, or bound in inorganic complexes. Metallic mercury is rather volatile; exposure to mercury vapor is the most common form of occupational exposure to mercury. It is widely used in electrical equipment and instruments, in dental preparations, and as a mildewcide and fungicide (Stokinger 1981, Friberg et al. 1986).

Ingestion of metal mercury is usually without effect (Goldwater 1972). Ingestion of inorganic salts may cause severe gastrointestinal irritation, renal failure, and death. Mercury is also known to produce hypersensitivity reactions such as contact dermatitis and acrodynia (Young 1992). Inhalation of mercury vapor may cause irritation of the respiratory tract, renal disorders, neurobehavioral changes, peripheral nervous system effects, and death (NIOSH 1977, Young 1992).

Little is known about the reproductive effects of elemental mercury in humans, although there have been case reports of spontaneous abortions and infant mortality among women exposed during pregnancy (EPA 1980). Prenatal exposure to methyl mercury has been linked to fetal fatalities and neurological problems among survivors. Some evidence suggests that the fetus is more sensitive to the effects of methyl mercury than are adults (WHO 1976, Marsh et al. 1980, Inskip and Piotrowski 1985).

Inorganic mercuric acetate is embryolethal and teratogenic to hamsters (EPA 1980). Other adverse reproductive effects reported in animals include inhibition of spermatogonial cells in mice treated with mercuric chloride (EPA 1980).

Rats given metallic mercury by intraperitoneal injection developed malignant sarcomas in tissues in direct contact with the metal (EPA 1980). Definitive data regarding the potential carcinogenicity of mercury or mercury compounds in animals or humans are unavailable (Young 1992).

References:

EPA (U.S. Environmental Protection Agency). 1980. *Ambient Water Quality Criteria for Mercury*, EPA 440/5-80-058, Office of Water Regulations and Standards, Criteria and Standards Division, Washington, D.C.

Friberg, L. G. F. Nordberg, and V. B. Vouk, eds. 1986. *Handbook on the Toxicology of Metals, 2nd. ed., Volume II: Specific Metals*, New York: Elsevier

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NIOSH (National Institute for Occupational Safety and Health). 1977. *Occupational Diseases: A Guide to Their Recognition*, DHEW (NIOSH) Pub. No. 77-181.

NRC (National Research Council). 1978. *An Assessment of Mercury in the Environment*, Washington, D.C.: National Academy of Sciences.

Stokinger, H. E. 1981. The metals, **in**: *Patty's Industrial Hygiene and Toxicology*, eds. G.D. Clayton and F.E. Clayton, 3d rev. edition, Vol. 2A, Toxicology, New York: John Wiley and Sons.

WHO (World Health Organization). 1976. *Environmental Health Criteria 1: Mercury*, Geneva: WHO.

Young, R. A. 1992. *Toxicity Summary for Mercury*, Biomedical and Environmental Information Analysis Section, Health and Safety Research Division, Oak Ridge National Laboratory.

Molybdenum

Molybdenum occurs naturally in various ores, principally molybdenite, and is considered a trace element. In addition, molybdenum compounds are used primarily in the production of metal alloys (BEIAS 1995).

Water-soluble molybdenum compounds are readily taken up through the lungs and gastrointestinal tract, but insoluble ones are not. Following absorption, molybdenum is distributed throughout the body with the highest levels generally found in the liver, kidneys, spleen, and bone. Biological half-life may vary from several hours in laboratory animals to as much as several weeks in humans (BEIAS 1995). Data documenting molybdenum toxicity in humans are limited. The physical and chemical state of the molybdenum, route of exposure, and compounding factors such as dietary copper and sulfur levels may all affect toxicity. Mild cases of molybdenosis may be clinically identifiable only by biochemical changes (e.g., increases in uric acid levels due to the role of molybdenum in the enzyme xanthine oxidase). Excessive intake of molybdenum causes a physiological copper deficiency, and conversely, in cases of inadequate dietary intake of copper, molybdenum toxicity may occur at lower exposure levels (BEIAS 1995).

Information on the inhalation toxicity of molybdenum in humans following acute and subchronic exposures is not available. However, EPA has placed molybdenum in weight-of-evidence group D, not classifiable as to human carcinogenicity (BEIAS 1995).

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-77, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Nickel

Nickel is a naturally occurring element that may exist in various mineral forms. It is used in a wide variety of applications including metallurgical processes and electrical components, such as batteries. Some evidence suggests that nickel may be an essential trace element for mammals (BEIAS 1995).

The absorption of nickel is dependent on its physicochemical form, with water soluble forms being more readily absorbed. The metabolism of nickel involves conversion to various chemical forms and binding to various ligands. Nickel is excreted in the urine and feces with relative amounts for each route being dependent on the route of exposure and chemical form. Most nickel enters the body via food and water consumption, although inhalation exposure in occupational settings is a primary route for nickel-induced toxicity (BEIAS 1995).

In large doses (>0.5 g), some forms of nickel may be acutely toxic to humans when taken orally. Oral LD_{50} values for rats range from 67 mg nickel/kg (nickel sulfate hexahydrate) to >9000 mg nickel/kg (nickel powder). Toxic effects of oral exposure to nickel usually involve the kidneys with some evidence from animal studies showing a possible developmental/reproductive toxicity effect (BEIAS 1995).

Inhalation exposure to some nickel compounds will cause toxic effects in the respiratory tract and immune system. Acute inhalation exposure of humans to nickel may produce headaches, nausea, respiratory disorders, and death. Asthmatic conditions have also been documented for inhalation exposure to nickel. Soluble nickel compounds tend to be more toxic than insoluble compounds. In addition, nickel carbonyl is known to be extremely toxic to humans upon acute inhalation exposure (BEIAS 1995).

Data on nickel-induced reproductive/developmental effects in humans following inhalation exposure are equivocal. Furthermore, sensitivity reactions to nickel are well documented and usually involve contact dermatitis reactions resulting from contact with nickel-containing items such as cooking utensils, jewelry, coins, etc. (BEIAS 1995).

The primary target organs for nickel-induced systemic toxicity are the lungs and upper respiratory tract for inhalation exposure and the kidneys for oral exposure. Other target organs include the cardiovascular system, immune system, and the blood (BEIAS 1995).

Epidemiologic studies have shown that occupational inhalation exposure to nickel dust (primarily nickel subsulfate) at refineries has resulted in increased incidences of pulmonary and nasal cancer. Inhalation studies using rats have also shown nickel subsulfate or nickel carbonyl to be carcinogenic. Based on these data, EPA has classified nickel subsulfate and nickel refinery dust in weight-of-evidence group A, human carcinogen. Based on an increased incidence of pulmonary carcinomas and malignant tumors in animals exposed to nickel carbonyl by inhalation or by intravenous injection, this compound had been placed in weight-of-evidence group B2, probable human carcinogen. No unit risk values were available for nickel carbonyl. Recent analyses of epidemiologic data, however, indicate that definitive identification of a specific nickel compound as the causative agent is not yet possible (BEIAS 1995).

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-77, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Nitrate, Nitrite

Nitrates are produced by natural biological and physical oxidations and therefore are ubiquitous in the environment. Most of the excess nitrates in the environment originate from inorganic

chemicals manufactured for agriculture. Organic molecules containing nitrate groups are manufactured primarily for explosives or for their pharmacological effects. Exposure to inorganic nitrates is primarily through food and drinking water, whereas exposure to organic nitrates can occur orally, dermally, or by respiration. The primary toxic effects of the inorganic nitrate ion (NO_3^-) result from its reduction to nitrite (NO_2^-) by microorganisms in the upper gastrointestinal tract. Nitrite ions can also be produced with organic nitrate exposure; however, the primary effect of organic nitrate intake is thought to be dependent on the production of an active nitric oxide (NO^-) radical. Organic nitrates are metabolized in the liver resulting in an increase in blood nitrites. Nitrates and nitrites are excreted primarily in the urine as nitrates (BEIAS 1995).

The primary toxic effect of inorganic nitrates is the oxidation of the iron in hemoglobin by excess nitrites forming methemoglobin. Infants less than 6 months old comprise the most sensitive population. Epidemiological studies have shown that baby formula made with drinking water containing nitrate nitrogen levels over 10 mg/L can result in methemoglobinemia, especially in infants less than 2 months of age. No cases of methemoglobinemia were reported with drinking water nitrate nitrogen levels of 10 mg/L or less. A secondary target for inorganic nitrate toxicity is the cardiovascular system. Nitrate intake can also result in a vasodilatory effect, which can complicate the anoxia resulting from methemoglobinemia. Decreased motor activity was reported in mice given up to 2000 mg nitrite/L in drinking water, and persistent changes in EEG recordings were observed in rats exposed to 100 to 2000 mg nitrite/L in drinking water. However, exposure of rats to 3000 mg nitrite/L in drinking water for 2 years did not result in any gross or microscopic changes in brain tissue. The data indicate that these central nervous system effects are not related to methemoglobin levels (BEIAS 1995).

The importance of the primary and secondary targets are reversed with organic nitrates, several of which have long been used for their vasodilatory effects in the treatment of angina pectoris in humans. Large doses of organic nitrates, however, can also produce methemoglobinemia. Epidemiological studies have shown that chronic or subchronic exposure to organic nitrates results in the development of tolerance to the cardiovascular effects of these compounds. This apparent biocompensation has caused serious cardiac problems in munitions workers exposed to organic nitrates when they are suddenly removed from the source of exposure (BEIAS 1995).

The possible carcinogenicity of nitrate depends on the conversion of nitrate to nitrite and the reaction of nitrite with secondary amines, amides, and carbamates to form N-nitroso compounds that are carcinogenic. Experiments with rats have shown that when given both components, nitrite and heptamethyleneimine, in drinking water an increase in the incidence of tumors occurs. Human epidemiological studies, however, have yielded conflicting evidence. Positive correlations between the concentration of nitrate in drinking water and the incidence of stomach cancer were reported in Columbia and Denmark. However, studies in the United Kingdom and other countries have failed to show any correlation between nitrate levels and cancer incidence. Nitrate has not been classified as to its carcinogenicity by EPA, although it is under review (BEIAS 1995).

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-77, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Selenium

Selenium is a naturally occurring element found in soils worldwide in a number of different forms and in a number of different oxidation states. Selenium is an essential element in the human diet. Exposure to selenium can occur from eating contaminated foodstuffs or from emissions from various industrial processes.

Gastrointestinal absorption of selenium compound varies from approximately 50% to near 100%. Selenium compounds appear to be readily absorbed from the respiratory tract. In humans, acute oral exposure to high doses of selenium can result in excess salivation, garlic odor to the breath, shallow breathing, diarrhea, pulmonary edema, and death (Opresko 1993). Additional acute toxic effects in animals include liver and kidney effects. Chronic oral exposures in humans have resulted in hair and nail loss, clubbing of the fingers, skin lesions, tooth decay, and nervous system abnormalities. Additionally, in animals, subchronic and chronic oral exposure to selenium has resulted in liver and kidney damage (Opresko 1993).

Inhalation of selenium primarily affects the respiratory system. Mucous membrane irritation, bronchitis, and chemical pneumonia have been reported following inhalation of selenium-containing dusts (Opresko 1993). Chronic effects of inhalation of selenium in humans or animals have not been reported.

Selenium is teratogenic in birds and several domesticated animal species, but data are not available in humans. Adverse reproductive and developmental effects have been observed in laboratory animals (Opresko 1993). Epidemiology studies have failed to show an association between selenium and risk of death due to neoplasms (Opresko 1993). Selenium sulfide has been identified as an animal carcinogen by the EPA (1994) in mice studies following oral exposures. Data regarding carcinogenicity following inhalation exposure are not available (Opresko 1993).

References:

EPA (U.S. Environmental Protection Agency). 1994. Integrated Risk Information System (IRIS), Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office.

Opresko, D. M. 1993. *Toxicity Summary for Selenium and Selenium Compounds,* Biomedical and Environmental Information Analysis Section, Health and Safety Research Division, Oak Ridge National Laboratory.

Silver

Silver is a relatively rare element that occurs naturally in the earth's crust and is released to the environment from various industrial sources. Although metallic silver is not regarded as toxic, many of the silver salts are toxic to a number of organisms.

In humans, ingestion of large doses of silver nitrate has produced corrosive damage of the gastrointestinal tract, abdominal pain, diarrhea, vomiting, shock, convulsions, and death (EPA 1985). Ingestion, inhalation, or dermal absorption of silver may cause argyria, a permanent gray or blue-gray discoloration of the skin. In long-term oral studies with experimental animals, silver compounds have produced slight thickening of the membranes of the renal glomeruli, growth depression, and shortened lifespan (Matuk et al. 1981; Olcott 1948, 1950).

Chronic inhalation of silver oxide and silver nitrate dusts may result in chronic respiratory irritation, deposition of granular silver in the eyes, impaired night vision, and abdominal pain (Rosenman et al. 1979, Faust 1992). Mild allergic responses have been attributed to dermal contact with silver (ATSDR 1990, Faust 1992).

Data adequate for evaluating the carcinogenicity of silver to humans or animals by any exposure route are not available (Faust 1992).

References:

ATSDR (Agency for Toxic Substances and Disease Registry). 1990. *Toxicological Profile for Silver*, ATSDR/TP-90-24, U.S. Department of Health and Human Services, Public Health Service.

EPA (U.S. Environmental Protection Agency). 1985. *Drinking Water Criteria Document for Silver*, Environmental Criteria and Assessment Office, Cincinnati, Ohio, ECAO-CIN-026, PB86-118288.

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Rosenman, K. D., A. Moss, and S. Kon. 1979. Argyria: Clinical Implications of Exposure to Silver Nitrate and Silver Iodide, *J. Occup. Med.* 21:430–435.

Strontium

Strontium is commonly found in igneous rocks or independently in or near sedimentary rocks such as gypsum and is also sometimes found in seawater. Only .02 to .03% of the earth's crust is composed of strontium, which is used to modify the properties of low aluminum silicon-casting alloys, deoxidize copper and bronze, and improve the machinability of gray-iron castings. In addition, it is sometimes added to tin and lead alloys and toothpaste (Grayson and Eckroth 1984).

Strontium is absorbed from the gastrointestinal tract and then is deposited in the teeth and bones. No evidence suggests that strontium is hazardous in industrial conditions. With massive doses through intravenous injection, strontium can cause electrocardiographic changes and respiratory paralysis (Grayson and Eckroth 1984).

Reference:

Grayson, M. and D. Eckroth, eds. 1984. *Encyclopedia of Chemical Toxicology, Third Edition, Volume 21*, John Wiley and Sons.

Thorium (metal)

Thorium is a natural radioactive element that is insoluble in water and organic solvents. It occurs in the minerals monazite, thorite, and thorinite, usually mixed with its disintegration products. Metallic thorium is used in nuclear reactors to produce nuclear fuel, in the manufacture of incandescent mantles, as an alloying material [especially with some of the lighter metals (e.g., magnesium)], as a reducing agent in metallurgy, for filament coatings in incandescent lamps and vacuum tubes, as a catalyst in organic synthesis, in ceramics, and in welding electrodes (Sittig 1981).

Exposures may occur during production and use of thorium-containing materials, in the casting and machining of alloy parts, and from the fume produced during welding with thorium electrodes. The routes of entry are ingestion of liquid, inhalation of dust or gas, and percutaneous absorption (Sittig 1981).

Thorium and thorium compounds are relatively inert, but some irritant effects may occur depending on the anion present. Gas and aerosols can penetrate the body by way of the respiratory system, the digestive system, and the skin. Thorium, once deposited in the body, remains for long periods of time. It has a predilection for bones, lungs, lymphatic glands, and parenchymatous tissues. Characteristic effects of the activity of thorium and its disintegration products are changes in blood forming, nervous and reticuloendothelial systems, and functional and morphological damage to lung and bone tissue; only much later do illness and symptoms characteristic of chronic radiation disease appear. After a considerable time, neoplasms may occur, and the immunological activity of the body may be reduced (Sittig 1981). An EPA weight-of-evidence classification was not found in the available literature.

Reference:

Sittig, M. 1981. *Handbook of Toxic and Hazardous Chemicals and Carcinogens*, Noyes Publications, Park Ridge, NJ.

Uranium (metal and soluble salts)

Uranium is a hard, silvery white amphoteric metal and is a radioactive element. In its natural state it consists of three isotopes: $^{234,235,238}U$. More than 100 uranium minerals exist; those of commercial importance are the oxides and oxygenous salts. The processing of uranium ore generally involves extraction then leaching either by an acid or a carbonate method. In addition, the metal may be obtained from its halides by fused salt electrolysis. The primary use of natural uranium is in nuclear energy as a fuel for nuclear reactors, in plutonium production, and as feeds for gaseous diffusion plants; it is also a source of radium salts. Uranium compounds are used in staining glass, glazing ceramics, and enameling; in photographic processes; for alloying steels; and as a catalyst for chemical reactions, radiation shielding, and aircraft counterweights (Sittig 1981).

The primary route of exposure to uranium metals and salts is through dermal contact. Uranium soluble compounds act as a poison to cause kidney damage under acute exposure and pneumoconiosis or pronounced blood changes under chronic exposure conditions. Furthermore, it is difficult to separate the toxic chemical effects of uranium and its compounds from their radiation effects. The chronic radiation effects are similar to those produced by ionizing radiation. Reports now confirm that carcinogenicity is related to dose and exposure time. Cancer of the lung,

osteosarcoma, and lymphoma have all been reported (Sittig 1985). An EPA weight-of-evidence classification for uranium metal was not located in the available literature.

Reference:

Sittig, M. 1985. *Handbook of Toxic and Hazardous Chemicals and Carcinogens*, Noyes Publications, Park Ridge, NJ.

Vanadium

Vanadium is a grayish-white metal that is widely distributed at low concentrations in the earth's crust. Vanadium is used as an alloying agent in steel and nonferrous metals and as a catalyst in chemical, ceramic, or specialty applications.

Vanadium compounds are poorly absorbed through the gastrointestinal system but are slightly more readily absorbed through the lungs (Opresko 1991). The toxicity of vanadium depends highly on its valence state and solubility. Effects observed following acute oral exposures in experimental animals include vasoconstriction, fatty degeneration of the liver and kidneys, hemorrhage, and bone marrow changes (EPA 1987, ATSDR 1990, Opresko 1991). Subchronic and chronic oral exposures in animals and humans indicate that primary targets are the digestive system, kidneys, and blood (Opresko 1991).

Adverse health effects have been seen in workers exposed to large amounts of airborne vanadium pentoxide dust. Effects included coughing, wheezing, breathing difficulties, bronchitis, chest pains, eye irritation, and skin irritation. Although most symptoms disappeared after exposure ceased, workers may be sensitized such that there is increased severity and more rapid onset of symptoms during subsequent exposures (Opresko 1991).

Little evidence exists that suggests vanadium or vanadium compounds are reproductive toxins or teratogenic. Very few adequate studies have been conducted to evaluate the carcinogenicity of vanadium (Opresko 1991).

References:

ATSDR (Agency for Toxic Substances and Disease Registry). 1990. *Draft Toxicological Profile for Vanadium*, U.S. Department of Health and Human Services, Public Health Service.

EPA (U.S. Environmental Protection Agency). 1987. *Health Assessment Document for Vanadium and Compounds*, Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, Ohio.

Opresko, D. M. 1991. *Toxicity Summary for Vanadium and Vanadium Compounds*, Biomedical and Environmental Information Analysis Section, Health and Safety Research Division, Oak Ridge National Laboratory.

Zinc

Zinc is a naturally occurring metal commonly found in air, soil, water, and various foodstuffs. It is an essential element in the human diet. Zinc, in a variety of inorganic forms, is a component of a number of different industrial processes and products, including the plastics industry, batteries,

wood preservatives, fire retardants, and rodenticides (Bertholf 1988). Exposures to airborne zinc can occur in the vicinity of galvanizing, smelting, or foundry operations.

The toxicity of zinc is considered to be relatively low. Ingestion of excessive levels of zinc in humans may lead to nausea, vomiting, epigastric distress, and anemia. Intestinal hemorrhage and pancreatic alterations have been observed in animals fed high levels of zinc compounds (ATSDR 1988). Chronic oral exposures to zinc have resulted in certain anemias in humans, and limited evidence also suggests that the human immune system may be impaired by subchronic oral exposure to zinc (including zinc taken as a dietary supplement) (Opresko 1992).

Inhalation of high concentrations of zinc can cause metal fume fever, characterized by rapid breathing, shivering, fever, sweating, generalized weakness, and temporary impairment of pulmonary functioning, which has been observed in workers exposed to certain zinc vapors (Bertholf 1988, ATSDR 1988).

Oral exposure to high levels of zinc has been shown to reduce fetal growth rate and reduce reproductive success in exposed animals (ATSDR 1988, Opresko 1992). No epidemiologic data are available to evaluate the carcinogenicity of zinc in humans. Two studies of ingestion of zinc placed in the food or water of mice did not result in excess cancers, while another longer-term study in mice did observe increased tumor frequencies following exposure to zinc in water (Opresko 1992).

References:

ATSDR (Agency for Toxic Substances and Disease Registry). 1988. *Draft Toxicological Profile for Zinc*, U.S. Department of Health and Human Services, Public Health Service.

Bertholf, R. L. 1988. Zinc, **in**: *Handbook on Toxicity of Inorganic Compounds*, eds. H.G. Seiler and H. Sigel, 405–415, New York: Marcel Dekker.

Opresko, D. M. 1992. *Toxicity Summary for Zinc and Zinc Compounds*, Biomedical and Environmental Information Analysis Section, Health and Safety Research Division, Oak Ridge National Laboratory.

F.4.7.2 Organics

Acetone

Acetone is a clear, colorless, highly flammable liquid with a vapor pressure of 182 mm Hg at 20°C. It is completely miscible in water and soluble in organics such as benzene and ethanol. Its log K_{ow} has been estimated to be -0.24. Acetone is used primarily as a solvent and chemical intermediate, and it is also found in some consumer products such as nail polish remover (BEIAS 1995).

Acetone may be released into the environment as stack emissions and/or fugitive emissions and in waste water effluents from facilities involved in its production and use as a chemical intermediate and solvent. Acetone is also a natural metabolic byproduct found in and released from plants and animals. Much of the acetone released into the environment will volatilize into the atmosphere where it will be subject to photo-oxidation (average half-life is 22 days). Volatilization from surface waters is moderately rapid (estimated half-life about 20 hours from a model river). If released onto the ground, acetone will both volatilize and leach into the soil and relatively little will be adsorbed to soil particles. Acetone has been detected in groundwater and drinking water (BEIAS 1995).

Acetone can be absorbed through the lungs, digestive tract, and skin. It is rapidly transported throughout the body and is not preferentially stored in any body tissue. The liver is the major organ of acetone metabolism, and excretion occurs mainly through the lungs and in the urine (BEIAS 1995).

Acute toxic effects following ingestion of 50 mL or more may include ataxia, sedation, and coma; respiratory depression; gastrointestinal disorders (vomiting and hematemesis); hyperglycemia and ketonemia; acidosis; and hepatic and renal lesions. Ingestion of 10 to 20 mL (7.9 to 15.8 g) generally is not toxic, and consumption of 20 g/day for several days resulted in only slight drowsiness. The minimum lethal dose for a 150-lb man is estimated to be 100 mL (79.1 g). No information is available on the subchronic or chronic oral toxicity to humans. In animal studies, subchronic oral exposures were associated with kidney damage and hematological changes (BEIAS 1995).

Information on the inhalation toxicity of acetone to humans is derived from occupational and laboratory studies. Typical symptoms of inhalation exposure are central nervous system depression and irritation of the mucous membranes of the eyes, nose, and throat. Central nervous system effects can range from subtle neurobehavioral changes to narcosis depending on the magnitude and length of exposure (BEIAS 1995).

No evidence is available that suggests acetone is carcinogenic in humans or animals. Negative results have been reported in occupational exposure studies and in rodent skin painting studies. Although acetone has not been tested in a 2-year rodent bioassay, in vitro tests for mutagenicity, chromosome damage, and DNA interaction indicate that acetone is not genotoxic except under severe conditions. Acetone is classified by EPA in weight-of-evidence Group D, not classifiable as to human carcinogenicity (BEIAS 1995).

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-77, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Asbestos

Asbestos is the generic name for a variety of naturally formed hydrated silicates containing metal cations such as sodium, magnesium, calcium, or iron. The two major groups of asbestos are serpentine and amphibole based on their physical/chemical properties. Chrysotile is the only asbestos in the serpentine group, whereas the amphibole group is represented by actinolite, amosite, anthophyllite, crocidolite, and tremolite. Asbestos fibers are chemically inert, or nearly so, and they do not evaporate, dissolve, burn, or undergo significant reactions with other chemicals (BEIAS 1995).

Asbestos fibers can enter the body after inhalation or oral exposures. Fibers that are deposited in the lung may be removed from the lung by mucociliary clearance or by macrophages, or they may be retained in the lungs. Some ingested asbestos fibers penetrate the gastric mucosa, and a small percentage of the fibers are distributed to other tissues. Ingested fibers are mostly excreted in the feces (BEIAS 1995).

Numerous studies in humans have established that long-term inhalation of asbestos fibers causes chronic, progressive pneumoconiosis (asbestosis). The disease is common among occupational groups directly exposed to asbestos fibers, such as insulation workers, but also extends to those working near the application or removal of asbestos and family contacts of exposed workers. Asbestosis results from a prolonged inflammatory response stimulated by the presence of fibers in the lungs and is characterized by fibrosis of the lung parenchyma, which usually becomes radiographically discernible 10 years after the first exposure. The main clinical symptom is shortness of breath, often accompanied by rales and cough. In severe cases, impairment of respiratory function may ultimately result in death. Because asbestos fibers are resistant to breakdown in the lungs, the inflammatory response triggered by the fibers is ongoing, even after exposure has ceased. It has been estimated that cumulative exposures of 17 to 75 fibers-year/mL would result in fibrotic lung lesions, and cumulative exposures of 3.5 to 300 fibers-year/mL would cause death in humans (BEIAS 1995).

Smoking has been shown to increase the risk of asbestosis. Fibrosis has been produced in laboratory animals following subchronic or chronic inhalation exposure to various forms of asbestos. Some studies of workers with asbestos-related diseases indicate that the cellular immune system in such patients can be depressed (BEIAS 1995).

Several epidemiologic studies suggest that high levels of asbestos in drinking water in certain geographic areas may cause gastrointestinal cancer in humans, whereas other studies failed to find a clear association between ingested asbestos and cancer in humans. Numerous epidemiologic studies have documented an increased incidence of lung cancer and pleural and peritoneal mesothelioma (a tumor involving the lining of the abdomen and chest) as a result of asbestos exposure. All major types of commercial asbestos such as chrysolite, amosite, and crocidolite have been found to produce asbestos-related cancer among workers occupationally exposed in mining and milling, manufacturing, and using materials containing asbestos fibers. Asbestos-related cancer has also been identified, although less frequently, in individuals who had worked near the application or removal of asbestos material, individuals residing in the vicinity of asbestos plants, and individuals who had lived in the household of an asbestos worker (BEIAS 1995).

For lung cancer, the magnitude of the carcinogenic risk appears to be a function of a number of factors, including the level and duration of exposure, the time since exposure occurred, the age at which exposure occurred, the smoking history of the exposed person, and the type and size distribution of asbestos fibers. A substantial latency period (10 to 30 years) has been observed between exposure to asbestos and the onset of lung cancer. Many reports have documented cases of pleural and peritoneal mesotheliomas resulting from occupational and nonoccupational exposures to various types and mixtures of asbestos. It has been estimated that a third of the mesotheliomas occurring in the U.S. may be due to nonoccupational exposure. Asbestos exposure and cigarette smoking act synergistically to produce dramatic increases in lung cancer compared with those from exposure to either agent alone. The data for possible interactions between smoking and mesothelioma are not certain, but smoking does not appear to increase the risk for this cancer (BEIAS 1995).

Reports of excess cancer incidences or mortality from cancers at other sites among workers exposed to asbestos are inconsistent. These cancers include cancers of the gastrointestinal system (esophagus, stomach, colon, bile duct, and rectum), laryngeal cancer, kidney cancer, ovarian cancer, and cancer affecting the lymphopoietic and hematopoietic systems. However, the risk of these cancers appears to be significantly lower than those for lung cancer and mesothelioma in similarly exposed cohorts. Based on EPA guidelines, asbestos has been assigned to weight-of-evidence group A, human carcinogen (BEIAS 1995).

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-77, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Benzo[a]anthracene (see toxicity profile for polycyclic aromatic hydrocarbons)

No substantial information for the toxicity of benzo[a]anthracene is available in current literature. However, benzo[a]anthracene is a polycyclic aromatic hydrocarbon (PAH) and exhibits many of the characteristics of other PAHs; therefore, the reader is referred to the toxicity profiles for benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, dibenzo[a,h]anthracene, and indeno[1,2,3-*cd*]pyrene as well as the profile containing general information for PAHs.

Benzene

Benzene is a volatile, colorless liquid with a characteristic "aromatic" odor. It is used primarily in the production of other chemicals such as ethylbenzene, cumene, and cyclohexane. Benzene is emitted into the workplace and environment (aquatic, terrestrial, and atmospheric) from industrial and other manmade sources, including gasoline from filling stations, tobacco products, and auto exhaust. According to the Occupational Safety and Health Administration, workers employed in industries that produce or use benzene are at risk for exposure to high levels of the chemical. Exposure of the general population may occur in residential areas near chemical manufacturing sites; exposure has also been associated with the ingestion of contaminated food and drinking water and inhalation of cigarette smoke and gas fumes (BEIAS 1995).

Autopsy of a youth who died while sniffing benzene revealed that the chemical was distributed to the urine, stomach, bile, liver, kidney, abdominal fat, and brain. Numerous studies indicate that the liver is the main site for metabolism of benzene; bone marrow is believed to be a minor site. Lethal oral doses of benzene are estimated to be 10 mL in humans; these data indicate that benzene are of low acute toxicity. Limited data show that nonlethal oral doses of benzene can impact the nervous, hematological, and immunological systems. In addition, inhalation of benzene vapor concentrations of 20,000 ppm for 5 to 10 minutes can be fatal to humans, and death results from central nervous system depression. Furthermore, benzene has been shown to be carcinogenic in humans and animals by inhalation and in animals by the oral route of exposure (BEIAS 1995).

Reference doses and reference concentrations for benzene have not been established. EPA has placed benzene in weight-of-evidence classification Group A, human carcinogen (BEIAS 1995).

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-77, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Benzidine

Benzidine is a crystalline solid with a significant vapor pressure. The salts are less volatile but tend to be dusty. It is used primarily in the manufacture of azo dyestuffs, of which more than 250 are produced. Other uses, which may have been discontinued, are in the rubber industry as a hardener; in the manufacture of plastic films; for detection of occult blood in feces, urine, and body

fluids; in the detection of H_2O_2 in milk; in the production of security paper; and as a laboratory reagent in determining HCN, sulfate, nicotine, and certain sugars (Sittig 1981).

Possible routes of entry are inhalation, percutaneous absorption, and ingestion of dust. Benzidine is a known human urinary tract carcinogen with an average latent period of 16 years (Sittig 1981). Benzidine has been placed in EPA's weight-of-evidence classification group A (BEIAS 1995).

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Values for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-76/R1, Risk Assessment Program, Health Science Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee

Sittig, M. 1981. *Handbook of Toxic and Hazardous Chemicals and Carcinogens*, Noyes Publications, Park Ridge, NJ.

Benzo[a]pyrene (see also toxicity profile for polycyclic aromatic hydrocarbons)

Benzo[*a*]pyrene is a PAH that can be derived from coal tar. Benzo[*a*]pyrene occurs ubiquitously in products of incomplete combustion of fossil fuels and has been identified in ambient air, surface water, drinking water, waste water, and char-broiled foods. Benzo[*a*]pyrene is primarily released to the air and removed from the atmosphere by photochemical oxidation and dry deposition to land or water. Biodegradation is the most important transformation process in soil or sediment (BEIAS 1995).

Benzo[*a*]pyrene is readily absorbed following inhalation, oral, and dermal routes of administration. Following inhalation exposure, benzo[*a*]pyrene is rapidly distributed to several tissues in rats. The metabolism of benzo[*a*]pyrene is complex and includes the formation of a proposed ultimate carcinogen, benzo[*a*]pyrene 7,8 diol-9,10-epoxide. The major route of excretion is hepatobiliary followed by elimination in the feces (BEIAS 1995).

Numerous epidemiologic studies have shown a clear association between exposure to various mixtures of PAHs containing benzo[*a*]pyrene (e.g., coke oven emissions, roofing tar emissions, and cigarette smoke) and increased risk of lung cancer and other tumors. However, each of the mixtures also contained other potentially carcinogenic PAHs; therefore, it is not possible to evaluate the contribution of benzo[*a*]pyrene to the carcinogenicity of these mixtures. An extensive data base is available for the carcinogenicity of benzo[*a*]pyrene in experimental animals. Dietary administration of benzo[*a*]pyrene has produced papillomas and carcinomas of the forestomach in mice, and treatment by gavage has produced mammary tumors in rats and pulmonary adenomas in mice. Exposure by inhalation and intratracheal instillation has resulted in benign and malignant tumors of the respiratory and upper digestive tracts of hamsters. Numerous topical application studies have shown that benzo[*a*]pyrene induces skin tumors in several species, although mice appear to be the most sensitive species. Benzo[*a*]pyrene is a complete carcinogen and also an initiator of skin tumors. Benzo[*a*]pyrene has also been reported to induce tumors in animals when administered by other routes, such as intravenous, intraperitoneal, subcutaneous, intrapulmonary, and transplacental. Based on EPA guidelines, benzo[*a*]pyrene was assigned to weight-of-evidence group B2, probable human carcinogen (BEIAS 1995).

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-77, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Benzo[b]fluoranthene (see also toxicity profile for polycyclic aromatic hydrocarbons)

Benzo[*b*]fluoranthene, a crystalline solid with a chemical formula of $C_{20}H_{12}$ and a molecular weight of 252.32, is a PAH with one five-membered ring and four six-membered rings. There is no commercial production or known use of this compound. Benzo[*b*]fluoranthene is found in fossil fuels and occurs ubiquitously in products of incomplete combustion. It has been detected in mainstream cigarette smoke; urban air; gasoline engine exhaust; emissions from burning coal and from oil-fired heating; broiled and smoked food; oils and margarine; and in soils, groundwater, and surface waters at hazardous waste sites (BEIAS 1995).

No absorption data were available for benzo[*b*]fluoranthene; however, by analogy to structurally-related PAHs, primarily benzo[*a*]pyrene, it would be expected to be absorbed from the gastrointestinal tract, lungs, and skin. Major metabolites of benzo[*b*]fluoranthene formed in vitro in rat liver include dihydrodiols and monohydroxy derivatives and monohydroxy derivatives in mouse epidermis (BEIAS 1995).

No data were found concerning the acute, subchronic, chronic, developmental, or reproductive toxicity of benzo[*b*]fluoranthene. No data were available for the derivation of an oral reference dose or inhalation reference concentration. Based on no human data and sufficient evidence for carcinogenicity in animals, EPA has assigned a weight-of-evidence classification of B2, probable human carcinogen, to benzo[*b*]fluoranthene (BEIAS 1995).

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-77, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Benzo[k]fluoranthene (see also toxicity profile for polycyclic aromatic hydrocarbons)

Benzo[*k*]fluoranthene, a crystalline solid with a chemical formula of $C_{20}H_{12}$ and a molecular weight of 252.32, is a PAH with one five-membered and four six-membered rings. There is no commercial production or known use of this compound. Benzo[*k*]fluoranthene is found in fossil fuels and occurs ubiquitously in products of incomplete combustion and in soils, groundwater, and surface waters at hazardous waste sites (BEIAS 1995).

No absorption or excretion data were available for benzo[*k*]fluoranthene; however, by analogy to structurally-related PAHs, primarily benzo[*a*]pyrene, it would be expected to be absorbed from the gastrointestinal tract, lungs, and skin. Rat liver microsomes have been shown to metabolize benzo[*k*]fluoranthene to the dihydrodiol, 8,9-dihydro-8,9-dihydroxy benzo[*k*]fluoranthene (BEIAS 1995).

No data were found concerning the acute, subchronic, chronic, developmental, or reproductive toxicity of benzo[*k*]fluoranthene. Because of a lack of toxicity data, an oral reference dose or inhalation reference concentration have not been derived. Based on no human data and sufficient

evidence for carcinogenicity in animals, EPA has assigned a weight-of-evidence classification of B2, probable human carcinogen, to benzo[*k*]fluoranthene (BEIAS 1995).

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-77, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Bis(2-ethylhexyl)phthalate

Bis(2-ethylhexyl)phthalate is a colorless, oily liquid used extensively as a plasticizer in a wide variety of industrial, domestic, and medical products. It is an environmental contaminant and has been detected in groundwater, surface water, drinking water, air, soil, plants, fish, and animals. It is rapidly absorbed from the gastrointestinal tract primarily as mono(2-ethylhexyl)phthalate. The diester can be absorbed through the skin and from the lungs. It is rapidly metabolized in the blood and tissues to the monoester, which can be excreted as a glucuronide conjugate, or further hydrolyzed to phthalic acid and excreted (BEIAS 1995).

Animal studies have indicated that the primary target organs are the liver and kidneys; however, higher doses are reported to result in testicular effects and decreased hemoglobin and packed cell volume. The primary intracellular effects of bis(2-ethylhexyl)phthalate in the liver and kidneys are an increase in the smooth endoplasmic reticulum and a proliferation in the number and size of peroxisomes. An epidemiologic study reported no toxic effects from occupational exposure to air concentrations of bis(2-ethylhexyl)phthalate up to 0.16 mg/m^3. Other studies on occupational exposures to mixtures of phthalate esters containing bis(2-ethylhexyl)phthalate have reported polyneuritis and sensory-motor polyneuropathy with decreased thrombocytes, leukocytes, and hemoglobin in some exposed workers. Developmental toxicity studies with rats and mice have shown that bis(2-ethylhexyl)phthalate is fetotoxic and teratogenic when given orally during gestation. Oral exposure has also been shown to result in decreased sperm count in rats (BEIAS 1995).

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-77, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Bromodichloromethane

Bromodichloromethane, also known as dichlorobromomethane, is one of several trihalomethanes that forms naturally from the interaction of chlorine with organic materials in water. Presently, bromodichloromethane is manufactured for use as a chemical intermediate for organic synthesis and as a laboratory reagent.

The principal route of exposure to bromodichloromethane is ingestion of drinking water, but inhalation and dermal contact are possible. Pathological changes have been noted in the liver, kidneys, and brain of animals acutely poisoned by oral bromodichloromethane (ATSDR 1989). Limited evidence suggests that bromodichloromethane is toxic to the developing fetus. Epidemiological studies indicate a possible relationship between exposure to bromodichloromethane present in chlorinated drinking water and cancer of the bladder, rectum, and large intestine

(EPA 1994). Bromodichloromethane, however, was not the only contaminant in the drinking water and has not been identified as the primary cause of the excess human cancer rate. Chronic studies indicate that bromodichloromethane induced tumors in the large intestine, kidney, and liver when orally administered to rats and mice (EPA 1994).

References:

ATSDR (Agency for Toxic Substances and Disease Registry). 1989. *Toxicological Profile for Bromodichloromethane*, U.S. Department of Health and Human Services, Public Health Service.

EPA (U.S. Environmental Protection Agency). 1994. Integrated Risk Information System (IRIS), Cincinnati, Ohio, Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office.

Bromoform

Bromoform, also known as tribromomethane, is a colorless to yellow, nonflammable, heavy liquid with a chloroform-like odor. It is used in pharmaceutical manufacturing and in ship building, aircraft, and aerospace industries. Bromoform is an ingredient in fire-resistant chemicals and gauge fluid, and it is used as a flotation agent in mineral separation and as a solvent (HSDB 1993, Sittig 1985). Bromoform has been identified as a drinking water contaminant resulting from water chlorination (NTP 1989).

Inhalation, ingestion, and dermal absorption are all possible routes of exposure. Bromoform can cause central nervous system depression, liver injury, and respiratory depression. Other effects may include severe skin, eye, and respiratory tract irritation (HSDB 1993). In a chronic gavage study in rats, high doses of bromoform produced necrosis of the liver. Under the conditions of the study, the investigators found some evidence of carcinogenic activity in male rats and clear evidence of carcinogenic activity in the females (NTP 1989). Bromoform is classified as a probable human carcinogen by EPA based on inadequate human data and sufficient evidence in animal studies (EPA 1994).

References:

EPA (U.S. Environmental Protection Agency). 1994. Integrated Risk and Information Program (IRIS), Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, Ohio.

HSDB (Hazardous Substances Database). 1993. National Library of Medicine, Bethesda, Maryland.

NTP (National Toxicological Program). 1989. *Toxicology and Carcinogenesis Studies of tibromomethane (bromoform) (cas no. 75-25-2) in F344/N rats and B6C341 mice (gavage studies)*, National Toxicology Program Technical Report (NTP TR 350), NIH Publication No. 89-2805.

Sittig, M. 1985. *Handbook of Toxic and Hazardous Chemicals and Carcinogens*, 2nd ed., Park Ridge, N.J.: Noyes Publications.

Carbon Tetrachloride

Carbon tetrachloride is a colorless, heavy liquid with a sweet odor. It is used primarily in the production of fluorocarbon propellants. In the past, carbon tetrachloride was widely used as a solvent, dry cleaning agent and a grain fumigant but has been replaced by less toxic solvents (ACGIH 1991, ATSDR 1992).

Carbon tetrachloride is absorbed rapidly after ingestion or inhalation and more slowly through the skin (ATSDR 1992). The major effects following acute and chronic exposure to carbon tetrachloride by either ingestion or inhalation are liver and kidney damage, with death often attributable to acute hepatic or renal failure, or both. Other immediate symptoms of exposure include severe abdominal pain, nausea and vomiting, and depending on the dose, gastric and intestinal hemorrhages (EPA 1984). Toxic effects of carbon tetrachloride are markedly enhanced by concurrent consumption of alcohol or barbiturates (EPA 1984, ACGIH 1991).

No information is available on the reproductive effects of carbon tetrachloride in humans; however, decreases in fetal body weight and length have been observed in the offspring of rats exposed to carbon tetrachloride following oral or inhalation exposure (EPA 1984, Francis 1992). Repeated inhalation exposure of male rats to carbon tetrachloride concentrations of 200 mg/kg or greater caused degeneration of testicular tissue (Francis 1992). Mutagenicity data indicate that carbon tetrachloride is a weak mutagen; hepatocellular carcinomas were demonstrated in rats, mice, and hamsters following oral exposure to carbon tetrachloride. Liver tumors have also been reported in rats following inhalation exposure (Francis 1992). The EPA has classified carbon tetrachloride as a probable human carcinogen for both oral and inhalation exposure (EPA 1994).

References:

ACGIH (American Council of Governmental Industrial Hygienists). 1991. *Documentation of the Threshold Limit Values*, 6th edition, Cincinnati, Ohio.

ATSDR (Agency for Toxic Substances and Disease Registry). 1992. *Toxicological Profile for Carbon Tetrachloride, Update Draft Report*, U.S. Department of Health and Human Services, Public Health Service.

EPA (U.S. Environmental Protection Agency). 1984. *Health Assessment Document for Carbon Tetrachloride, Final Report*, EPA-600/8-82/001F.

EPA. 1994. Integrated risk and information system (IRIS), Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office.

Francis, A. 1992. *Toxicity Summary for Carbon Tetrachloride*, Biomedical and Environmental Information Analysis Section, Health and Safety Research Division, Oak Ridge National Laboratory.

Chlorobenzene

Chlorobenzene, also referred to as monochlorobenzene, is a colorless liquid with an almond-like odor. It is used as a solvent, an intermediate in the production of other chemicals, and as a heat transfer medium (ATSDR 1989, ACGIH 1986).

Chlorobenzene is absorbed from the lungs and the gastrointestinal tract; absorption through the skin is considered negligible (EPA 1980). Chlorobenzene primarily affects the central nervous system in humans and animals. Case reports and reports of occupational exposures to unknown concentrations indicate that chlorobenzene may cause eye and respiratory irritation, painful digestion, and symptoms of central nervous system depression (ATSDR 1989; EPA 1980, 1985). Damage to the liver, kidneys, and hematological organs has been demonstrated in animals (ATSDR 1989; Deichmann 1981; NTP 1983; EPA 1980, 1985). Chlorobenzene is not reproductively or developmentally toxic to humans or animals, but its metabolic products have caused embryotoxicity

in animals (ATSDR 1989; EPA 1980, 1985). No conclusive evidence of mutagenicity or carcinogenicity in humans or animals exists (EPA 1994).

References:

ACGIH (American Council of Governmental Industrial Hygienists). 1986. *Documentation of the Threshold Limit Values and Biological Exposure Indices*. 5th ed. Cincinnati, Ohio.

ATSDR (Agency for Toxic Substances and Disease Registry). 1989. *Toxicological Profile for Chlorobenzene*. U.S. Department of Health and Human Services. Public Health Service.

Deichmann, W.B. 1981. Halogenated cyclic hydrocarbons. **In**: *Patty's Industrial Hygiene and Toxicology*, eds. G.D. Clayton and F.E. Clayton. 3d ed. Vol. 2B. New York: John Wiley & Sons.

EPA (U.S. Environmental Protection Agency). 1980. *Ambient Water Quality Criteria for Chlorinated Benzenes*. EPA-440/5-80-028. Environmental Criteria and Assessment Office.

EPA. 1985. *Health Assessment Document for Chlorinated Benzenes*. EPA/600/8-84/015F. Office of Health and Environmental Assessment.

EPA. 1994. Integrated risk and information system (IRIS). Office of Health and Environmental Assessment. Environmental Criteria and Assessment Office.

NTP (National Toxicology Program). 1983. *Toxicology and Carcinogenesis Studies of Chlorobenzene in F344/N Rats and B6C3F1 Mice (Gavage Studies)*. Research Triangle Park, North Carolina.

Chloroform

Chloroform, or trichloromethane, is a colorless, pleasant smelling chemical that is widely used in the production of pharmaceuticals, plastics, fluorocarbons, refrigerants, pesticides, dyes, and other solvents. Its past use as a general anesthetic has been discontinued because of its toxic effects.

Chloroform is rapidly absorbed from the lungs and the gastrointestinal tract, and, to some extent, the skin. Cases of occupational, accidental, and purposeful exposure in humans and experimental studies in several animal species indicate that chloroform depresses the central nervous system, causes heart and liver effects, and may result in possible death (ATSDR 1989, Torkelson and Rowe 1981). At lower concentrations, chloroform may cause irritability, gastrointestinal symptoms, and frequent, burning urination (Faust 1992). Kidney effects have been reported in rats and mice following oral and inhalation exposures, but the evidence in humans for these effects is sparse (EPA 1985, Faust 1992). Potential reproductive and developmental toxicity and possible teratogenic effects are indicated in rodents exposed to chloroform by inhalation and ingestion, but there are no data available on these effects in humans (ATSDR 1989, Torkelson and Rowe 1981).

Epidemiological studies indicate a possible relationship between exposure to chloroform as one of several contaminants present in chlorinated drinking water and cancers of the bladder, large intestine, and rectum (ATSDR 1989, EPA 1985, Faust 1992). Because chloroform was not the only contaminant in the drinking water, the excess cancer rate cannot be attributed to this single contaminant. Orally administered chloroform has produced cancer of the liver and kidneys in mice and rats (IARC 1979, Faust 1992). The EPA has classified chloroform in Group B, a probable human carcinogen (Faust 1992).

References:

ATSDR (Agency for Toxic Substances and Disease Registry). 1989. *Toxicological Profile for Chloroform.* ATSDR/TP-88/09. U.S. Department of Health and Human Services. Public Health Service.

EPA (U.S. Environmental Protection Agency). 1985. *Health Assessment Document for Chloroform. Final Report.* EPA/600/8-84/004F. Office of Health and Environmental Assessment.

Faust, R.A. 1992. *Toxicity Summary for Chloroform.* Biomedical and Environmental Information Analysis Section, Health and Safety Research Division, Oak Ridge National Laboratory.

IARC (International Agency for Research on Cancer). 1979. *IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man. Vol. 20, Some Halogenated Hydrocarbons*, Lyon, France: World Health Organization.

Torkelson, T. R., and V. K. Rowe. 1981. *Patty's Industrial Hygiene and Toxicology*, G. D. Clayton and F. E. Clayton., eds., Vol. 2, Toxicology, 3d ed., New York, New York: John Wiley & Sons.

Chloromethane

Chloromethane, also known as methyl chloride, is a colorless, flammable gas that has a faintly sweet odor. Chloromethane is a naturally occurring chemical that is present in air all over the world in concentrations from less than 0.001 mg/l to 0.003 mg/l (ATSDR 1989, ACGIH 1986). It is also manufactured in industry and used to produce silicones, agricultural chemicals and butyl rubber. Chloromethane was used as the cooling agent in refrigerators (more than 30 years ago). It is also found in cigarette smoke and smoke from burning wood, grass, coal, or certain plastics (ATSDR 1989).

The principle route of exposure is through inhalation, but chloromethane can be ingested through drinking water or absorbed through the skin. The central nervous system is the major target of chloromethane toxicity. In acute exposures to high concentrations in humans, chloromethane reportedly causes headache; drowsiness; giddiness; ataxia; and ultimately convulsions, coma, and death (ACGIH 1986). Single inhalation exposures in animal studies have shown respiratory, cardiovascular, and hepatic effects (ATSDR 1989). Chloromethane leaking either from refrigerators or industrial cooling and refrigeration systems has caused several human deaths. Repeated exposures to lower concentrations usually cause fatigue, loss of appetite, muscular weakness, and drowsiness (HSDB 1993).

In addition to chloromethane's effects on the nervous system (Torkelson and Rowe 1982), effects on the liver, kidney, and cardiovascular system have been described in case reports of humans exposed for brief periods or for prolonged periods in occupational settings (ATSDR 1989). In humans, chronic exposures often exert delayed effects that may last for months after exposure. Testicular atrophy, infertility, sterility (male rats), kidney tumors (male mice), and possible developmental effects (heart defects in mice) have been observed in animal studies but have not been reported in humans (ATSDR 1989). Only inadequate evidence exists of carcinogenicity in humans and animals (HSDB 1993).

References:

ACGIH (American Council of Governmental Industrial Hygienists). 1986. *Documentation of the Threshold Limit Values and Biological Exposure Indices.* 5th ed. Cincinnati, Ohio.

ATSDR (Agency for Toxic Substances and Disease Registry). U.S. Department of Health and Human Services. Public Health Service. 1989. *Toxicological profile for Chloromethane.*

HSDB (Hazardous Substances Database). 1993. National Library of Medicine. Bethesda, Maryland.

Torkelson, T.K. and V.K. Rowe. 1982. Halogenated Aliphatic Hydrocarbons. *In: Patty's Industrial Hygiene and Toxicology.* G.D. Clayton and F.E. Clayton, eds. 2, Toxicology. 3rd ed. New York, New York: John Wiley and Sons.

4,4'-DDT (DDT, DDD, DDE)

DDT [1,1,1-trichloro-2,2-bis(p-chlorophenyl)ethane] is a colorless to off-white powder. Although its use as an agricultural crop pesticide has been banned in the United States since January 1973, it is still available for essential public health uses and is used world-wide for the control of insect vectors that carry malaria-causing parasites. DDD and DDE are structurally similar to and are metabolites of DDT (EPA 1994).

DDT and its metabolites may be absorbed via the respiratory tract and the gastrointestinal tract. Acute DDT poisoning may cause rashes; irritation of the eyes, nose, and throat; nervous system effects; muscle weakness; and death due to respiratory failure or ventricular fibrillation (ATSDR 1988). Tremors are the most noticeable indication of chronic DDT exposure among humans. In animals, chronic exposure to high levels may result in symptoms of central nervous system and liver toxicity. DDT is well known for its ability to reduce the thickness of egg shells in birds, but no major reproductive or teratogenic effects have been reported in mammals. Although tests indicate that DDT is not mutagenic, an increase in the number of chromatic breaks was observed in insecticide workers during a peak spraying season. Liver tumors have been reported in animals orally exposed to DDT and it metabolites. Carcinogenicity has not been associated with human exposure to DDT, DDD, or DDE (ATSDR 1988, EPA 1994).

References:

ATSDR (Agency for Toxic Substances and Disease Registry). 1988. *Toxicological Profile for p,p'-DDT, p,p'-DDE, and p,p'-DDD.* U.S. Department of Health and Human Services. Public Health Service.

EPA (U.S. Environmental Protection Agency). 1994. Integrated Risk and Information system (IRIS). Office of Health and Environmental Assessment. Environmental Criteria and Assessment Office.

Dibenzo[a,h]anthracene (see also toxicity profile for polycyclic aromatic hydrocarbons)

Dibenz[*a,h*]anthracene is a PAH with five aromatic rings. No commercial production or use of dibenz[*a,h*]anthracene is known. It occurs as a component of coal tars, shale oils, and soots and has been detected in gasoline engine exhaust, coke oven emissions, cigarette smoke, charcoal broiled meats, vegetation near heavily traveled roads, and surface water and soils near hazardous waste sites (BEIAS 1995).

Dibenz[*a,h*]anthracene is poorly absorbed from the gastrointestinal tract and is primarily excreted via feces. Following absorption, dibenz[*a,h*]anthracene is distributed to various tissues, with highest accumulation in the liver and kidneys. Dibenz[*a,h*]anthracene is metabolized by mixed function oxidases to dihydrodiols. Epoxidation of the 3,4-dihydrodiol may lead to the formation of a diolepoxide, the putative ultimate carcinogenic metabolite of dibenz[*a,h*]anthracene (BEIAS 1995).

The EPA has not derived an oral reference dose or inhalation reference concentration for dibenz[*a,h*]anthracene. In addition, no epidemiologic studies or case reports addressing the carcinogenicity of dibenz[*a,h*]anthracene in humans were available. In animals, dibenz[*a,h*]anthracene has produced tumors by different routes of administration, having both local and systemic carcinogenic effects (BEIAS 1995).

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-77, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Dibromochloromethane

Dibromochloromethane, also known as chlorodibromomethane, is a colorless to pale yellow, nonflammable liquid. It is used as a chemical intermediate in the manufacture of fire extinguishing agents, propellants, refrigerants, and pesticides. Dibromochloromethane is inadvertently formulated during the chlorination treatment process of water.

Exposure can occur through ingestion, inhalation, and dermal absorption. Liver and kidney effects have been observed in chronically-exposed animals. Dibromochloromethane is classified as a possible human carcinogen by EPA based on limited evidence of carcinogenicity in animals and inadequate human data. Dibromochloromethane is similar in structure to other trihalomethanes that have been shown to be carcinogenic to animals (EPA 1994).

Reference:

EPA (U.S. Environmental Protection Agency). 1994. Integrated Risk and Information System (IRIS), Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office.

1,4-Dichlorobenzene

1,4-Dichlorobenzene (para-dichlorobenzene) is a chlorinated cyclic aromatic compound that is a white or colorless crystalline solid with a characteristic aromatic, penetrating odor (ATSDR 1989, EPA 1985). It is used in pesticides, dye synthesis, abrasives, floor waxes and finishes, agricultural chemicals, space deodorizers, and mothballs and moth repellant.

Dichlorobenzenes may be absorbed through the lungs, gastrointestinal tract, and intact skin (EPA 1985). Acute exposure to 1,4-dichlorobenzene may produce eye and nose irritation, central nervous system effects, and respiratory effects. Effects in the central nervous system, liver, blood, and respiratory tract may result from repeated exposures to 1,4-dichlorobenzene (ATSDR 1989, EPA 1985). Liver and kidney effects have been reported following both short- and long-term exposures. Multigeneration reproductive studies (0, 50, 150, and 450 mg/kg dose groups) indicate that inhalation of 1,4-dichlorobenzene increased liver weights in male rats (150 and 450 mg/kg dose groups); increased kidney weights in both parental males and females (assumed to be in 150 and 450 mg/kg dose groups, although not clearly stated); decreased live births, pup weight, and survival for both the F1 and F2 generations (450 mg/kg dose group); and increased incidence of hepatocellular hypertrophy in the F0 and F1 males and females (dose groups not given) (EPA 1994). 1,4-Dichlorobenzene is generally not mutagenic in bacteria and mammalian cells, but chromosomal breaks have been demonstrated in several plant species. Only one report suggests an association

between leukemia in humans and exposure to dichlorobenzenes, but liver and kidney tumors have been reported in animals exposed to 1,4-dichlorobenzene (IARC 1987, NTP 1987).

References:

ATSDR (Agency for Toxic Substances and Disease Registry). 1989. *Toxicological Profile for 1,4-Dichlorobenzene*, U.S. Department of Health and Human Services, Public Health Service.

EPA (U.S. Environmental Protection Agency). 1985. *Health Assessment Document for Chlorinated Benzenes*, EPA/600/8-84/015F, Office of Health and Environmental Assessment, Washington, D.C. January.

EPA. 1994. Integrated Risk Information System (IRIS), Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, Ohio.

IARC (International Agency for Research on Cancer). 1987. *IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, 192-193. Supplement 7, Overall Evaluations of Carcinogenicity: An Updating of IARC Monographs Volume 1 to 42*, Lyon, France: World Health Organization.

NTP (National Toxicology Program). *Toxicology and Carcinogenesis Studies of 1,4-Dichlorobenzene in F344/N Rats and B6C3F1 Mice.* Technical report series no. 319, Research Triangle Park, North Carolina.

1,1-Dichloroethane

1,1-Dichloroethane is a colorless, oily liquid that has an odor and taste of chloroform. It is used as a chemical intermediate, primarily in the manufacture of 1,1,1-trichloroethane, and as a cleaning agent, degreaser, and solvent (ATSDR 1990, Opresko 1994). Formerly, it was used as a surgical anesthetic.

Exposure to 1,1-dichloroethane occurs via inhalation, ingestion, and skin absorption (ATSDR 1990). In humans, very high concentrations have produced anesthesia, which is frequently accompanied by irregular heartbeats. Kidney toxicity occurred in cats exposed to 1,1-dichloroethane by inhalation but not in any other animal species. 1,1-dichloroethane caused delayed ossification in rats when dams were exposed by inhalation but did not cause any other developmental or reproductive effects. Inconclusive evidence suggests that chronic exposure of rodents to 1,1-Dichloroethane in the drinking water may be carcinogenic (ATSDR 1990, Opresko 1994).

References:

ATSDR (Agency for Toxic Substances and Disease Registry). 1990. *Toxicological Profile for 1,1-Dichloroethane*, U.S. Department of Health and Human Services, Public Health Service.

Opresko, D. M. 1994. *Toxicity Summary for 1,1-Dichloroethane*, Biomedical and Environmental Information Analysis Section, Health and Safety Research Division, Oak Ridge National Laboratory.

1,2-Dichloroethane

1,2-Dichloroethane is a clear, colorless, oily liquid with a sweet, pleasant odor. It is currently used as a chemical intermediate and a solvent in closed systems and as a lead scavenger in gasoline. Formerly, 1,2-dichloroethane was used in varnish and finish removers; in soaps and scouring compounds; as a cleaning and extracting solvent; in ore flotation; and in paints, coatings, and adhesives.

In humans, 1,2-dichloroethane causes central nervous system depression and gastrointestinal upset. Inhalation exposure can induce neurotoxic, nephrotoxic, and hepatotoxic effects in humans, as well as respiratory distress, cardiac arrhythmia, nausea, and vomiting (ATSDR 1992). Animal studies have uniformly indicated liver and kidney injury (ACGIH 1980). Opacity of the cornea has been observed following administration to dogs and foxes (ACGIH 1980). Evidence in animals suggests that the testes may also be a target organ and that 1,2-dichloroethane can cause genotoxic effects (ATSDR 1992). Oral exposure of rats to 1,2-dichloroethane has caused bronchitis and histological changes in the brain (ATSDR 1992). In addition, 1,2-dichloroethane induced liver tumors, squamous cell carcinomas of the forestomach, mammary gland cancer, and hemangiosarcomas in rats treated by gavage (IARC 1979). Mice developed liver tumors when treated by gavage and lung papillomas following topical application (EPA 1994).

References:

ACGIH (American Council of Governmental Industrial Hygienists). 1980. *Documentation of Threshold Limit Values*, 4th ed., Cincinnati, Ohio.

ATSDR (Agency for Toxic Substance and Disease Registry). 1992. *Toxicological Profile for 1,2-Dichloroethane*, April.

EPA (U.S. Environmental Protection Agency). 1994. Integrated Risk Information System (IRIS), Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office.

IARC (International Agency for Research on Cancer). 1979. *IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans. Vol. 20. Some Halogenated Hydrocarbons*, Lyon, France: IARC.

1,1-Dichloroethene

1,1-Dichloroethene, also known as 1,1-dichloroethene and vinylidine chloride, is a colorless liquid that is used primarily in the production of polyvinylidine chloride (PVC) copolymers and as an intermediate for synthesis of organic chemicals. The major application for PVC copolymers is the production of flexible films for food packaging such as Saran® wrap (BEIAS 1995).

1,1-Dichloroethene does not occur naturally but is found in the environment due to releases associated with its production and transport and with the production of its polymers. Because of its high volatility, releases to the atmosphere are the greatest source of ambient 1,1-dichloroethene. Smaller amounts are released to surface waters and soils. Loss of 1,1-dichloroethene from water and soils is primarily due to volatilization. In the atmosphere, reaction with photochemically generated hydroxyl radicals is expected to be the predominant removal mechanism. Human exposure to 1,1-dichloroethene is potentially highest in workplace settings and in the vicinity of hazardous waste sites where the compound may contaminate environmental media (BEIAS 1995).

The primary effect of acute exposure to high concentrations (approximately 4000 ppm) of 1,1-dichloroethene vapor in humans is central nervous system depression which may progress to unconsciousness. Occupational exposure has been reported to cause liver dysfunction in workers. 1,1-Dichloroethene is irritating when applied to the skin, and prolonged contact can cause first degree burns. Direct contact with the eyes may cause conjunctivitis and transient corneal injury (BEIAS 1995).

In experimental animals, the liver and kidneys are target organs for the toxic effects of 1,1-dichloroethene. Subchronic oral exposure for 90 days to 1,1-dichloroethene in drinking water produced slight hepatotoxic effects at 200 ppm, and chronic oral exposure to drinking water for 2 years produced hepatocellular changes in males at ≥100 ppm and in females at ≥50 ppm. Gavage administration of 10 mg/kg/day, 5 days/week for 2 years produced chronic inflammation of the kidney in male and female rats and liver necrosis in male and female mice. Exposure by inhalation to 55 ppm 1,1-dichloroethene, 6 hours/day, 5 days/week for up to 1 year produced fatty liver changes in rats and focal degeneration and necrosis in mice. Based on EPA guidelines, 1,1-dichloroethene was assigned to weight-of-evidence group C, possible human carcinogen (BEIAS 1995).

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-77, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

1,2-Dichloroethene

1,2-Dichloroethene exists in two isomeric forms, *cis*-1,2-dichloroethene and *trans*-1,2-dichloroethene, that are colorless, volatile liquids with a slightly acrid odor. Although not used extensively in industry, 1,2-dichloroethene is used in the production of other chlorinated solvents and as a solvent for dyes, perfumes, and lacquers (ATSDR 1990). trans-1,2-Dichloroethene is more widely used in industry than is cis-1,2-dichloroethene (HSDB 1993). They are used as solvents for perfumes, dyes, lacquers, fats, rubber, and phenol (HSDB 1993).

Humans are exposed to 1,2-dichloroethene primarily by inhalation, but exposure can also occur by oral and dermal routes (Borges 1991). Information on the toxicity of 1,2-dichloroethene is limited (ATSDR 1990, EPA 1990). Workers acutely exposed to 1,2-dichloroethene have experienced central nervous system effects, including narcosis and eye irritation (ACGIH 1980, Torkelson and Rowe 1981). In animals, the liver is the primary target organ of cis-1,2-dichloroethene toxicity, while lung and kidney damage have also been reported (Borges 1991, NRC 1983; Torkelson and Rowe 1981). Acute inhalation of trans-1,2-dichloroethene in animals produced cardiac muscle, liver and lung damage, as well as hematological effects (NRC 1983, ATSDR 1990, EPA 1990). No information is available concerning chronic, reproductive, or developmental toxicity or the carcinogenicity of 1,2-dichloroethene. 1,2-Dichloroethene is not mutagenic in the Ames assay (NRC 1983, EPA 1990).

References:

ACGIH (American Council of Governmental Industrial Hygienists). 1980. *Documentation of the Threshold Limit Values*, 4th ed., Cincinnati, Ohio.

ATSDR (Agency for Toxic Substances and Disease Registry). 1990. *Toxicological Profile for cis-1,2-Dichloroethene, trans-1 ,2-Dichloroethene, and Dichloroethene,1,2- final report*, TP-ATSDR-90-13, U.S. Department of Health and Human Services, Public Health Service.

Borges, T. 1991. *Toxicity Summary for cis- and trans-1,2-Dichloroethene*, Biomedical and Environmental Information Analysis Section, Health and Safety Research Division, Oak Ridge National Laboratory.

EPA (U.S. Environmental Protection Agency). 1990. *Criteria Document for the Dichloroethylenes*, PB91-143396, Criteria and Standards Division, Office of Drinking Water.

HSDB (Hazardous Substances Database). 1993. National Library of Medicine, Bethesda, Maryland.

NRC (National Research Council). 1983. *Safe Drinking Water and Health. Vol. 5*, Board on Toxicology and Environmental Health Hazards, Safe Drinking Water Committee.

Torkelson, T. R. and V. K. Rowe. 1981. *Patty's Industrial Hygiene and Toxicology*, eds. G.D. Clayton and F.E. Clayton, Vol. 2, Toxicology, 3d ed., New York, New York: John Wiley & Sons.

1,2-Dichloropropane

1,2-Dichloropropane is a colorless liquid that smells similar to chloroform. It is used in paper coating, petroleum catalyst regeneration, and research and as a chemical intermediate. In the past 1,2-dichloropropane was used as a soil fumigant, solvent in paint strippers, paint, varnish and furniture finish removers, and in photographic film production (ATSDR 1989).

1,2-Dichloropropane is absorbed through the lungs, skin, and gastrointestinal tract (ATSDR 1989). Deliberate exposures by humans to 1,2-dichloropropane have resulted in acute liver damage, vomiting, abdominal pain, and severe kidney failure. Acute ingestion produced anemia, leukopenia, dizziness, headache, coma, and disorientation. Fatigue, conjunctival hemorrhages, nosebleed, hemolytic anemia, and respiratory tract irritation have been reported in humans exposed to 1,2-dichloropropane for short periods of time. Exposure of the skin to 7.4 to 12.7% 1,2-dichloropropane in aerosols produced dermatitis (ATSDR 1989). Effects reported in exposed animals include anemia, conjunctivitis, degeneration of the nasal mucosa, anesthesia, central nervous system depression, and fatty degeneration of the liver and kidney (ATSDR 1989). Transient nonmenstrual bleeding of the uterus was reported in a woman exposed to 1,2-dichloropropane in air (ATSDR 1989). Testicular degeneration, increased infections of the female reproductive organs, and delayed ossification of the bones of the skull were observed in exposed animals. Oral exposure of mice and rats to 1,2-dichloropropane resulted in an increased incidence of hepatocellular neoplasms and mammary gland adenocarcinomas (ATSDR 1989).

Reference:

ATSDR (Agency for Toxic Substances and Disease Registry). 1989. *Toxicological Profile for 1,2-Dichloropropane*, PB90-182122, U.S. Department of Health and Human Services, Public Health Service.

2,4-Dimethylphenol

Methylphenols (cresols) which occur as several closely related compounds, including 2-methylphenol, (ortho-cresol), 3-methyl phenol, (meta-cresol), 4-methylphenol, (para-cresol) and 2,4-dimethylphenol. These compounds occur naturally and are found in many foods, human and animal urine, wood and tobacco smoke, crude oil, and coal tar (ATSDR 1990). Man-made methylphenols are used as disinfectants and deodorizers, to dissolve substances, and in the manufacture of other chemicals.

Methylphenols are highly irritating and corrosive to tissue (ATSDR 1990). Systemically, methylphenols can affect the central nervous system, liver, lungs, kidneys, gastrointestinal tract, eyes, and heart. Effects in the blood-forming system, respiratory irritation, and sclerosis of the lungs have been reported in rats exposed for intermediate durations (EPA 1986). No studies are available on the potential chronic, reproductive, or teratogenic effects of methylphenols. One mutagenicity study on onion root tips reports negative results for 2-methylphenol, but 4-methylphenol produced

cytological abnormalities and chromosome fragmentation. In an initiation-promotion study, methylphenols have promoted the tumorigenic action of a carcinogen when applied to mouse skin (ATSDR 1990).

References:

ATSDR (Agency for Toxic Substances and Disease Registry). 1990. *Toxicological Profile for Cresols,* U.S. Department of Health and Human Services, Public Health Service.

EPA (U.S. Environmental Protection Agency). 1986. *Research and Development, verified reference doses (RFDs) of the EPA*, the ADI Group of the Risk Assessment Forum, January.

2,4-Dinitrophenol

Dinitrophenol has six isomers of which 2,4-dinitrophenol is the most important industrially. It is an explosive, yellow crystalline solid that melts at 114° to 115°C. 2,4-Dinitrophenol is used in the manufacturing of dyestuff intermediates, wood preservatives, pesticides, herbicides, explosives, chemical indicators, photographic developers, and chemical synthesis (Sittig 1981).

Locally, 2,4-dinitrophenol causes yellow staining of exposed skin. Dermatitis may be due to either primary irritation or allergic sensitivity. Systemically, 2,4-dinitrophenol disrupts oxidative phosphorylation which results in increased metabolism, oxygen consumption, and heat production. Acute intoxication is characterized by sudden onset of fatigue, thirst, sweating, and oppression of the chest. In less severe poisoning, the symptoms are nausea, vomiting, anorexia, weakness, dizziness, vertigo, headache, and sweating. The liver may be sensitive to pressure, and there may also be jaundice. 2,4-Dinitrophenol poisoning is more severe in warm environments. If not fatal, the effects are rapidly and completely reversible. Chronic exposure results in kidney and liver damage and cataract formation. Occasional hypersensitivity reactions, e.g., neutropenia, skin rashes, peripheral neuritis, have been seen after oral use (Sittig 1981). An EPA weight-of-evidence classification was not located in the available literature.

Reference:

Sittig, M. 1981. *Handbook of Toxic and Hazardous Chemicals and Carcinogens*, Noyes Publications, Park Ridge, NJ.

2,4-Dinitrotoluene

2,4-Dinitrotoluene is one of six isomeric forms of dinitrotoluene. It is a yellow solid that is used in the manufacture of explosives, dyes, polyurethane foams, and as a chemical intermediate (ATSDR 1989).

2,4-Dinitrotoluene is absorbed through the lungs, gastrointestinal tract, and skin (ATSDR 1989). In humans, exposure to high concentrations of 2,4-dinitrotoluene causes methemoglobinemia, followed by cyanosis. Other effects of exposure are dizziness, nausea, weakness, drowsiness, loss of consciousness, and anemia under prolonged exposures. Methomoglobinemia, anemia, cyanosis, central nervous depression, respiratory depression, neuromuscular effects, and hepatotoxicity have been observed in animals (ACGIH 1991). Decreased sperm counts and normal sperm morphology in humans occupationally exposed and testicular atrophy and decreased spermatogenesis in animals have been reported (ACGIH 1991).

2,4-Dinitrotoluene produced liver tumors and increased mammary gland fibroadenomas and subcutaneous tissue fibromas in rats (ATSDR 1989).

References:

ACGIH (American Council of Governmental Industrial Hygienists). 1991. *Documentation of the Threshold Limit Values and Biological Exposure Indices*, 6th ed. Cincinnati, Ohio.

ATSDR (Agency for Toxic Substances and Disease Registry). 1989. *Toxicological Profile for 2,4-Dinitrotoluene and 2,6-Dinitrotoluene*, U.S. Department of Health and Human Services. Public Health Service.

2,6-Dinitrotoluene

2,6-Dinitrotoluene is one of six isomeric forms of dinitrotoluene. Little information was found in the available literature regarding the toxicity of 2,6-dinitrotoluene; however, for more information refer to 2,4-dinitrotoluene.

Di-n-Octyl Phthalate

Di-n-octyl phthalate is used as a plasticizer in plastics product manufacture. It has been shown to produce teratogenic effects following intraperitoneal injection in pregnant rats although mutagenic or carcinogenic effects data are inconclusive (Sittig 1981).

Reference:

Sittig, M. 1981. *Handbook of Toxic and Hazardous Chemicals*, Noyes Publications, Park Ridge, New Jersey.

1,4-Dioxane

1,4-Dioxane is a colorless liquid with a faint alcoholic odor. It is used largely as an industrial solvent. Acute inhalation exposures in humans may cause eye, nose, and throat irritation and possibly death (IARC 1976); autopsies have revealed damage to the kidney, liver, and brain. Acute poisoning in animals causes central nervous system depression which may result in coma and death, with hemorrhagic areas in the stomach, distended bladders, enlarged kidneys, and slight proteinuria revealed at autopsy (Rowe and Wolf 1982). The principal target organs for chronic toxicity of 1,4-dioxane in animals are the liver and kidneys; however, no indications of these adverse effects have been reported in epidemiological studies of occupational exposure (Kociba et al. 1974, Rowe and Wolf 1982). 1,4-Dioxane is not mutagenic in humans or in the Ames assay (Rowe and Wolf 1982). Experimental studies report malignant tumors of the nasal cavity and liver in rats and tumors of the liver and gall bladder in guinea pigs (IARC 1976, Kociba et al. 1974, NCI, 1978).

References:

IARC (International Agency for Research on Cancer). 1976. *IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man. Vol. 11, Cadmium, Nickel, Some Epoxides, Miscellaneous Industrial Chemicals, and General Considerations on Volatile Anaesthetics*, Lyon, France: World Health Organization.

Kociba, R.J., S.B. McCollister, C. Park, T.R. Torkelson, and P.J. Gehring. 1974. 1,4-Dioxane. Results of a 2-year Ingestion Study in Rats. *Toxicol. Appl. Pharmacol.* 30:275–286.

NCI (National Cancer Institute). 1978. *Bioassay of 1,4-Dioxane for Possible Carcinogenicity.* CAS No. 123-91-1, Technical report series 89, DHEW Publication No. (NIH) 78-1330, U.S. Department of Health, Education, and Welfare.

Rowe, V. K., and M. A. Wolf. 1982. *Patty's Industrial Hygiene and Toxicology*, eds. G.D. Clayton and F.E. Clayton, Vol. 2, Toxicology, 3d revised ed., New York, New York: John Wiley & Sons.

Freon (and Freon-113)

Trichlorotrifluoroethane, also known as Freon 113, is a colorless, nonflammable, volatile liquid that is soluble in alcohol and ether but insoluble in water. Freon 113 is used as a refrigerant, solvent, and foaming or blowing agent. It is also used in dry cleaning, fire extinguishers, and aerosol formulations (ACGIH 1986). Median levels of Freon 113 in the United States are higher in urban and suburban areas (1324 ng/m^3) than in rural and remote areas (241 ng/m^3) (WHO 1990). Freon 113 does not bioaccumulate significantly in aquatic organisms, and once in the atmosphere, it diffuses to the stratosphere where its lifetime is between 63 and 122 years (HSDB 1993).

Freon 113 is mildly toxic by the ingestion and inhalation routes. At high concentrations, Freon 113 vapors are narcotic, causing central nervous system depression, cardiac sensitization and arrhythmias, and asphyxiation. Most of the data regarding human exposure comes from reports on occupational or accidental exposure. Temporary impairment of neurological and cognitive functions and narcotic effects are the most frequently reported types of health effects in humans; however, skin irritation can result from dermal exposure to Freon 113. Slight but definite impairment of psychomotor performance has been observed at doses as low as 2500 mg/kg. One case report indicated liver damage in two workers chronically exposed to high, unspecified concentrations of Freon 113 (Reprotext 1993). Systemic effects such as tremors, mild narcosis, and slight liver and kidney changes have been reported in animal studies. Cardiovascular effects in animals and humans, including cardiac arrhythmias, and sometimes death, however, have occurred after exposure to high concentrations of Freon 113. There is no evidence that Freon 113 induces reproductive, teratogenic, or mutagenic effects. It is not considered a carcinogen although it has shown potential cocarcinogenic activity in mice (Mahurin and Bernstein 1988).

References:

ACGIH (American Council of Governmental Industrial Hygienists). 1986. *Documentation of the threshold limit values and biological exposure indices*, 5th ed., Cincinnati, Ohio.

HSDB (Hazardous Substances Database). 1993. National Library of Medicine, Bethesda, Maryland.

Mahurin, R. G. and R. L. Bernstein. 1988. Fluorocarbon-enhanced mutagenesis of polyaromatic hydrocarbons, *Environ. Res.* 45(1):101–107.

Reprotext. 1993. National Library of Medicine, Bethesda, Maryland.

WHO (World Health Organization). 1990. *Environmental health criteria 113, Fully halogenated chlorofluorocarbons*, Geneva: WHO.

Hexachlorodibenzo-*p*-dioxins

Little information regarding the toxicity of hexachlorodibenzo-*p*-dioxins was found in the available literature. However, the reader should refer to the summary of toxicity for 2,3,7,8-tetrachlorodibenzodioxin for more information regarding the chlorodibenzo-*p*-dioxins family.

Indeno[1,2,3-*cd*[pyrene (see also toxicity profile for polyaromatic hydrocarbons)

Indeno[1,2,3-*cd*]pyrene, a crystalline solid with a chemical formula of $C_{22}H_{12}$ and a molecular weight of 276.3, is a PAH. There is no commercial production or known use of this compound. Indeno[1,2,3-*cd*]pyrene is found in fossil fuels and occurs ubiquitously in products of incomplete combustion and has been identified in soils, groundwater, and surface waters at hazardous waste sites.

No absorption data were available for indeno[1,2,3-*cd*]pyrene; however, by analogy to structurally-related PAHs, primarily benzo[*a*]pyrene, it would be expected to be absorbed from the gastrointestinal tract, lungs, and skin. In vivo metabolites identified in mouse skin include the *trans*-1,2-dihydrodiol and 8- and 9-hydroxy forms of indeno[1,2,3-*cd*]pyrene. Similar metabolites were formed in vitro in rat liver microsomes.

No data were found concerning the acute, subchronic, chronic, developmental, or reproductive toxicity of indeno[1,2,3-*cd*]pyrene. Because of a lack of toxicity data, an oral reference dose or inhalation reference concentration has not been derived. Based on no human data and sufficient evidence for carcinogenicity in animals, EPA has assigned a weight-of-evidence classification of B2, probable human carcinogen, to indeno[1,2,3-*cd*]pyrene.

Reference:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Profiles for Use in Hazardous Waste Risk Assessment and Remediation*, ES/ER/TM-77, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Methyl Ethyl Ketone

Methyl ethyl ketone (also known as 2-butanone) is a clear, colorless liquid with a fragrant, mint-like, moderately sharp odor and has a boiling point of 79 to 80°C. It is used as a solvent in nitrocellulose coating and vinyl film manufacture, in smokeless powder manufacture, in cements and adhesives and in the dewaxing of lubricating oils; it is also an intermediate in drug manufacture (Sittig 1981).

Possible routes of entry are inhalation, ingestion, and eye and skin contact. Some known harmful effects include irritation of the eyes and nose, headaches, dizziness, vomiting; the central nervous system and lungs are also affected (Sittig 1981). EPA has placed benzidine in weight-of-evidence classification group A (BEIAS 1995).

Reference:

Sittig, M. 1981. *Handbook of Toxic and Hazardous Chemicals and Carcinogens*, Noyes Publications, Park Ridge, NJ.

4-Methyl-2-pentanone

4-Methyl-2-pentanone, commonly known as hexanone or methyl isobutyl ketone, is a clear liquid with a sweet, sharp odor (Krasavage et al. 1982). It is used as a solvent in synthetic resinous paints, lacquers, and varnishes and in the manufacture of adhesives, rubber cements, 2,4-D and DDT. It is also used as an extractor in dewaxing mineral oils, refining tall oil, and cleaning metals (NIOSH 1978).

4-Methyl-2-pentanone is absorbed through the respiratory and gastrointestinal tract. Inhalation of high concentrations of 4-methyl-2-pentanone can lead to irritation of the eyes and mucous membranes of the nose and throat. Still higher concentrations can lead to narcosis with the additional symptoms of weakness, headache, nausea, light headedness, vomiting, dizziness, and incoordination (ACGIH 1986). Acute exposure to low concentrations in animals results in minor irritation of the eye. Higher concentrations can produce immediate signs of eye and nose irritation, salivation, lacrimation, and death (Krasavage et al. 1982). Eye irritation is the primary complaint of workers or volunteer subjects exposed chronically to 4-methyl-2-pentanone vapors. Some respiratory tract irritation is also observed (Krasavage et al. 1982). Higher exposures in the workplace have been associated with weakness, loss of appetite, headache, nausea, vomiting and diarrhea, in addition to more severe eye and throat irritation (Krasavage et al. 1982). Chronic exposures in animals have resulted in liver, kidney, and central nervous system effects (Krasavage et al. 1982, ACGIH 1986). No information was located in the available literature pertaining to potential reproductive or developmental effects of 4-methyl-2-pentanone or to its mutagenic or carcinogenic potential.

References:

ACGIH (American Council of Governmental Industrial Hygienists). 1986. *Documentation of the Threshold Limit Values and Biological Exposure Indices*, 5th ed., Cincinnati, Ohio.

HSDB (Hazardous Substances Database). 1994. National Library of Medicine, Bethesda, Maryland.

Krasavage, W. J., J. L. O'Donoghue and G. D. DiVencenzo. 1982. Ketones, in: *Patty's Industrial Hygiene and Toxicology*, 3rd revised ed., Volume 2C, Clayton, G.D. and F.E. Clayton, eds., New York: John Wiley and Sons, Inc., pp. 4747–4754.

NIOSH (National Institute for Occupational Safety and Health). 1978. *Criteria for a recommended standard: Occupational Exposure to Ketones*, Pub. No. 78–173.

Meditext (Meditext Medical Management). 1994. TOMES[R] Information System, Micromedix, Inc., Denver, Colorado.

Methylene Chloride

Methylene chloride, also known as dichloromethane, is a colorless volatile liquid with a penetrating ether-like odor. In industry, methylene chloride is widely used as a solvent in paint removers, degreasing agents, and aerosol propellants; as a polyurethane foam-blowing agent; and as a process solvent in the pharmaceutical industry. The compound is also used as an extraction solvent for spice oleoresins, hops, and caffeine (ATSDR 1989, IARC 1986).

Methylene chloride is readily absorbed from the lungs, the gastrointestinal tract, and to some extent through the skin. Metabolism of methylene chloride produces CO_2 and CO, which readily binds with blood hemoglobin to form carboxyhemoglobin (CO-Hb). The primary adverse health

effects associated with methylene chloride exposure are central nervous system depression and mild liver effects. Neurological symptoms described in individuals occupationally exposed to methylene chloride included headaches, dizziness, nausea, memory loss, paresthesia, tingling hands and feet, and loss of consciousness. Major effects following acute inhalation exposure include fatigue, irritability, analgesia, narcosis, and death. Central nervous system effects have also been demonstrated in animals following acute exposure to methylene chloride.

Impaired liver function has been associated with occupational exposure to methylene chloride. Liver effects have also been documented in a number of inhalation studies with laboratory animals. Subchronic exposure of rats, mice, dogs, and monkeys caused mild hepatic effects such as cytoplasmic vacuolization and fatty changes. Hepatocellular foci, fatty changes, and necrosis were reported following chronic inhalation exposure of rats and mice. Chronic oral exposure to methylene chloride via drinking water resulted in histopathological alterations of the liver in rats and mice. In addition, inhalation exposure of rats caused nonspecific degenerative and regenerative changes in the kidneys (EPA 1983).

Studies of workers exposed to methylene chloride have not recorded a significant increase in cancer cases above the number of cases expected for nonexposed workers. However, long-term inhalation studies with rats and mice demonstrated that methylene chloride causes cancer in laboratory animals. Mice exposed via inhalation to high concentrations of methylene chloride (2000 or 4000 mg/L) exhibited a significant increase of malignant liver and lung tumors compared with nonexposed controls (EPA 1993). Rats of both sexes exposed to concentrations of methylene chloride ranging from 500 to 4000 mg/L showed increases of benign mammary tumors (Burek et al. 1984). An inhalation study with rats and hamsters revealed sarcomas of the salivary gland in male rats, but not in female rats or hamsters (Burek et al. 1984). Liver tumors observed in rats and mice that ingested methylene chloride in drinking water for 2 years provided suggestive evidence of carcinogenicity. Based on inadequate evidence of carcinogenicity in humans and on sufficient evidence in animals, EPA (1993) has placed methylene chloride in weight-of-evidence group B2, probable human carcinogen.

References:

ATSDR (Agency for Toxic Substances and Disease Registry). 1989. *Toxicological Profile for Methylene Chloride*, ATSDR/TP-88-18, prepared by Life Systems, under Contract No. 68-02-4228.

Burek, J. D., K. D. Nitschke, T. J. Bell, et al. 1984. Methylene chloride: A two-year inhalation toxicity and carcinogenicity study in rats and hamsters, *Fund. Appl. Toxicol.* 4:30–47.

EPA (U.S. Environmental Protection Agency). 1983. *Reportable Quantity for Dichloromethane*, prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH, for the Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, DC.

EPA. 1993. Integrated Risk Information System (IRIS), Environmental Criteria and Assessment Office, Office of Health and Environmental Assessment, Cincinnati, OH.

IARC (International Agency for Research on Cancer). 1986. Dichloromethane, **in**: *IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans. Some Halogenated Hydrocarbons and Pesticide Exposures*, Vol. 41, World Health Organization, Lyon, France, pp. 43–85.

Weinstein, R. S., D. D. Boyd, and K. C. Back. 1972. Effects of continuous inhalation of dichloromethane in the mouse--morphological and functional observations, *Toxicol. Appl. Pharmacol.* 23:660.

Pentachlorobenzene

Little information regarding the toxicity of pentachlorobenzene was found in the available literature.

Pentachlorophenol

Pentachlorophenol is a colorless, crystalline solid with a pungent odor when heated. It is used as a soil fumigant, antibacterial agent in disinfectants, molluscide, fungicide, herbicide, slimicide and algaecide. Glues, starches, dextrins, wood, paper and pulp, paints, and leather and textiles may contain pentachlorophenol (HSDB 1994).

Pentachlorophenol is absorbed through the lungs, gastrointestinal tract, and skin (ATSDR 1992). Acute inhalation exposure in humans has been associated with hemolytic anemia, gastrointestinal irritation, bronchitis, and upper respiratory tract inflammation (ATSDR 1992). Aplastic anemia, pure red cell aplasia, jaundice, and liver enlargement have been associated with short-term pentachlorophenol exposure. Dermatitis, urticaria, corneal damage, lung congestion, liver enlargement, and neurological effects including delirium, fever, convulsions, sweating, and respiratory distress have been reported in humans after dermal exposure to pentachlorophenol (ATSDR 1992). Cases of chloracne in pentachlorophenol populations may be due to dioxin contaminants in pentachlorophenol. Pentachlorophenol is fetotoxic and embryotoxic toxic in animals at doses that produce maternal toxicity (ATSDR 1992). Pentachlorophenol induced chromosomal aberrations and sister chromatid exchanges in Chinese hamster ovarian cells (EPA 1994). An increased incidence of hepatocellular adenomas and carcinomas, adrenal gland pheochromocytomas, and hemangiosarcomas and hemagiomas were observed in mice exposed to 100 and 200 mg/kg/day pentachlorophenol for 2 years (EPA 1994).

References:

ATSDR (Agency for Toxic Substances and Disease Registry). 1992. *Draft/update Toxicological Profile for Pentachlorophenol,* October, U.S. Department of Health and Human Service, Public Health Service.

EPA (U.S. Environmental Protection Agency). 1994. Integrated Risk and Information System (IRIS), Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, Ohio.

HSDB (Hazardous Substances Database). 1994. National Library of Medicine, Bethesda, Maryland.

Polycyclic Aromatic Hydrocarbons

Polycyclic aromatic hydrocarbons are a group of chemicals that are formed during the incomplete burning of wood and fuel, including coal, oil, gas, and other organic substances (ATSDR 1989). In any medium, PAHs most often exist as complex mixtures of compounds. Exposure to PAHs may occur via inhalation, ingestion, and dermal contact. Based on toxicity, these compounds have been divided into two main groups: carcinogenic PAHs and noncarcinogenic PAHs.

Carcinogenic Polycyclic Aromatic Hydrocarbons. Based on available data, benzo(a)pyrene is one of the most potent of the carcinogenic PAHs. Other PAHs considered to be carcinogenic are benzo[a]anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

The arrangement of aromatic rings in the benzo(a)pyrene molecule and other PAHs gives it a "bay-region" that is often correlated with carcinogenic properties. In general, bay-region PAHs and some of their metabolites are known to react with cellular macromolecules, including DNA, which may account for the toxicity and carcinogenicity of these compounds (Francis 1992). The primary toxicological concern with exposure to this group of PAHs is carcinogenicity. No case reports or epidemiological studies concerning the significance of human exposure to individual PAHs are available. Coal tar and other materials known to be carcinogenic to humans, however, contain PAHs (Francis 1985). Lung and skin cancers in humans have been associated with chronic exposure by inhalation and dermal contact, respectively, to mixtures of compounds including carcinogenic PAHs (ATSDR 1989). Several individual PAHs administered to several animal species by various routes have been found to be carcinogenic at both local and systemic sites. Long-term experimental studies resulted in tumors in the liver, mammary gland, respiratory and gastrointestinal tracts, and skin (ATSDR 1989). Carcinogenic PAHs are also reported to be mutagenic in a variety of test systems.

Reproductive effects in mice fed benzo(a)pyrene and adverse effects in their offspring, including birth defects and decreased body weight, have been reported, although reproductive toxicity associated with PAH exposure has not been demonstrated in humans (ATSDR 1989). Toxic effects have also been observed in rapidly dividing cells of the intestinal epithelium, testes, and ovaries (oocytes). Animal studies also indicate that exposure to bay-region PAHs can damage the hematopoietic system, leading to progressive anemia as well as agranulocytosis. The lymphoid system can also be affected, resulting in lymphopenia.

As indicated previously, available data indicate that not all of the carcinogenic PAHs are as potent as benzo(a)pyrene (ICF-Clement 1988, EPA 1992). In recent guidance published by the EPA (1993), it is recommended that a series of relative potency values (orders of magnitude) be used for the risk assessment of oral exposure to PAHs, with carcinogenic potency being compared to that of benzo(a)pyrene.

Noncarcinogenic Polycyclic Aromatic Hydrocarbons. Polycyclic aromatic hydrocarbons not considered to be carcinogenic include acenaphthene, acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, methylnaphthalene, naphthalene, phenanthrene, and pyrene.

Polycyclic aromatic hydrocarbons are toxic to the skin. For example, naphthalene is a primary skin irritant and causes erythema and dermatitis on repeated contact (Sittig 1985), and acenaphthene is irritating to the skin and mucous membranes of humans and animals (Faust 1994). Other noncarcinogenic effects of PAHs have been observed in animals; however, of these, only effects of the blood and blood-forming system and of the skin have also been reported in humans (ATSDR 1989). Animal studies indicate that PAHs may adversely affect the gastrointestinal tract, liver, kidneys, lungs, hematopoietic system, and may suppress the immune system after both short- and long-term exposure. Oral exposure of animals to acenaphthene caused reproductive effects, including decreased ovary weights, decreased ovarian and uterine activity, and fewer and smaller corpora lutea (Faust 1991, 1994). Mutagenic and carcinogenic effects of the noncarcinogenic PAHs have not been reported.

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Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) are a group of man-made chemicals that contain 209 individual compounds (known as congeners); they are either oily liquids or solids and are colorless to light yellow without any known smell or taste. Seven types of PCBs mixtures include 35% of all the different PCBs commercially produced and 98% of PCBs sold in the United States since 1970. Some commercial PCB mixtures are known in the United States by their industrial trade name, Aroclor (i.e., Aroclor 1254, Aroclor 1260). The name Aroclor 1254 signifies that the molecule contains 12 carbon atoms (the first two digits) and approximately 54% chlorine by weight (the second two digits). PCBs don't burn easily and are a good insulating material; therefore, they have been used widely as coolants and lubricants in transformers, capacitors, and other electrical equipment. However, in 1977, manufacture of PCBs stopped in the United States because evidence showed that PCBs tend to build up in the environment and cause harmful effects (ATSDR 1993).

In the past, PCBs entered the environment through their manufacture and use. Today, they can enter the environment from poorly maintained hazardous waste sites; illegal or improper dumping of PCB wastes; leaks or releases from electrical transformers containing PCBs; and disposal of PCB-containing consumer products into municipal landfills rather than into landfills designed for hazardous waste. PCBs can exist in air as both solid and liquid aerosols and as vapor that eventually returns to the land and water by settling or washout by snow or rainwater. Even extremely small amounts of PCBs can remain in water for several years, and they will bind strongly with soil and remain bonded for several years (ATSDR 1993).

PCBs can be ingested or inhaled and can cause skin and nose irritations. Although several health effects as a result of exposure to PCBs have been seen in rats (i.e., liver damage and sometimes death after ingesting large amounts of PCBs for a short period and liver, stomach, and thyroid gland injuries; anemia; acne; and damaged reproduction organs after ingesting smaller

amounts of PCBs but for a longer period), little conclusive evidence concerning the effects of PCBs on humans is available. In addition, rats that ate certain PCB mixtures throughout their lives developed liver cancers; however, it is not known if the same effects would occur in people. After inhalation exposure, workers have exhibited respiratory tract and eye irritation, coughs, and tightness of the chest, as well as gastrointestinal symptoms (anorexia, weight loss, nausea, vomiting, and abdominal pain); none of these symptoms were reported in a great quantity and therefore results are inconclusive (ATSDR 1993).

Studies of PCB-exposed workers provide inconclusive evidence for exposure-related cancer; however, an excess risk of cancer of the liver, biliary tract, and gall bladder has been reported in workers in two capacitor plants where PCB mixtures are commonly used. The International Agency for Research on Cancer has determined that PCBs are *probably* carcinogenic to humans, and EPA has determined that PCBs are probable human carcinogens (ATSDR 1993).

Reference:

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Tetrachlorodibenzo-*p*-dioxins

Little information regarding the toxicity of tetrachlorodibenzo-*p*-dioxins was found in the available literature. However, the reader should refer to the summary of toxicity for 2,3,7,8-tetrachlorodibenzodioxin for more information regarding the chlorodibenzo-*p*-dioxins family.

2,3,7,8-Tetrachlorodibenzodioxin

2,3,7,8-Tetrachlorodibenzodioxin is the best known of the chlorodibenzo-*p*-dioxins. It is a relatively low-concentration byproduct in the synthesis of trichlorophenol, which is the industrial precursor of the antiseptic hexachlorophene and the defoliant acetic acid (American Chemical Society 1984).

The toxicity of 2,3,7,8-tetrachlorodibenzodioxin to humans and animals, as well as the accidents that resulted in human exposure, has been extensively reviewed. Of the 75 possible chlorine-substituted dibenzo-*p*-dioxin isomers, 2,3,7,8-tetrachlorodibenzodioxin is the most comprehensively studied. As of 1984, 22 accidents had been reported in which more than 1100 people were exposed. The most prevalent results of exposure were chloracne, polyneuritis, sensory impairments, and liver damage. Few epidemiologic studies have been conducted on these events regarding carcinogenicity. In Germany, 6 out of 25 exposed workers died of cancer 25 years after an accident; the expected number of cancer deaths in the control population was four (American Chemical Society 1984).

In a carcinogenisis bioassay, 2,3,7,8-tetrachlorodibenzodioxin was administered by gavage 2 days/week for 104 weeks at doses of 0.01, 0.05, and 0.5 μg/kg/week to rats and male mice and at doses of 0.04, 0.2, or 2.0 μg/kg/week to fe male rats. Among the high-dose groups, the following was observed: rats and mice, toxic hepatitis; rats, increased incidences of thyroid adenomas; female rats liver neoplasms; mice, dose-dependent hepatocellular carcinomas; and female mice, thyroid tumors (American Chemical Society 1984). An EPA weight-of-evidence classification was not found in the available literature.

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1,1,2,2-Tetrachloroethane

1,1,2,2-Tetrachloroethane is a colorless, man-made liquid with a sweet suffocating odor. It is used as a solvent for cleaning and degreasing metals; in varnishes, lacquers, and paint removers; as an extractant for oils and fats; and as a chemical intermediate in the production of trichloroethene and tetrachloroethene (ACGIH 1986, ATSDR 1989).

1,1,2,2-Tetrachloroethane is absorbed through the lungs, gastrointestinal tract, and skin (ATSDR 1989). Acute exposure in humans results in gastrointestinal disturbances and neurological effects. Nausea, vomiting, loss of appetite and body weight, headache, dizziness, tremors, and drowsiness are symptoms reported by workers following dermal or inhalation exposure to 147 mg/kg 1,1,2,2-tetrachloroethane (ACGIH 1986, ATSDR 1989). Central nervous system effects, as well as jaundice and hepatitis, have been reported in workers chronically exposed to 1,1,2,2-tetrachloroethane fumes (ATSDR 1989). Hyperplasia and fatty degeneration in the liver, increased liver enzymes, narcosis, and reduced red blood cell and white blood cell counts have been observed in exposed animals (ATSDR 1989). Dermal application of 1,1,2,2-tetrachloroethane caused skin damage and necrosis in animals. Irreversible histopathological changes in the testes of rats have also been reported (ATSDR 1989). An increased incidence of liver carcinomas was observed in mice exposed to the compound (ATSDR 1989).

References:

ATSDR (Agency for Toxic Substances and Disease Registry). 1989. *Toxicological Profile for 1,1,2,2-Tetrachloroethane*, U.S. Department of Health and Human Service, Public Health Services.

HSDB (Hazardous Substances Data Base). 1994. National Library of Medicine, Bethesda, Maryland.

Tetrachloroethene

Tetrachloroethene, also known as perchloroethylene and tetrachloroethylene, is a nonflammable liquid with a pleasant, ethereal odor. Tetrachloroethene has widespread use in dry cleaning fabrics and textiles, degreasing metals, and the production of other chemicals.

Exposure to tetrachloroethene occurs primarily via inhalation and results in effects that are similar in both humans and animals. Tetrachloroethene exposure may result in central nervous system depression, with symptoms of incoordination, dizziness, headache, confusion, difficulty in speaking or walking, possible coma, and death reported and effects in the eyes, respiratory tract, lung, liver, and kidneys (ATSDR 1990, NTP 1986, Stewart 1969, Torkelson and Rowe 1981, EPA 1985, Daugherty 1993). Although tetrachloroethene is not well absorbed through the skin, direct contact with tetrachloroethene may cause local dermatitis caused by loss of skin oils. Inconclusive evidence from epidemiological studies in workers and animal studies suggests that tetrachloroethene exposure may cause reproductive and developmental effects (van der Gulden and Zielhuis 1989, ATSDR 1990). Epidemiological data on cancer in humans are inconclusive because of confounding factors (Lynge and Thygesen 1990, EPA 1988); however, long-term inhalation and

oral exposures in laboratory animals have induced liver cancer and leukemia (NCI 1977, NTP 1986, Daugherty 1993).

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Toluene

Toluene is a colorless liquid widely used as raw material in the production of organic compounds and as a solvent. It is readily absorbed from the gastrointestinal and respiratory tracts and, to a lesser degree, through the skin. Toluene is distributed throughout the body, with accumulation in tissues with high lipid content. It is metabolized in the liver, primarily to hippuric acid and benzoyl glucuronide, compounds that are rapidly excreted in the urine (BEIAS 1995).

In humans and animals, the primary effect associated with inhalation exposure to toluene is central nervous system depression. Short-term exposure of humans to 100 to 1500 ppm has elicited central nervous system effects such as fatigue, confusion, incoordination, and impairments in reaction time, perception, and motor control and function. Exposure to concentrations ranging from 10,000 to 30,000 ppm has resulted in narcosis and deaths. Prolonged abuse of toluene or solvent mixtures containing toluene has led to permanent central nervous system effects. Exposure to high concentrations of toluene (1500 ppm) has produced hearing loss in rats. Hepatomegaly and impaired liver and kidney function have been reported in some humans chronically exposed to toluene.

Toluene vapors may cause eye irritation, and prolonged or repeated dermal contact may produce drying of skin and dermatitis (BEIAS 1995).

In experimental animals, subchronic inhalation exposure to ≥ 2500 ppm toluene resulted in increased liver and kidney weights (rats and mice), increased heart weights (rats), increased lung weights, and centrilobular hypertrophy of the liver (mice). Chronic inhalation exposure to 600 or 1200 ppm for 2 years produced degeneration of olfactory and respiratory epithelia of rats and minimal hyperplasia of bronchial epithelia in mice. Based on EPA guidelines, toluene was assigned to weight-of-evidence group D, not classifiable as to human carcinogenicity (BEIAS 1995).

Reference:

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1,1,1-Trichloroethane

1,1,1-Trichloroethane also called methyl chloroform, is a colorless, nonflammable liquid that typically has a sweet odor. It is a common industrial solvent that is used in the manufacture of paints, glues, and thinners.

Inhalation is the primary route of 1,1,1-trichloroethane exposure, but exposure may also occur by ingestion and dermal contact (ATSDR 1989). The primary response to 1,1,1-trichloroethane is central nervous system depression, which occurs following acute exposure to high levels of 1,1,1-trichloroethane, either orally or via inhalation. Other effects noted following oral exposure include gastrointestinal and hepatic effects in a human who accidentally ingested a very high dose and reduced body weight gain and increased aging effects in experimental animals (Daugherty 1991). Effects other than central nervous system depression following inhalation exposure to 1,1,1-trichloroethane include sensitization of the heart to epinephrine and fatalities in humans (Daugherty 1991). Adverse developmental or reproductive effects were not reported in one epidemiology study and several animal studies. Oral bioassays were inconclusive and inhalation studies were inconclusive regarding the carcinogenicity of 1,1,1-trichloroethane (ATSDR 1989, Maltoni et al. 1986, NCI 1977, Quast et al. 1988, Rampy et al. 1977).

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1,1,2-Trichloroethane

1,1,2-Trichloroethane is a colorless liquid with a pleasant odor. It is used as a solvent for chlorinated rubbers, polyesters, fats, oils, waxes, and resins; in adhesives, lacquers, and coating formulations; in the production of teflon tubing; and as an intermediate in the production of vinylidine chloride (HSDB 1994).

1,1,2-Trichloroethane is absorbed through the lungs, skin, and gastrointestinal tract. Exposure of humans to 698 mg/cm^3 1,1,2-trichloroethane under occlusion produced burning and stinging of the skin with transient whitening of the skin (ATSDR 1989). No skin reactions were evident in exposures without occlusion. Acute oral and inhalation exposure of animals to 1,1,2-trichloroethane produced congestion and necrosis of the liver and kidney (ATSDR 1989). Other effects in animals following acute exposure are central nervous system effects, gastric irritation and blood effects. 1,1,2-Trichloroethane applied to the skin of animals produced hydropic changes in the liver and erythema, edema, and necrosis of the skin (ATSDR 1989). No developmental effects or significant reproductive effects have been observed in exposed animals. Increased incidences of hepatocellular carcinomas and adrenal pheochromocytomas were observed in mice administered 1,1,2-trichloroethane by gavage (EPA 1994).

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Trichloroethene

Trichloroethene, also known as trichloroethylene and ethylene trichloride, is a common industrial solvent and metal degreaser that is also used in the manufacture of organic chemicals. In the past, trichloroethene was used in food extraction processes such as decaffeination of coffee and spice flavor extractions and as a human anesthetic in surgical and obstetrical procedures (ATSDR 1993).

The principal routes of exposure to trichloroethene are inhalation and ingestion, but it is also absorbed by the skin. Human inhalation exposures to trichloroethene result in depression of the central nervous system, with signs of drowsiness, dizziness, and headaches. These neurological symptoms appear to be reversible when exposures are not extreme (USAF 1989, EPA 1985). Other neurologic effects reported in occupationally exposed humans include fatigue, light-headedness, vision distortion, abnormal reflexes, tumors, and ataxia (Faust 1993). Additional documented effects in humans are eye and skin irritation, dermatitis, and cardiac effects (ATSDR 1993, IARC 1979, USAF 1989). Cardiovascular effects include tachycardia, EKG abnormalities, and precordial pain. Cardiac arrythmias were noted during use of trichloroethene as an anesthetic (Faust 1993). Severe

liver damage and kidney damage in humans have been reported following acute exposures to trichloroethene but have not been associated with long-term occupational exposures (Faust 1993).

Several experimental studies in laboratory animals have also produced effects in the kidney and liver, as well as hematologic effects and immunosuppression (Faust 1993). Rat inhalation studies indicate that trichloroethene has produced effects consistent with delayed maturation, such as skeletal ossification (Dorfmueller et al. 1979, Healy et al. 1982, NTP 1985, 1986, Faust 1993). Epidemiologic studies have not established an association between exposure to trichloroethene and increased cancer risk at any site (ATSDR 1989, Fukuda et al. 1983, Maltoni et al. 1988, USAF 1989, Faust 1993). The carcinogenic potential of trichloroethene in the liver, kidney, and lungs has been reported in some studies performed in rats and mice but not in all studies. The metabolic conversion of trichloroethene to active intermediates in laboratory animals may be responsible for some of the reported carcinogenic effects.

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Trichlorofluoromethane

Trichlorofluoromethane (Freon 11) has been used in the manufacture of aerosol sprays, refrigerants, blowing agents, and cleaning compounds and in fire extinguishers (NRC 1977).

Studies show that absorption of fluorocarbons is greater by inhalation than by oral administration (NRC 1977). ACGIH (1986) reports that industrial and commercial experience has been favorable, with few reports of injury only at levels in excess of the recommended Threshold Limit Value of 1000 mg/kg. Inhalation of large acute doses of trichlorofluoromethane by humans has resulted in cardiac sensitization or bronchial constriction, in some cases leading to death. Cardiac effects have been observed in various experimental animal species exposed acutely to air concentrations of 2.5 to 10%. Acute inhalation by rats of an aerosol containing 6% trichlorofluoromethane caused loss of reflex, and 10% was lethal (NRC 1977). Trichlorofluoromethane also acts as a weak narcotic (ACGIH 1986). Investigators administered a single oral dose of 2.5 g/kg to rats and reported no liver pathology.

Only limited data on potential toxicity following chronic exposure to trichlorofluoromethane are available. Mice given oral doses of trichlorofluoromethane up to 220 mg/kg/day for a month showed only slight effects on food utilization. Inhalation of 200,000 mg/kg of a 9:1 mixture of Freon 12 and Freon 11 by rats on days 4 to 16 of gestation and rabbits on days 5 to 20 of gestation did not induce any embryotoxic or teratogenic effects (NRC 1977). In a 2-year National Cancer Institute bioassay, rats and mice administered trichlorofluoromethane by gavage at doses up to 1000 mg/kg (rats) and 3900 mg/kg (mice) showed no significant increase in tumors. Accelerated mortality was observed in rats and mice, and treated rats of both sexes showed elevated incidences of pleuritis and pericarditis (EPA 1994). The National Cancer Institute bioassay in rats, however, was considered inadequate (NCI 1978).

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Vinyl Chloride

Vinyl chloride is a colorless gas with a faintly sweet odor. It is used in the production of polyvinyl chloride, which in turn is used in the manufacturing of automotive parts and accessories, furniture, packaging materials, pipes, wall coverings, wire coatings, and films and resins (ATSDR 1991).

Vinyl chloride is rapidly absorbed by both the respiratory and gastrointestinal tracts (EPA 1980). Acute inhalation of vinyl chloride in humans produces central nervous system depression, sympathetic-sensory polyneuritis, and organic disturbances of the brain (Torkelson

and Rowe 1981). Two deaths in humans have been reported due to acute inhalation exposure (ATSDR 1991). Acute inhalation by animals caused death due to narcosis (ACGIH 1986). Chronic exposure to vinyl chloride in occupational settings leads to multiple systemic disorders related primarily to circulatory and liver dysfunction and skin and bone disorders. Among the manifestations of excessive vinyl chloride exposure in humans are scleroma-like skin alterations, acro-osteolysis, Raynaud's syndrome, thrombocythemia, splenomegaly, extensive liver damage, and hepatitis (IARC 1979, NRC 1977, ATSDR 1991, Faust 1993). Disorders of the nervous system and reduced pulmonary function have also been reported (IARC 1979). Repeated oral and inhalation exposures to vinyl chloride caused liver damage in laboratory animals (ACGIH 1986); inhalation exposures caused damage to the kidneys, spleen, and testes.

Reproductive and developmental effects of vinyl chloride in humans are equivocal (NRC 1983, Faust 1993); however, increased fetal loss has been reported among women whose husbands had been exposed to vinyl chloride, as well as excess birth defects among infants in communities where vinyl chloride polymerization plants are located (IARC 1979, ATSDR 1991), reduced sexual function in both sexes, and gynecological effects in women (Faust 1993). Vinyl chloride is mutagenic in a number of biological assays and its mutagenicity is significantly enhanced by metabolic activation (EPA 1980). Vinyl chloride is carcinogenic and caused an elevated incidence of liver angiosarcoma in occupationally exposed men (EPA 1980, ATSDR 1991). Vinyl chloride may also be associated with cancer of multiple sites in humans (ACGIH 1986); it has also been shown to be carcinogenic at several sites in numerous animal studies (Faust 1993).

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F.4.7.3 Radionuclides

Radionuclides

Radionuclides are unstable atoms of chemical elements that will emit charged particles to achieve a more stable state. These charged particles are termed "alpha and beta radiation" and "neutral gamma rays." Interaction of these charged particles (and gamma rays) with matter will produce ionization events, or radiation, which may cause living cell tissue damage. Because the deposition of energy by ionizing radiation is a random process, sufficient energy may be deposited (in a critical volume) within a cell and result in cell modification or death. In addition, ionizing radiation has sufficient energy that interactions with matter will produce an ejected electron and a positively charged ion (known as free radicals) that are highly reactive and may combine with other elements, or compounds within a cell, to produce toxins or otherwise disrupt the overall chemical balance of the cell. These free radicals can also react with deoxyribonucleic acid (DNA), causing genetic damage, cancer induction, or even cell death.

Radionuclides are characterized by the type and energy level of the radiation emitted. Radiation emissions fall into two major categories: particulate (electrons, alpha particles, beta particles, and protons) or electromagnetic radiation (gamma and x-rays). Therefore, all radionuclides are classified by the EPA as Group A carcinogens based on their property of emitting ionizing radiation and on the extensive weight of evidence provided by epidemiological studies of humans with cancers induced by high doses of radiation. Alpha particles are emitted at a characteristic energy level for differing radionuclides. The alpha particle has a charge of +2 and a comparably large size. Alpha particles have the ability to react (and/or ionize) with other molecules, but they have very little penetrating power and lack the ability to pass through a piece of paper or human skin. However, alpha-emitting radionuclides are of concern when there is a potential for inhalation or ingestion of the radionuclide. Alpha particles are directly ionizing and deposit their energy in dense concentrations [termed high linear energy transfer (high LET)], resulting in short paths of highly localized ionization reactions. The probability of cell damage increases as a result of the increase in ionization events occurring in smaller areas; this may also be the reason for increased cancer incidence caused by inhalation of radon gas. In addition, the cancer incidence in smokers may be directly attributed to the naturally occurring alpha emitter, ^{210}Po, in common tobacco products.

Beta emissions generally refer to beta negative particle emissions. Radionuclides with an excess of neutrons achieve stability by beta decay. Beta radiation, like alpha radiation, is directly ionizing but, unlike alpha activity, beta particles deposit their energy along a longer track length (low-LET), resulting in more space between ionization events. Beta-emitting radionuclides can cause injury to the skin and superficial body tissue but are most destructive when inhaled or ingested. Many beta emitters are similar chemically to naturally occurring essential nutrients and will therefore tend to accumulate in certain specific tissues. For example, ^{90}Sr is chemically similar to calcium and, as a result, accumulates in the bones, where it causes continuous exposure. The health effects of beta particle emissions depend upon the target organ. Those seeking the bones would cause a prolonged exposure to the bone marrow and affect blood cell formation, possibly resulting in leukemia, other blood disorders, or bone cancers. Those seeking the liver would result in liver diseases or cancer, while those seeking the thyroid would cause thyroid and metabolic disorders. In addition, beta radiation may lead to damage of genetic material (DNA), causing hereditary defects.

Gamma emissions are the energy that has been released from transformations of the atomic nucleus. Gamma emitters and x-rays behave similarly but differ in their origin: gamma emissions originate in nuclear transformations, and x-rays result from changes in the orbiting electron structure.

Radionuclides that emit gamma radiation can induce internal and external effects. Gamma rays have high penetrating ability in living tissue and are capable of reaching all internal body organs. Without such sufficient shielding as lead, concrete, or steel, gamma radiation can penetrate the body from the outside and does not require ingestion or inhalation to penetrate sensitive organs. Gamma rays are characterized as low-LET radiation, as is beta radiation; however, the behavior of beta radiation differs from that of gamma radiation in that beta particles deposit most of their energy in the medium through which they pass, while gamma rays often escape the medium because of higher energies, thereby creating difficulties in determining actual internal exposure. For this reason, direct whole-body measurements are necessary to detect gamma radiation, while urine/fecal analyses are usually effective in detecting beta radiation.

People receive gamma radiation continuously from naturally occurring radioactive decay processes going on in the earth's surface, from radiation naturally occurring inside their bodies, from the atmosphere as fallout from nuclear testing or explosions, and from space or cosmic sources. Cesium-137 (from nuclear fallout) decays to ^{137}Ba, the highest contributor to fallout-induced gamma radiation. Beta radiation from the soil is a less penetrating form of radiation but has many contributing sources. Potassium-40, ^{137}Cs, ^{214}Pb, and ^{214}Bi are among the most common environmental beta emitters. Tritium is also a beta emitter but contributes little to the soil beta radiation because of the low energy of its emission and its low concentration in the atmosphere. Alpha radiation is also emitted by the soil but is not measurable more than a few centimeters from the ground surface. The majority of alpha emissions are attributable to ^{222}Rn and ^{220}Rn and their decay products. This contributes to what is called background exposure to radiation.

The general health effects of radiation can be divided into stochastic (related to dose) and nonstochastic (not related to dose) effects. The risk of development of cancer from exposure to radiation is a stochastic effect. Examples of nonstochastic effects include acute radiation syndrome and cataract formation, which occur only at high levels of exposures.

Radiation can damage cells in different ways. It can cause damage to DNA within the cell, and the cell either may not be able to recover from this type of damage or may survive but function abnormally. If an abnormally functioning cell divides and reproduces, a tumor or mutation in the tissue may develop. The rapidly dividing cells that line the intestines and stomach and the blood cells in bone marrow are extremely sensitive to this damage. Organ damage results from the damage caused to the individual cells. This type of damage has been reported with doses of 10 to 500 rads (0.1 to 5.0 gray, in SI units). Acute radiation sickness is seen only after doses of >50 rads (0.5 gray) which is a dose rate usually achieved only in a nuclear accident.

When the radiation-damaged cells are reproductive cells, genetic damage can occur in the offspring of the person exposed. The developing fetus is especially sensitive to radiation. The type of malformation that may occur is related to the stage of fetal development and the cells that are differentiating at the time of exposure. Radiation damage to children exposed in the womb is related to the dose the pregnant mother receives. Mental retardation is a possible effect of fetal radiation exposure.

The most widely studied population that has had known exposure to radiation is the atomic bomb survivors of Hiroshima and Nagasaki, Japan. Data indicate an increase in the rate of leukemia and cancers in this population. However, the rate at which cancer incidence is significantly affected by low radiation exposures, such as results of exposure to natural background and industrially contaminated sites, is still undergoing study and is uncertain. In studies conducted to determine the

rate of cancer and leukemia increase, as well as genetic defects, several radionuclides must be considered.

Americium-241

Americium was first discovered in 1944 at the Metallurgical Laboratory, the forerunner of Argonne National Laboratory. The isotope is named after America because europium, a similar rare-earth element, was named after the continent of its discovery. ^{241}Am is used in high-precision devices and smoke detectors. It decays via alpha-particle emission to ^{237}Np.

Few data exist on the distribution of americium in humans, although measurable amounts have been distributed world-wide as a result of nuclear weapons testing (ICRP 1989). The limited data gathered from experimental animals suggest that "americium behaves like plutonium with regard to initial partition between liver and skeleton" (ICRP 1989). For dosimetry purposes, all isotopes of americium are assumed "uniformly distributed over bone surface at all times following their deposition to the skeleton" (ICRP 1989).

Reference:

ICRP (International Commission on Radiological Protection). 1989. *Age-dependent Doses to Members of the Public from Intake of Radionuclides: Part 1*, ICRP Publication No. 56, Pergamon Press, Inc., New York, NY.

Cesium-137

Cesium occurs in nature as ^{133}Cs in the aluminosilicates, pollucite (a hydrated silicate of aluminum and cesium) and lepidolite; in the borate, rhodizite; and in other sources (Budavari 1989, Klaassen 1986). ^{137}Cs is one of the artificial isotopes of cesium and is one of the principal radionuclides present in reactor effluent under normal operations. ^{137}Cs may also be produced in nuclear and thermonuclear explosions, through which it would be a primary contributor to human exposure through fallout radiation, assimilation through the food chain, or beta dose to the skin (Budavari 1989, Klaassen 1986). In addition, ^{137}Cs, along with ^{90}Sr, is one of the most important fission products that was widely distributed in near-surface soils because of historical weapons testing. Measurable concentrations still exist in the soil today, almost exclusively in the upper 15 cm of soil; these concentrations decrease roughly exponentially with depth.

^{137}Cs may also have important roles in medical treatments (a teletherapy source or intercavitary or interstitial radiation source in treatment of malignancies) and as an encapsulated energy source (Budavari 1989, Casarett 1968). ^{137}Cs decays to and reaches radioactive equilibrium with its daughter product, ^{137m}Ba (Budavari 1989, Casarett 1968). Barium-137m is a very short-lived gamma emitter that can contribute to external gamma exposure (Budavari 1989).

References:

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Casarett, A. P. 1968. *Radiation Biology*, Prentice-Hall, Inc., Englewood Cliffs, NJ.

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Cobalt-60

Nuclear reactors produce ^{60}Co from the neutron activation of stable atoms of cobalt. These cobalt atoms are present as a corrosion impurity in the water used as the primary coolant of the reactor (Eichloz 1983). With a radioactive half-life of 5.27 years, ^{60}Co decays by emitting a 0.314 MeV beta particle and two gamma-rays exhibiting energies of 1.33 and 1.17 MeV (Kocher 1981).

Through weathering, cobalt may be taken into solution in small amounts through bacteriological activity similar to that causing the dissolution of manganese. With terrestrial fate, the availability of cobalt is primarily regulated by pH and is usually found in soils as divalent cobalt. At low pH, cobalt oxidizes to trivalent cobalt and is often found associated with iron. A lower pH enhances the leaching and plant uptake of cobalt (Kocher 1981).

As a radioactive form of an essential element, ^{60}Co is used in medical diagnoses for the absence of an intrinsic factor (pernicious anemia) or other defects of intestinal vitamin B_{12} absorption. It is also used as a radiation source for cancer therapy (Eichloz 1983).

Important routes of human exposure to ^{60}Co are external exposure to gamma radiation, ingestion of contaminated foods or water, and inhalation of contaminated particulate matter. Radiological damage may occur to the gastrointestinal/respiratory tract during absorption of ^{60}Co depending on the chemical form. Critical or target body organs include the whole body, lungs, gastrointestinal tract, and lower large intestine. Internally absorbed ^{60}Co is assumed to be uniformly distributed throughout the body. Symptoms of cobalt exposure include, but are not limited to, interstitial lung disease and pulmonary symptoms, interstitial fibrosis, respiratory disease, liver and spleen enlargement, and nonstochastic effects. In addition, cobalt and certain derivatives have been found to be carcinogenic under certain experimental conditions (Kocher 1981).

References:

Eicholz, G. G. 1983. Source Terms for Nuclear Facilities and Medical and Industrial Sites in: *Radiological Assessment*, NUREG/CR-3332, ORNL-5968, J. E. Till and H. R. Meyer, (eds), U.S. Nuclear Regulatory Commission, Washington, DC.

Kocher, D. C. 1981. *Radioactive Decay Data Tables*, DOE/TIC-11026, Technical Information Center, U.S. Department of Energy.

Curium-243

Little information regarding the toxicity of ^{243}Cm was found in the available literature.

Lead-212

Lead-212 is a daughter of ^{220}Rn, has a half-life of 10.6 hours, and is a β emitter. Little information regarding the toxicity of ^{212}Pb is available in the present literature; however, given its close relationship to ^{220}Rn, it would be expected to have very similar toxic effects (Adams and Lowder 1964). No EPA weight-of-evidence classification was definitively given in the available literature.

Reference:

Adams, J. A. S., and W. M. Lowder. 1964. *The Natural Radiation Environment*, William Marsh Rice University by the University of Chicago Press.

Neptunium-237

Specific literary information for ^{237}Np is limited. However, available literature states that during neutron bombardment,^{237}Np breaks down to ^{238}Pu, which produces small masses of high capacity energy that is useful for satellites and spacecraft (Moskalev et al. 1979).

The most common route of ^{237}Np exposure is inhalation of aerosols. According to studies conducted on rats, acute effects include injury to the liver and kidney and circulation disorders. Long-term effects include osteosarcomas and lung cancer. Extremely high doses cause immediate or premature death by destruction of the lungs (Moskalev et al. 1979).

Reference:

Moskalev, Y. I., L.A. Buldakov, A. K. Zhuravleva et al. 1979. *Toxicology and Radiobiology of Neptunium-237*, ORNL-tr-4936, Moscow Atomizdat Publishers.

Plutonium-238, -239, and -240

Plutonium is a predominantly man-made radioactive metal that is produced from nuclear reactions with uranium. Plutonium-238 has been used as a nuclear power source for satellites and in thermoelectric generation systems in spacecraft, cardiac pacemakers, and other power sources (Harley 1980, NEA/OECD 1981). Plutonium-239 is mostly associated with nuclear weapons production and testing. It is generated in irradiated uranium fuel when neutrons are captured by ^{238}U nuclei. Commerce and the military principally use ^{238}Pu and ^{239}Pu because of their ease of production and long radioactive half-lives (86 and 24,000 years, respectively). Both ^{238}Pu and ^{239}Pu are artificial, alpha-emitting isotopes of plutonium; ^{238}Pu decays to radioactive ^{234}U via alphas of 5.5 MeV, and ^{239}Pu decays to radioactive ^{235}U via alphas of 5.1 MeV.

Atmospheric testing of nuclear weapons has been the main source of plutonium dispersion in the environment, while accidents and routine releases from weapons production facilities are the primary sources of localized contamination. Plutonium released to the atmosphere reaches the earth's surface through wet and dry deposition to the soil and surface water. Once in these media, plutonium can sorb to soil and sediment particles or bioaccumulate in terrestrial and aquatic food chains.

Because of the low solubility of plutonium isotopes, inhalation of contaminated dust particles is considered to be the most harmful means of human exposure. Plutonium that has been inhaled may be absorbed through the lungs and deposited in other body tissues. Subsequent translocation of some of the plutonium from the lungs to tissues and organs distant from the site of entry results in radiation damage to these tissues as well as to the lung. Liver and bone are the primary sites of plutonium deposition (ICRP 1986). The assumed biological retention half-lives of plutonium isotopes accumulated in the liver and bone of the human body are 20 and 50 years, respectively (ICRP 1986). Therefore, after a single exposure, plutonium isotopes reside in the body for a long time, resulting in prolonged exposure of body organs to alpha radiation (EPA 1977). The permissible health levels for plutonium are the lowest of all the radioactive elements. This is occasioned by the concentration of plutonium directly on bone surfaces rather than the more uniform bone distribution

shown by other heavy elements. This increases the possibility of damage from equivalent activities of plutonium and has led to adoption of extremely low permissible levels.

Inhaled ^{238}Pu is solubilized and subsequently translocated from the lung to the bone and liver (Gillett et al. 1988). Inhaled ^{239}Pu dioxide is insoluble and retained primarily in the lungs and associated lymph nodes. In laboratory tests with plutonium and animals, the pattern of nonmalignant toxicity among the species tested was similar (i.e., radiation pneumonitis and pulmonary fibrosis occurred in the higher radiation dose groups in all species tested); however, species differences in the induction of cancer were apparent. With the exception of Syrian hamsters, cancer developed in animals in the lower exposure groups or in animals that survived initial radiation damage to the lungs (ATSDR 1990).

References:

ATSDR (Agency for Toxic Substances and Disease Registry). 1990. *Toxicological Profile for Plutonium*, U. S. Department of Health and Human Services, Public Health Service, Atlanta, GA.

EPA (U.S. Environmental Protection Agency). 1977. *Proposed Guidance on Dose Limits for Persons Exposed to Transuranium Elements in the General Environment*, EPA520/4-77-016, Washington, D.C.

Gillet, N., B. Muggenberg, J. Mewhinney, et al. 1988. Primary Liver Tumors in Beagle Dogs Exposed by Inhalation to Aerosols of Plutonium-238 Dioxide, *American Journal of Pathology* 133:265–276.

Harley, J. 1980. Plutonium in the Environment—A Review, *J. Radiat. Res.* 21:83–104.

ICRP (International Commission on Radiological Protection). 1986. *The Metabolism of Plutonium and Related Elements*, ICRP Publication 48, Pergamon Press, Oxford.

NEA/OECD (Nuclear Energy Agency/Organization of Economic Cooperation and Development. 1981. *The Environmental and Biological Behavior of Plutonium and Some Other Transuranium Elements*, Nuclear Energy Agency, Paris.

Potassium-40

Of the three naturally occurring potassium isotopes, only ^{40}K is unstable, having a half-life of 1.3×10^9 years. The potassium content of soils of arable lands is controlled by use of fertilizers. It is estimated that about 3000 Ci of ^{40}K is added annually to the soils of the United States in the form of fertilizer.

A person who weighs 70 kg contains about 140 g of potassium, most of which is located in muscle. The isotope delivers a dose of about 15 mrem/year to bone. Because of its relative abundance and its energetic β emission (1.3 MeV), ^{40}K is easily the predominant radioactive component in normal foods and human tissues. It is important to recognize that the potassium content of the body is under strict homeostatic control and is not influenced by variations in environmental levels. For this reason, the dose from ^{40}K within the body is constant (Eisenbud 1987). EPA has not yet derived a weight-of-evidence classification for ^{40}K.

Reference:

Eisenbud, M. *1987. Environmental Radioactivity from Natural, Industrial, and Military Sources, 3rd edition*, Academic Press, Harcourt Brace Jovanovich, Publishers.

Radium-226 and -228

Radium is a naturally occurring radioactive element that exists in several isotopic forms. The radium isotopes are formed from the decay of uranium and thorium. Radium-226 is formed from $^{234,238}U$, and ^{226}Ra has the longest half-life of the radium isotopes (^{228}Ra, ^{224}Ra, and ^{223}Ra). In general, the activity concentration of ^{226}Ra measured in most soils and rocks is comparable to that of $^{234,238}U$, suggesting that radium does not tend to migrate from either of its uranium precursors under stable conditions. Radium-226 is primarily an alpha and gamma emitter. Radium-228 is found in soils after nuclear fallout, where it breaks down into ^{220}Rn (Budavari 1989, Casarett 1968).

Radium has been used as a component of luminous paints for clock and instrument dials. It has also been used in the treatment of cancer, in radiography, and in research. Radium is released into the environment in coal fly ash and in uranium mining and processing wastes. The background level of radium in industrial regions in soil is about 8.1 pCi/g. Clays and soil components generally retard the movement of radium in the environment, but acidic processing wastes can enhance its movement. Radium may bioaccumulate in plants and animals, and exposure through the food chain is possible (Budavari 1989, Casarett 1968).

Many environmental problems can be directly attributed to the decay products or daughters of radium. The primary daughters are isotopes of radon—a colorless, odorless, radioactive gas. Radon gas can infiltrate basements and water systems, resulting in significant exposure via inhalation pathways (Budavari 1989, Casarett 1968). EPA has classified $^{226,228}Ra$ in weight-of-evidence group A (BEIAS 1995).

References:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. Toxicity Values for Use in Hazardous Waste Risk Assessment and Remediation, ES/ER/TM-76/R1, Risk Assessment Program, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, TN.

Budavari, W. 1989. Radiotoxicity, pp. 805–827 in *Handbook on Toxicity of Inorganic Compounds*, H. G. Seiler, H. Sigel, and A. Sigel (eds.), Marcel Dekker, New York, NY.

Casarett, A. P. 1968. *Radiation Biology*, Prentice-Hall, Inc. Englewood Cliffs, NJ.

Ruthenium-106

Ruthenium-106 is produced during nuclear and thermonuclear reactions as nuclear fallout (Sanders 1992). However, no industrial uses are discussed in the available literature.

Studies conducted on animals suggest lung and gastrointestinal tract tumors when ^{106}Ru is experimentally inhaled or intertrachealy administered. EPA has derived a weight-of-evidence classification of group A for ^{106}Ru (BEIAS 1995).

References:

BEIAS (Biomedical and Environmental Information Analysis Section). 1995. *Toxicity Values for Use in Hazardous Waste Risk Assessment and Remediation,* ES/ER/TM-76/R1, Risk Assessment Program, Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, TN.

Sanders, C. L., R. H. Busch, J. E. Ballou, and D. D. Mahlum (eds.) 1992. *Radionuclide Carcinogenesis* published the Proceedings of the 12th Annual Hanford Biology Symposium at Richland, Washington, on May 10-12, 1992.

Strontium -90

Strontium-90 is a beta-emitting radionuclide with a half-life of 28.6 years and a maximum energy of 0.546 MeV (Kocher 1981). It decays to ^{90}Y, which is also a beta emitter with a half-life of 64 hours and a maximum energy of 2.27 MeV (Turner 1986). Beta particles from ^{90}Y and ^{90}Sr must be considered when assessing the potential effects of ^{90}Sr. Concentrations of ^{90}Sr in the environment are related to nuclear weapons testing and production with more strontium deposited in the northern hemisphere than the southern. Atmospheric deposition of ^{90}Sr on land and its transfer to humans by ingestion is the most important pathway of human exposure. Concentrations in milk and grain products decline rapidly following deposition, while concentrations in fruits and vegetables decline more slowly because of the soil concentrations of strontium. Once ^{90}Sr enters waterways, the most important pathway of human exposure is ingestion of water and fish. It is assumed that approximately 30% of ingested ^{90}Sr is absorbed through the gastrointestinal tract (ICRP 1989).

Strontium-90 resembles calcium and accumulates in the bones where it causes continuous beta radiation exposures. Further, ^{90}Sr causes a prolonged exposure to the bone marrow and impacts blood cell formation, possibly resulting in leukemia, other blood disorders, or bone cancers. Strontium ingestion or inhalation exposes the large intestine to beta radiation.

References:

ICRP (Internation Commission on Radiological Protection). 1989. *Age-dependent Doses of Members of the Public from Intake of Radionuclides: Part 1*, ICRP Publication No. 56, Pergamon Press, Inc., New York, NY.

Kocher, D. C. 1981. *Radioactive Decay Data Tables*, DOE/TIC-11026, Technical Information Center, U.S. Department of Energy.

Turner, J. E. 1986. *Atoms, Radiation, and Radiation Protection*, Pergamon Press, Inc., New York, NY.

Technetium-99

Technetium is a radioactive element that occurs in a number of isotopic forms. Technetium is found in some extraterrestrial material (i.e., stars); however, no appreciable amounts have been found in nature due to the relatively short half-lives of its radioactive isotopes (Kutegov et al. 1968). While no isotopes of technetium are stable, the existence of three technetium isotopes is well established. Two common forms of technetium, ^{97}Tc and ^{98}Tc, have half-lives of 2.6×10^6 and 1.5×10^6 years, respectively. The third isotope, ^{99}Tc, has a half-life of 2.12×10^5 years. None, however, possesses a half-life sufficiently long to allow technetium to occur naturally (Boyd 1959). Technetium is made artificially for industrial use, and natural technetium, particularly ^{99}Tc, has been identified and isolated from the spontaneous fission of uranium, as well as other fissionable material or via the irradiation of molybdenum (Venugopal and Luckey 1978, Clarke and Podbielski 1988).

Technetium is an emitter of beta particles of low specific activity (Boyd 1959). It does not release nuclear energy at a rate sufficient to make the element attractive for the conventional applications of radioactivity (Boyd 1959). Technetium-99 is the only long-lived isotope that is

readily available and is the isotope on which most of the chemistry of technetium is based. Although gamma radiation has not been associated with ^{99}Tc, the secondary X rays may become important with larger amounts of the element.

References:

Boyd, G.E. 1959. Technetium and Promethium, *J. Chem. Ed.* 36(1):3–14.

Clarke, M. J. and L. Podbielski. 1988. *Handbook on Toxicity of Inorganic Compounds*, Seiler et al. (eds), New York: Marcel Dekker.

Kutegov, K. V., O. N. Pavlov, and V. P. Shvedov. 1968. Technetium **in**: *Advan. Inorganic Chem. Radiochem.*, 1-90, Vol. 11.

Seiler, H. G., H. Sigel, and A. Sigel, eds. 1988. *Handbook on Toxicity of Inorganic Compounds*, New York: Marcel Dekker, Inc.

Venugopal, B. and T. D. Luckey. 1978. *Metal Toxicity in Mammals, Vol 2, Chemical Toxicity of Metals and Metalloids*, New York: Plenum Press.

Thallium-208

Thallium-208 is an artificial radioactive isotope occurring near the end of the ^{232}Th radioactive decay series. It is a beta and gamma emitter with a radioactive half-life of 3.05 minutes (Sabbioni and Manzo 1980).

Thallium is a rare but ubiquitous element with no known beneficial functions. In nature it does not occur in the elemental state but is present as a trace compound in many minerals mainly associated with potassium and rubidium. The metal is obtained from flue dust residues of zinc, lead, and copper smelters and as a by-product of cadmium and sulfuric acid production. The mean abundance of thallium in the earth's crust is approximately 1 ppm (Sabbioni and Manzo 1980). Thallium occurs in small amounts in almost all living organisms. Natural levels in plants are reported as being between 0.01 and 3800 ppm ash weight, with 0.5 ppm being typical for most species (Sabbioni and Manzo 1980).

Reference:

Sabbioni, E. and L. Manzo. 1980. *Advances in Neurotoxicology*, pp. 239–270, L. Manzo (ed), Pergamon Press, Inc. Oxford.

Thorium-228, -230, and -232

Thorium is a naturally occurring, radioactive metal. Small amounts of thorium are present in all rocks, soil, above-ground and underground water, plants, and animals. These small amounts of thorium contribute to the weak background radiation for such substances. Soil commonly contains an average of about 6 ppm of soil. Rocks in some underground mines may also contain thorium in a more concentrated form. After these rocks are mined, thorium is usually concentrated and changes into thorium dioxide or other chemical forms. Thorium-bearing rock that has had most of the thorium removed from it is called "depleted" ore or tailings (ATSDR 1990).

Thorium is a metallic element of the actinide series. It exists in several isotopic forms. The isotope ^{232}Th is a naturally occurring element that is radioactive. It decays through the emission of a series of alpha and beta particles, gamma radiation, and the formation of daughter products, finally yielding the stable isotope of lead, ^{208}Pb. Isotopes ^{234}Th and ^{230}Th are produced during the decay of naturally occurring ^{238}U, the isotope ^{228}Th during the decay of ^{232}Th, and the isotopes ^{231}Th and ^{227}Th during the decay of ^{235}U. Of these naturally produced isotopes of thorium, only ^{232}Th, ^{230}Th, and ^{228}Th have long enough half-lives to be environmentally significant. More than 99.99% of natural thorium is ^{232}Th; the rest is ^{230}Th and ^{228}Th (ATSDR 1990).

Thorium is used to make ceramics, lantern mantles, and metals used in the aerospace industry and in nuclear reactions. Thorium can also be used as a fuel for generating nuclear energy. More than 30 years ago, thorium oxides were used in hospitals to make certain kinds of diagnostic X-ray photographs (ATSDR 1990).

Because thorium is found almost everywhere, most people in the United States eat some thorium with their food every day. Normally, little of the thorium in lakes, rivers, and oceans gets into the fish or seafood used commercially. More thorium may be found near uncontrolled hazardous waste sites that contain thorium which might not have been disposed of properly. Consequently, people living near one of these sites may be exposed to slightly more thorium as a result of inhaling windblown dust containing thorium or eating food grown in soil contaminated with thorium. Larger-than-normal amounts of thorium might also enter the environment through accidental releases from thorium processing plants (ATSDR 1990).

Breathing dust contaminated with thorium is the primary pathway for thorium exposure to the body. A large portion of this dustborne thorium will be eliminated by normal bodily functions (urine/feces); however, a small amount of thorium will be taken up by the blood and subsequently transmitted to the bones. Breathing thorium dust may cause an increased chance of developing lung disease and cancer of the lung or pancreas many years after being exposed. Changes in genetic material have also been shown to occur in workers who breathed thorium dust. Liver diseases and effects on the blood have been found in people injected with thorium to take special X rays. Many types of cancer have been shown to occur in these people many years after thorium was injected in their bodies. Since thorium is radioactive and may be stored in bone for a long time, bone cancer is also a potential concern for people exposed to thorium. Animal studies have shown that breathing in thorium may result in lung damage. Other studies in animals suggest drinking massive amounts of thorium can cause death from metal poisoning. The presence of large amounts of thorium in the environment could result in exposure to more hazardous radioactive decay products of thorium, such as radium and thoron, which is an isotope of radon. Thorium is not known to cause birth defects or to affect childbearing abilities (ATSDR 1990).

Reference:

ATSDR (Agency for Toxic Substances and Disease Registry). 1990. *Toxicological Profile for Thorium*, TP-90-25, United States Department of Health and Human Services, Public Health Service, Atlanta, GA.

Tritium

Tritium is the heaviest and only radioactive isotope of hydrogen. This radionuclide is widely distributed throughout the environment because of its ubiquitous form in "tritiated" water and its persistence in the environment (NCRP 1979).

The naturally occurring levels of tritium are the result of cosmic ray interactions in the atmosphere. Additional sources are from fallout from weapons testing, which diminished as a result of limited nuclear tests and from waste by-products of nuclear power reactors. The world inventory of natural tritium due to cosmic ray interactions is estimated to be 70 MCi, corresponding to a production rate of 4 MCi/y. Estimates of the production rate by ternary fission in nuclear reactors ranges from 12 to 20 Ci per megawatts (thermal) per day (NCRP 1979).

Transfer of tritiated water from the atmosphere to the surface of the earth occurs mainly by precipitation and vapor exchange. The mean residence time of tritiated water vapor in the atmosphere ranges from 21 to 40 days (NCRP 1979).

Several pathways are available by which tritium as a gas or as tritiated water can reach the human body. It can be absorbed in either form by entry across the skin or the lungs, or it can be ingested in drinking water or water in food. Inhalation of tritiated water vapor is distributed in the body fluids within seconds. Skin uptake of tritium is equally important to the intake by inhalation. Ingested tritiated water is almost completely absorbed by the gastrointestinal tract and quickly appears in the venus blood. The rate at which tritium is eliminated from the body has an important influence on the radiation dose following exposure to tritium in any chemical form (NCRP 1979).

One major concern is that incorporation of tritium into DNA may result in undesirable genetic or somatic effects. An important case demonstrated fatal consequences for repeated exposure for long periods of time to high concentrations of tritium gas. No evidence suggests a significant bioconcentration process for tritium in either plants or animals (NCRP 1979).

Reference:

NCRP (National Council on Radiation Protection). 1979. *Tritium in the Environment*, NCRP Report No. 62, Washington, D.C.

Uranium-233/234, -235, and -238

Uranium is a mildly radioactive element that occurs widely in the earth's crust. It is found in all soils, most rocks, and, in lesser concentrations, in water, vegetation, and animals, including humans. Uranium emits a low level of alpha particles and a much lower level of gamma rays. Alpha particles are unable to penetrate skin but can travel short distances in the body if ingested or inhaled. Consequently, uranium represents a significant carcinogenic hazard only when taken into the body, where alpha particle energy is absorbed by small volumes of tissue. Although the penetrating (gamma) radiation of uranium is not considered to be significant (ATSDR 1989), one of its daughter radionuclides is a strong gamma emitter. Therefore, gamma radiation may be a concern in areas containing uranium.

Natural uranium contains the uranium isotopes ^{238}U (which averages 99.27% of total uranium mass), ^{235}U (0.72%), and ^{234}U (0.0056%), each of which undergoes radioactive decay. Natural uranium, therefore, contains the radionuclide daughter products from the decay of ^{238}U and ^{235}U (Bowen 1979, ATSDR 1989).

Uranium is a radioactive element, but it is also a metallic element. Toxicological effects from the ingestion of uranium are the result of the action of uranium as a metal and its radioactive properties. The primary toxic chemical effect of uranium is seen in kidney damage. Studies in

rabbits, mice, and dogs showed effects on the kidney to be dose-related. Fetal skeletal abnormalities and fetal death were found in pregnant mice exposed to 6 mg/kg or uranyl acetate dihydrate.

The primary human exposure studies to uranium have been studies of uranium miners or uranium factory workers. These studies have shown an increase in lung cancer deaths among these workers, which may be attributable to the decay of uranium into radon and its daughters. These workers are exposed to high levels of uranium dust and fumes and other radioactive elements in confined conditions (ATSDR 1989).

References:

ATSDR (Agency for Toxic Substances and Disease Registry). 1989. *Draft Toxicological Profile for Uranium and Compounds*, Prepared by Syracuse Research Corporation, Prepared for ATSDR.

Bowen, H.J.M. 1979. *Environmental Chemistry of the Elements*, Academic Press: London.

F.4.7.4 Essential nutrients

Calcium

Calcium is the fifth most abundant chemical element in the Earth's crust and is classified as an alkaline earth metal. It does not occur free in nature but is found in many chemical compounds (i.e., limestone). Calcium is used as a deoxidizer in the refining of iron, steel, copper, and copper alloys and as a constituent of several lead and aluminum alloys. It is also used in extracting certain metals from their ores (Compton's NewMedia 1994).

Limestone, marble, chalk, Iceland spar, coral, pearls, and eggshells are all made up mainly of calcium carbonate. Chalk is composed of calcium deposits that were the shells of tiny marine animals. Calcite is a crystalline form of calcium carbonate, and Iceland spar, one of its varieties, has the power of producing double refraction of light. In addition, calcium carbide is made by heating limestone with coke in an electric furnace. With water, calcium carbide reacts to produce acetylene gas. When calcium carbide is heated with nitrogen, a mixture of carbon and calcium cyanamide, which is used as a fertilizer, is produced. Ammonia can be obtained by treating calcium cyanamide with hot water or superheated steam (Compton's NewMedia 1994).

Plants and animals depend on calcium for life. A plant cannot grow without an adequate supply of calcium. Therefore, calcium phosphate, a soluble calcium compound, is often used as a fertilizer to enrich calcium-deficient soil. A lack of calcium prevents the bones from developing properly, may result in arm and leg muscle spasms, softening of bones, back and leg cramps, brittle bones, rickets, poor growth, osteoporosis, tooth decay, and depression.. Calcium assists in blood clotting, helps in the nervous system, regulates heart rhythm, eases insomnia, helps regulate passage of nutrients in and out of cell walls, lowers blood pressure, and is necessary for muscle contraction (Compton's NewMedia 1994).

According to the National Research Council, the recommended daily allowance of calcium for a child (7 to 10 years), adult male (25 to 50 years), and adult female (25 to 50 years) is 800 mg/day (NRC 1989). The recommended maximum limit of calcium intake is 2500 mg/day, and while no adverse effects have been observed in many healthy adults consuming up to 2500 mg/day, supplementation in excess of this amount is not recommended (NRC 1989).

References:

Compton's NewMedia. 1994. Calcium in *Compton's Encyclopedia*, Compton's Learning Company, a Tribune New Media Company, copyright 1992.

National Research Council (NRC). 1989. *Recommended Dietary Allowances*, 10th Ed., National Academy Press, Washington, D.C.

Chloride

Little specific information for chloride was reported in the available literature. However, the National Research Council reports that the recommended daily allowance is 600 mg/day for children (7 to 10 years) (this is the minimum daily requirement for children ages 6 to 9 years of age) and 750 mg/day for adult males and females (25 to 50 years) (NRC 1989).

Reference:

National Research Council (NRC). 1989. *Recommended Dietary Allowances*, 10th Ed., National Academy Press, Washington, D.C.

Iodine

Iodine, which was discovered in 1811 by Bernard Courtois, is a member of the halogen family of elements and never occurs free in nature. It is nonmetallic and usually exists as a slate-colored, crystalline solid that produces a violet vapor when heated. The sodium nitrate beds of Chile, where iodine occurs as sodium iodate, are the world's largest source of iodine. It can be precipitated from an iodate solution by the addition of sodium bisulfite. The precipitated iodine is then purified by sublimation (Compton's NewMedia 1994).

About one-half of the international iodine output serves pharmaceutical and therapeutic purposes. Tincture of iodine, an alcohol solution of the element, is used as an antiseptic. Preparations containing iodine compounds are employed in the treatment of various disorders, such as endemic goiter and myxedema, and as aids in X-ray procedures. Iodine is also important in industry and is a constituent of several dyes (Compton's NewMedia 1994).

Iodine aids in the development and functioning of the thyroid gland; regulates the body's production of energy; helps burn excess fat by stimulating the rate of metabolism; and stimulates growth of healthy hair, skin, and teeth. According to the National Research Council, the daily recommended allowance is 0.12 mg/day, 0.15 mg/day, and 0.15 mg/day for a child (7 to 10 years), adult male (25 to 50 years), and adult female (25 to 50 years), respectively (from 1985 to 1986, the typical intake for U.S. men and women was 0.25 mg/day and 0.17 mg/day, respectively, excluding intakes from iodized salts) (NRC 1989). The minimum average requirement for an adult is 0.05 to 0.075 mg/day (NRC 1989), and the recommended maximum limit is 1.0 mg/day (child) and 2.0 mg/day (adult) (NRC 1989). A deficiency of iodine in the body results in an enlarged thyroid gland, slow mental reaction, dry skin and hair, weight gain, and loss of physical and mental vigor.

Generally, iodine intakes of up to 2 mg/day have caused no adverse physiological reactions in healthy adults, and 1 mg/day produced no indications of physiological abnormalities in children (Crocco and White 1981). The suggested toxic or lethal doses of iodine are 200 to 500 mg/kg/day (animal species) (NRC 1989); reported lethal doses of iodine in adults range from a few tenths of a grain (1 grain = 65 mg) to more that 20 g, and the probable mean lethal dose lies between 2 to 4 g

of free iodine (Haddad and Winchester 1983). However, Thomas (1976) states that the probable lethal dose for adult humans is 5 to 50 mg/kg body weight.

References:

Compton's NewMedia. 1994. Calcium in *Compton's Encyclopedia*, Compton's Learning Company, a Tribune New Media Company, copyright 1992.

Crocco, S. C., and P. L. White. 1981. Iodine: Fifty years after goiter in *Proceedings of the Stokely-Van Camp Annual Symposium, Food in Contemporary Society: Emerging Patterns*, May 27–29, University of Tennessee, Knoxville.

Haddad, L. M., and J. G. Winchester. 1983. *Clinical management of poisoning and drug overdose*, W. B. Saunders Co., Philadelphia, Pennsylvania.

National Research Council (NRC). 1989. *Recommended Dietary Allowances*, 10th Ed., National Academy Press, Washington, D.C.

Thomas, C. L. 1976. *Tabers Cyclopedic Medical Dictionary*, 12th ed., F. A. Davis Company, Philadelphia, Pennsylvania.

Iron

Iron is one of the most abundant metals in the environment and is used in many industrial processes. It is an essential element in the human diet. More than 80% of the iron present in the body is involved in the support of red blood cell production. In addition, it is also an essential component of myoglobin and various enzymes.

Iron deficiency is the most common cause of anemia (Goodman and Gilman 1985). The recommended daily allowance for a child (7 to 10 years), adult male (25 to 50 years), and adult female (25 to 50 years) is 10 mg/day, 10 mg/day, and 15 mg/day, respectively (NRC 1989). Exposure to excessive levels of iron may cause gastrointestinal damage and dysfunction and enlargement of the liver and pancreas (Goodman and Gilman 1985). A dose of 3000 mg (3 g) is the lethal dose of ferrous sulfate (an iron supplement that contains iron in its most efficient form for human absorption) for a 2-year-old child; the lethal dose of ferrous sulfate for adults is 200 to 250 mg (NRC 1989). However, it is recommended that anyone ingesting more than 30 mg/kg should be treated by induced vomiting (Haddad and Winchester 1983).

References:

Goodman, L.S. and A. Gilman. 1985. *The Pharmacologic Bases of Therapeutics*. 7th ed. New York, New York: MacMillan Publishing Co.

Haddad, L. M., and J. G. Winchester. 1983. *Clinical management of poisoning and drug overdose*, W. B. Saunders Co., Philadelphia, Pennsylvania.

National Research Council (NRC). 1989. *Recommended Dietary Allowances*, 10th Ed., National Academy Press, Washington, D.C.

Magnesium

Magnesium is the lightest common metal. It weighs one-third less than an equal volume of aluminum and is the eighth most abundant element in the Earth's crust. As a result it is used extensively in the aerospace industry. However, because the pure metal is not very strong, alloys have been developed to improve its hardness; tensile strength; corrosion resistance; and ability to be cast, welded, and machined. These alloys are used in making parts for aircraft and spacecraft, rocket components, automotive equipment, light machinery, portable tools, and household appliances. Because of magnesium's ability to burn fiercely, it is used in flares, fireworks, and photographic flashbulbs (Compton's NewMedia 1994).

In the human body, magnesium plays an important role in regulating the neuromuscular activity of the heart, maintains normal heart rhythm, converts blood sugar into energy, and stimulates proper Vitamin C and calcium metabolism. The National Research Council suggests a recommended daily allowance of 170 mg/day for a child (7 to 10 years), 350 mg/day for an adult male (25 to 50 years), and 280 mg/day for an adult female (25 to 50 years) (NRC 1989). Literature reports that one patient with normal kidney function developed symptomatic hypermagnesemia (respiratory arrest, bradycardia) after receiving 90 g of magnesium sulfate over an 18-hour period; however, ingestion of 200 g magnesium sulfate by a hypothermic patient did not produce cardiovascular effects (Ellenhorn and Barceloux 1989). Daily intakes of up to 1 g magnesium/day has been advocated as a therapeutic measure, but high oral intake of magnesium may cause substantial phosphate depletion as well as small alterations of calcium and nitrogen balance (Mordes and Wacker 1978).

References:

Compton's NewMedia. 1994. Calcium in *Compton's Encyclopedia*, Compton's Learning Company, a Tribune New Media Company, copyright 1992.

Ellenhorn, M. J., and D. G. Barceloux. 1989. *Medical Toxicology: Diagnosis and Treatment of Human Poisoning*, Elsevier, New York.

Mordes, J. P., and W. E. Wacker. 1978. Excess magnesium, *Pharmacol. Rev.* 29:273–300.

National Research Council (NRC). 1989. *Recommended Dietary Allowances*, 10th Ed., National Academy Press, Washington, D.C.

Phosphorus

Phosphorus is ordinarily a colorless, semitransparent, soft, waxy solid. It ignites spontaneously upon exposure to air, giving off dense white fumes. Because it is so chemically active, phosphorus is never found free in nature. It is widely distributed in combination with minerals in the Earth's crust and in many rocks, plants, and animals. Phosphorus is used almost entirely in the form of compounds. Phosphine, or hydrogen phosphide, is used as a doping agent for solid-state electronics components. Large amounts of phosphorus go into the manufacture of phosphoric acid and other compounds. Certain highly toxic phosphorus compounds are used in insecticides, and poisonous organic derivatives have been used as nerve gas in chemical warfare (Compton's NewMedia 1994).

Phosphorus is an essential element for plants and animals. Humans need phosphorus for strong teeth and bones and use the element to build cells and store and use energy. Adenosine triphosphate, which is made up of adenine (one of the amino acids in proteins, DNA, and RNA), ribose, and three linked phosphate groups, provides the chemical energy needed to drive bodily activities. The

recommended daily allowance of phosphorus, according to the National Research Council, is 800 mg/day for a child (7 to 10 years), adult male (25 to 50 years), and adult female (25 to 50 years), respectively (NRC 1989).

References:

Compton's NewMedia. 1994. Calcium in *Compton's Encyclopedia*, Compton's Learning Company, a Tribune New Media Company, copyright 1992.

National Research Council (NRC). 1989. *Recommended Dietary Allowances*, 10th Ed., National Academy Press, Washington, D.C.

Potassium

Potassium is a soft, silver-white metal that belongs to the alkali metal family. It oxidizes rapidly in air and reacts violently with water, yielding potassium hydroxide and hydrogen gas. Potassium is never found alone and is difficult to isolate from its compounds. It is the seventh most abundant element in the Earth's crust and occurs in many silicate rocks and minerals. The major commercial source is salt deposits, but a small fraction is obtained form plant and animal sources. Most potassium is present in insoluble minerals, making it difficult to obtain, but it can be prepared commercially by electrolysis from some refinable minerals (Compton's NewMedia 1994)..

Potassium compounds have many commercial uses. Potassium chloride is used in preparing other potassium compounds and in fertilizers. Potassium hydroxide is a water-absorbing substance used in making soaps and detergents. In addition, potassium nitrate, or saltpeter, is used in fertilizers and fireworks and explosives; it is also used as a food preservative. The iodide of potassium is added to table salt and animal feed to protect against iodine deficiency and to treat goiter and certain fungal infections. However, potassium cyanide is a poison used in some insecticides and is a source for the fumigant hydrogen cyanide (Compton's NewMedia 1994).

Potassium is essential to life. In higher animals, potassium ions together with sodium ions act at cell membranes in transmitting electrochemical impulses in nerve and muscle fibers and in balancing the activity of food intake and waste removal from cells (Compton's NewMedia 1994). The National Research Council recommended daily allowance is 1600 mg/day for a child (7 to 10 years); this is the minimum requirement for children ages 6 to 9. The recommended daily allowance for adult males and females (ages 25–50 years) is 2000 mg/day; this is the specified amount for adults greater than 18 years of age. The desirable intake of potassium may considerably exceed these values (~3500 mg/day for adults) (NRC 1989). The dosage believed to be toxic in humans is ~18 grams (NRC 1989).

References:

Compton's NewMedia. 1994. Calcium in *Compton's Encyclopedia*, Compton's Learning Company, a Tribune New Media Company, copyright 1992.

National Research Council (NRC). 1989. *Recommended Dietary Allowances*, 10th Ed., National Academy Press, Washington, D.C.

Sodium

Sodium and potassium are equally abundant in the Earth's crust, but sodium compounds are more widely used in industry because they are less expensive. Sodium belongs to the alkali metals family and is never found uncombined in nature. Sodium compounds are used in industry in the manufacture of chemicals and pharmaceuticals, in metallurgy, and in the production of common table salt. Some better known sodium compounds are sodium bicarbonate (baking soda), sodium borate (borax), and sodium hydroxide (lye). Pure sodium is lighter than water and can be cut with a knife at room temperature. It conducts heat and electricity easily and exhibits a photoelectric effect; one use of pure sodium is in vapor lamps along highways (Compton's NewMedia 1994).

Compounds of sodium are essential to plant and animal life. These compounds hold water in body tissues, and a severe deficiency of sodium can cause death. Blood contains sodium compounds in solution. The recommended daily allowance of sodium is 400 mg/day for a child (7–10 years) and 500 mg/day for adult males and females (25–50 years) (NRC 1989). The minimum average requirement for an adult is 115 mg/day, and the recommended maximum limit is 2400 mg/day (NRC 1989).

References:

Compton's NewMedia. 1994. Calcium in *Compton's Encyclopedia*, Compton's Learning Company, a Tribune New Media Company, copyright 1992.

National Research Council (NRC). 1989. *Recommended Dietary Allowances*, 10th Ed., National Academy Press, Washington, D.C.

F.5 RISK CHARACTERIZATION

The purpose of the risk characterization is to integrate and summarize the information presented in the exposure and toxicity assessments; it is the final step in the human health risk assessment process. Potential carcinogenic effects are characterized by estimating the probability that an individual will develop cancer over a lifetime from projected intakes (and exposure) and chemical-specific dose-response data (i.e., slope factors). Potential noncarcinogenic effects are characterized by comparing projected intakes of contaminants to toxicity values (i.e., RfDs). The numerical risk and HQ estimates presented in this chapter must be interpreted in the context of the uncertainties and assumptions associated with the risk assessment process and with the data upon which the risk estimates are based (refer to Chapter F.2 and Sects. F.3.4, F.4.6, and F.5.6).

The results of the BCV BHHRA are presented for each land use/source area combination (e.g., future industrial worker near/at the S-3 Ponds) in Tables F.47–F.84; each table contains three parts (parts a, b, and c). Tables labeled "a" contain the carcinogenic risks, tables labeled "b" contain noncarcinogenic HQs [and hazard indexes (HIs)], and tables labeled "c" contain contaminants identified as COCs. Each table contains multiple exposure media (e.g., soils, surface water, and groundwater).

F.5.1 GENERAL CONSIDERATIONS FOR EVALUATING RISKS/HAZARDS TO HUMAN HEALTH

F.5.1.1 Methodology for Evaluating Carcinogens and Noncarcinogens

Risks and HQs for carcinogens and noncarcinogens, respectively, are calculated for the BCV COPCs. These estimates are based upon EPA-approved or -suggested slope factors and RfDs. The slope factor is based upon an estimate of the incremental lifetime cancer risk which equates to cancer incidence per unit intake of a chemical over a lifetime, and the RfD is a level of exposure (threshold) below which no noncarcinogenic adverse health effects are expected to occur.

Carcinogenic risk is calculated by multiplying the EPA-approved or -suggested slope factors for inorganics, organics, and radionuclides by an estimate of the actual exposure to these contaminants (i.e., intake and/or dose) via external exposure, ingestion, inhalation, or dermal contact. These risk estimates indicate the potential of an individual's developing **excess** cancer over a lifetime (EPA 1989a), above the normal (unavoidable) cancer rate in the U.S. population.

The HQ estimate for noncarcinogens is calculated by determining the ratio of the intake for ingestion, inhalation, and dermal contact of a contaminant to the contaminant-specific RfD. This HQ assumes that below a given level of exposure (i.e., the RfD) even sensitive subpopulations are unlikely to experience adverse health effects.

To estimate the potential carcinogenic risk and noncarcinogenic hazards to human health from all contaminants in a particular pathway, a cumulative risk (Total Pathway Risk) and/or a cumulative HI (Total Pathway Hazard Index) is determined for exposure to all contaminants in a given exposure pathway (EPA 1989a). In addition, an overall cumulative risk or HI can be determined by summing the risks or HQs from all analytes across all of the pathways; summations are conducted separately for carcinogens and noncarcinogens.

F.5.1.2 EPA Guidance for Carcinogens and Noncarcinogens

The constituents detected in the BCV CA media were evaluated within the context of EPA-approved guidelines (EPA 1989a, 1995a) which specify three categories for carcinogenic risk [risk < 1.0E-06, no concern; risk between 1.0E-06 and 1.0E-04, range of concern (or target risk range); and risk ≥ 1.0E-04, regulatorily unacceptable] and two categories in terms of noncarcinogenic toxicity (HI < 1.0, no concern, and HI ≥ 1.0, concern). Based on this guidance, specific COCs are identified in this assessment for each area, medium, and land use scenario.

In relationship to the regulatory decisions to be made, if the BHHRA (and comparisons of exposure concentrations to other chemical-specific criteria/standards) indicates there are no unacceptable risks to human health or the environment, an FS and remedial action are generally not warranted (EPA 1991c). When the BHHRA indicates that risks are regulatorily unacceptable (e.g., risk ≥ 1.0E-04), action (i.e., an FS and remedial action) is generally warranted and risk management decisions are made. EPA considers risks between 1.0E-06 and 1.0E-04 in the target risk range, and an FS is not necessarily warranted unless immediate problems are evident (EPA 1991c).

F.5.1.3 Criteria for Identification of Chemicals of Concern

COCs are defined (EPA 1995a) for a given medium as contaminants with individual risks ≥ 1E-06 and/or individual HQs ≥ 0.1 within a land use scenario with a total risk ≥ 1E-04 and/or a total HI ≥ 1.0, respectively. The BCV human health COCs are reported in the tables identified as "c" in Tables F.47–F.83 (e.g., Table F.47c). [The reader should note that the COCs tables in this BHHRA also include contaminants (although very few in number) which have individual risks and HQs < 1.0E-06 and 0.1, respectively, but which have cumulative (i.e., summed across all exposure pathways for a particular medium and land use) risks and/or HIs ≥ 1.0E-06 and 0.1, respectively. These contaminants are provided to the reader for purposes of completeness and conservatism (in terms of being protective of human health) but are not considered primary COCs for the BCV RI (and FS) and will not be addressed further in this RI and BHHRA.]

Pathway of concern information is also provided in the COCs tables in this BHHRA. An exposure pathway is identified as being of concern if the total pathway risk is ≥ 1E-04 or if the total pathway HI is ≥ 1.0; this information is also provided in the COCs tables for informational purposes only.

F.5.1.4 Description of BCV BHHRA Risk, Hazard Quotient, and Chemicals of Concern Tables

Risk and HQ tables. The column entitled "Risk (or HI) Across All Pathways" contains the summed risks (or HQs) for each COPC across each applicable exposure pathway. The row entitled "Total Pathway Risk" (or "Total Pathway Hazard Index") contains summed risks (or HQs) for all COPCs within an exposure pathway. The total cumulative risk (or HI) per medium per land use is located in the bottom right-hand corner of each risk and HQ table. The column entitled "Ingestion (child)" is applicable only for incidental ingestion of soils/sediments/wastes for residential and recreational land uses (for noncarcinogenic HQs). Carcinogenic risks for child soil ingestion were not calculated separately from the adult risks; however, an adult/child age-adjusted intake factor was used for estimating soil/sediment/waste incidental ingestion risks. The external exposure to radionuclides pathway is applicable only to soils, wastes, and sediments. Sect. F.5.1.1 presents additional information concerning how risks, HQs, and HIs are determined. The BGs tables are subdivided into specific BGs areas when possible (e.g., BG A-North).

COCs tables. The "H" character in the COCs tables indicates that a specific COPC was identified as a noncarcinogenic (hazard) COC, and the "R" character indicates that a specific COPC was identified as a carcinogenic (risk) COC. An "R" or an "H" character listed in the "Pathway of Concern" column indicates that a particular pathway is of concern in terms of risk or hazard, respectively. Sect. F.5.1.3 presents further information concerning how COCs and pathways of concern were defined in this BHHRA. The BGs tables are subdivided into specific BGs areas when possible (e.g., BG WIP-South).

Media within the risk, HQ, and COC tables. Tables F.47–F.83 contain risks, HQs, and COCs for various applicable media. The medium labeled "waste inventory (soil)" in the BGs area refers to exposure to the BGs estimated historical waste inventory site-related contaminants. The medium labeled "waste inventory (soil)" in the S-3 Ponds area refers to exposure to the site-related contaminants found in the S-3 Ponds historical soil/sediment/sludge inventory. The medium labeled "soil inventory" in the OLF area refers to exposure to the site-related contaminants in the OLF soils-in-place. The medium labeled "soil inventory" in the DARA and OLF SP areas represents exposures to site-related contaminants found in the historical soils inventory.

The medium labeled "soil (hot spot)" in the BGs, BY/BY, BCR DB, and the CS DB areas refers to exposure to site-related contaminants found in the soil samples collected specifically in potentially highly contaminated areas. Media labeled "groundwater," "surface water," "leachate" (for BGs area only), "fish" [for Floodplain (western BCV) area only], "floodplain soil," and "sediment" are self-explanatory (refer to Sects. F.2.3.1–F.2.3.3).

F.5.2 CURRENT LAND USE CONDITIONS

"Unprotected" Maintenance Worker

The current hypothetical "unprotected" maintenance worker scenario was evaluated for each of the functional areas in the BCV CA. As a means of evaluating a current worst case scenario, EPA Region IV has requested that this "unprotected" worker be evaluated as part of the BCV BHHRA, although current workers are fully protected from exposure to contamination via adherence to Health and Safety Plans, the use of protective equipment when necessary, and OSHA/SARA training. Currently, most areas in the BCV CA are auxiliary facilities and historical Y-12 Plant disposal sites/areas; therefore, personnel visiting or working in the BCV CA have limited exposures and would include a maintenance worker.

Exposures to COPCs in uncapped soils (e.g., BCV OU1 soil samples taken adjacent to capped areas), hot-spot soils (e.g., identified BY/BY contaminated soils), the DARA and OLF SP inventoried soils, and creek floodplain soils are the media evaluated for this "unprotected" maintenance worker receptor in this BHHRA. The exposure pathways/routes to be evaluated include incidental ingestion of soil, inhalation of dust/particulates and VOCs in soil, dermal contact with the soil, and external exposure to radionuclides in the soil. For a description of the data used and how the data were aggregated, for each medium for each source area/functional area, in this BHHRA, refer to Sects. F.2.3.1–F.2.3.4. A summary of the human health COCs identified for the "unprotected" maintenance worker for the source areas/functional areas in this BHHRA is presented in Sect. F.5.4.1.

S-3 Ponds

Carcinogenic risks. Table F.47a lists the risks for exposure of an "unprotected" maintenance worker to the carcinogenic COPCs in the uncapped soils adjacent to the S-3 Ponds via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Noncarcinogenic HQs. Table F.47b lists the HQs for exposure of an "unprotected" maintenance worker to the noncarcinogenic COPCs in the uncapped soils adjacent to the S-3 Ponds via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Chemicals of Concern. Table F.47c lists the COCs for exposure of an "unprotected" maintenance worker to the COPCs in the uncapped soils adjacent to the S-3 Ponds via the four primary exposure pathways/routes listed in Sect. F.5.2.1. No COCs were identified for this receptor.

Oil Landfarm

Carcinogenic risks. Table F.48a lists the risks for exposure of an "unprotected" maintenance worker to the carcinogenic COPCs in the uncapped soils adjacent to the OLF via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Noncarcinogenic HQs. Table F.48b lists the HQs for exposure of an "unprotected" maintenance worker to the noncarcinogenic COPCs in the uncapped soils adjacent to the OLF via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Chemicals of concern. Table F.48c lists the COCs for exposure of an "unprotected" maintenance worker to the COPCs in the uncapped soils adjacent to the OLF via the four primary exposure pathways/routes listed in Sect. F.5.2.1. No COCs were identified for this receptor.

Sanitary Landfill 1

Carcinogenic risks. Table F.49a lists the risks for exposure of an "unprotected" maintenance worker to the carcinogenic COPCs in the uncapped soils adjacent to the SLF-1 via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Noncarcinogenic HQs. Table F.49b lists the HQs for exposure of an unprotected maintenance worker to the noncarcinogenic COPCs in the uncapped soils adjacent to the SLF-1 via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Chemicals of concern. Table F.49c lists the COCs for exposure of an "unprotected" maintenance worker to the COPCs in the uncapped soils adjacent to the SLF-1 via the four primary exposure pathways/routes listed in Sect. F.5.2.1. No COCs were identified for this receptor.

Boneyard/Burnyard

Carcinogenic risks. Table F.50a lists the risks for exposure of an "unprotected" maintenance worker to the carcinogenic COPCs in the BY/BY soils and hot-spot soils via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Noncarcinogenic HQs. Table F.50b lists the HQs for exposure of an "unprotected" maintenance worker to the noncarcinogenic COPCs in the BY/BY soils and hot-spot soils via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Chemicals of concern. Table F.50c lists the COCs for exposure of an "unprotected" maintenance worker to the COPCs in the BY/BY soils and hot-spot soils via the four primary exposure pathways/routes listed in Sect. F.5.2.1. No COCs were identified for the BY/BY soils for this receptor; two radiological ($^{235,238}U$) COCs were identified for the hot-spot soils for this receptor.

Burial Grounds

Carcinogenic risks. Table F.51a lists the risks for exposure of an "unprotected" maintenance worker to the carcinogenic COPCs in the uncapped soils adjacent to the BGs and BG D-East hot-spot soils via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Noncarcinogenic HQs. Table F.51b lists the HQs for exposure of an "unprotected" maintenance worker to the noncarcinogenic COPCs in the uncapped soils adjacent to the BGs and BG D-East hot-spot soils via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Chemicals of concern. Table F.51c lists the COCs for exposure of an "unprotected" maintenance worker to the COPCs in the uncapped soils adjacent to the BGs and BG D-East hot-spot soils via the four primary exposure pathways/routes listed in Sect. F.5.2.1. No COCs were identified for the soils adjacent to the caps for this receptor; three radiological ($^{234,235,238}U$) COCs were identified for the D-East hot-spot soils for this receptor.

Floodplain (western BCV) area

Carcinogenic risks. Table F.52a lists the risks for exposure of an "unprotected" maintenance worker to the carcinogenic COPCs in the floodplain soils in the Floodplain (western BCV) area via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Noncarcinogenic HQs. Table F.52b lists the HQs for exposure of an "unprotected" maintenance worker to the noncarcinogenic COPCs in the floodplain soils in the Floodplain (western BCV) area via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Chemicals of concern. Table F.52c lists the COCs for exposure of an "unprotected" maintenance worker to the COPCs in the floodplain soils in the Floodplain (western BCV) area via the four primary exposure pathways/routes listed in Sect. F.5.2.1. No COCs were identified for this receptor.

DARA

Carcinogenic risks. Table F.53a lists the risks for exposure of an "unprotected" maintenance worker to the carcinogenic COPCs in the DARA inventoried soils via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Noncarcinogenic HQs. Table F.53b lists the HQs for exposure of an "unprotected" maintenance worker to the noncarcinogenic COPCs in the DARA inventoried soils via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Chemicals of concern. Table F.53c lists the COCs for exposure of an "unprotected" maintenance worker to the COPCs in the DARA inventoried soils via the four primary exposure pathways/routes listed in Sect. F.5.2.1. No COCs were identified for this receptor.

Oil Landfarm Storage Pad

Carcinogenic risks. Table F.54a lists the risks for exposure of an "unprotected" maintenance worker to the carcinogenic COPCs in the OLF SP inventoried soils via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Noncarcinogenic HQs. Table F.54b lists the HQs for exposure of an "unprotected" maintenance worker to the noncarcinogenic COPCs in the OLF SP inventoried soils via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Chemicals of concern. Table F.54c lists the COCs for exposure of an "unprotected" maintenance worker to the COPCs in the OLF SP inventoried soils via the four primary exposure pathways/routes listed in Sect. F.5.2.1. No COCs were identified for this receptor.

Bear Creek Road Debris Burial and Creekside Debris Burial

Carcinogenic risks. Table F.55a lists the risks for exposure of an "unprotected" maintenance worker to the carcinogenic COPCs in the BCR DB and CS DB hot-spot soils via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Noncarcinogenic HQs. Table F.55b lists the HQs for exposure of an "unprotected" maintenance worker to the noncarcinogenic COPCs in the BCR DB and CS DB hot-spot soils via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Chemicals of concern. Table F.55c lists the COCs for exposure of an "unprotected" maintenance worker to the COPCs in the BCR DB and CS DB hot-spot soils via the four primary exposure pathways/routes listed in Sect. F.5.2.1. No COCs were identified for this receptor.

Floodplain soil (by transect)

Because of the large distances between floodplain soil transects, an evaluation of risks/HQs for each transect was performed. This information also gives the reader and the BCV FS valley-wide risk/HQ information for the floodplain soils (refer to Appendix B, Fig. B.50, for floodplain soil sampling location information).

Carcinogenic risks. Table F.56a lists the risks for exposure of an "unprotected" maintenance worker to the carcinogenic COPCs, per transect, in the floodplain soils via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Noncarcinogenic HQs. Table F.56b lists the HQs for exposure of an "unprotected" maintenance worker to the noncarcinogenic COPCs, per transect, in the floodplain soils via the four primary exposure pathways/routes listed in Sect. F.5.2.1.

Chemicals of concern. Table F.56c lists the COCs for exposure of an "unprotected" maintenance worker to the COPCs, per transect, in the floodplain soils via the four primary exposure pathways/routes listed in Sect. F.5.2.1. No COCs were identified for this receptor.

F.5.3 FUTURE LAND USE CONDITIONS

F.5.3.1 Industrial Worker

The future hypothetical industrial worker scenario was evaluated for each of the functional areas in the BCV CA (using current measured and estimated concentrations). Exposures to COPCs in uncapped soils (e.g., BCV OU1 soil samples taken adjacent to capped areas), hot-spot soils (e.g., identified BY/BY contaminated soils), the DARA and OLF SP inventoried soils, the creek floodplain soils, the OLF soils-in-place capped soils, and the capped waste inventories (i.e., the BGs waste inventory and the S-3 Ponds soil/sediment/sludge waste inventory) are evaluated for this future industrial worker receptor in this BHHRA. The exposure pathways/routes to be evaluated include incidental ingestion of soil (including waste), inhalation of dust/particulates and VOCs in soil, dermal contact with the soil, and external exposure to radionuclides in the soil. For a description of the data used and how the data were aggregated for each medium for each source area/functional area in this BHHRA, refer to Sects. F.2.3.1–F.2.3.4. A summary of the human health COCs identified for the future industrial worker for the source areas/functional areas in this BHHRA is also presented in Sect. F.5.4.2.

Any exposure to the contaminants in the buried waste in the BGs is considered to be unacceptable to human health in terms of risk/hazards. The uncertainty in the estimations of the contaminant concentrations in the BGs wastes is high, although unquantifiable; therefore, the accuracy of the risk/HQs is difficult to quantitate. An attempt to quantitate risks/HQs has been made for future hypothetical industrial exposures to the buried wastes in the BGs.

S-3 Ponds

Carcinogenic risks. Table F.57a lists the risks for exposure of a future industrial worker to the carcinogenic COPCs in the uncapped soils adjacent to the S-3 Ponds and the S-3 Ponds waste (soil/sediment/sludge) inventory via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Noncarcinogenic HQs. Table F.57b lists the HQs for exposure of a future industrial worker to the noncarcinogenic COPCs in the uncapped soils adjacent to the S-3 Ponds and the S-3 Ponds waste (soil/sediment/sludge) inventory via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Chemicals of concern. Table F.57c lists the COCs for exposure of a future industrial worker to the COPCs in the uncapped soils adjacent to the S-3 Ponds and the S-3 Ponds waste (soil/sediment/sludge) inventory via the four primary exposure pathways/routes listed in Sect. F.5.3.1. No COCs were identified for the S-3 Ponds soils for this receptor; one inorganic (beryllium), one organic (PCB-1248), and 10 radiological (^{137}Cs, ^{237}Np, ^{238}Pu, ^{106}Ru, ^{99}Tc, ^{228,230}Th, and ^{234,235,238}U) COCs were identified for the S-3 Ponds waste (soil/sediment/sludge) inventory for this receptor.

Oil Landfarm

Carcinogenic risks. Table F.58a lists the risks for exposure of a future industrial worker to the carcinogenic COPCs in the uncapped soils adjacent to the OLF and the OLF soils-in-place capped soils via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Noncarcinogenic HQs. Table F.58b lists the HQs for exposure of a future industrial worker to the noncarcinogenic COPCs in the uncapped soils adjacent to the OLF and the OLF soils-in-place capped soils via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Chemicals of concern. Table F.58c lists the COCs for exposure of a future industrial worker to the COPCs in the uncapped soils adjacent to the OLF and the OLF soils-in-place capped soils via the four primary exposure pathways/routes listed in Sect. F.5.3.1. No COCs were identified for the soils-in-place for this receptor; one inorganic (arsenic) and three radiological (^{60}Co, ^{212}Pb, and ^{208}Tl) COCs were identified for the soils adjacent to the OLF cap for this receptor.

Sanitary Landfill 1

Carcinogenic risks. Table F.59a lists the risks for exposure of a future industrial worker to the carcinogenic COPCs in the uncapped soils adjacent to the SLF-1 via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Noncarcinogenic HQs. Table F.59b lists the HQs for exposure of a future industrial worker to the noncarcinogenic COPCs in the uncapped soils adjacent to the SLF-1 via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Chemicals of concern. Table F.59c lists the COCs for exposure of a future industrial worker to the COPCs in the uncapped soils adjacent to the SLF-1 via the four primary exposure pathways/routes listed in Sect. F.5.3.1. No COCs were identified for this receptor.

Boneyard/Burnyard

Carcinogenic risks. Table F.60a lists the risks for exposure of a future industrial worker to the carcinogenic COPCs in the BY/BY soils and hot-spot soils via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Noncarcinogenic HQs. Table F.60b lists the HQs for exposure of a future industrial worker to the noncarcinogenic COPCs in the BY/BY soils and hot-spot soils via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Chemicals of concern. Table F.60c lists the COCs for exposure of a future industrial worker to the COPCs in the BY/BY soils and hot-spot soils via the four primary exposure pathways/routes listed in Sect. F.5.3.1. Three inorganic (Sb, As, and Be), six organic [benzo[a]anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene], and three radiological (^{234,235,238}U) primary COCs were identified for the BY/BY soils for this receptor; two radiological (^{235,238}U) COCs were identified for the hot-spot soils for this receptor.

Burial Grounds

Carcinogenic risks. Table F.61a lists the risks for exposure of a future industrial worker to the carcinogenic COPCs in the uncapped soils adjacent to the BGs, BG D-East hot-spot soils, and the BGs waste inventory via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Noncarcinogenic HQs. Table F.61b lists the HQs for exposure of a future industrial worker to the noncarcinogenic COPCs in the uncapped soils adjacent to the BGs, BG D-East hot-spot soils, and the BGs waste inventory via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Chemicals of concern. Table F.61c lists the COCs for exposure of a future industrial worker to the COPCs in the uncapped soils adjacent to the BGs, BG D-East hot-spot soils, and the BGs waste inventory via the four primary exposure pathways/routes listed in Sect. F.5.3.1. Table F.61c provides location-specific (e.g., BG A-16) and medium-specific (e.g., inventoried waste) COCs.

In summary, one radiological (^{208}Tl) COC was identified for the BGs soils adjacent to the caps, one inorganic (beryllium) and three radiological (^{234,235,238}U) COCs were identified for the D-East hot-spot soils, and two inorganic (beryllium and uranium), five organic (PCBs, tetrachloroethene, trichloroethene, benzidine, and benzene), and four radiological (^{232}Th and ^{234,235,238}U) primary COCs were identified for the waste inventory for this receptor.

Floodplain (western BCV) area

Carcinogenic risks. Table F.62a lists the risks for exposure of a future industrial worker to the carcinogenic COPCs in the floodplain soils in the Floodplain (western BCV) area via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Noncarcinogenic HQs. Table F.62b lists the HQs for exposure of a future industrial worker to the noncarcinogenic COPCs in the floodplain soils in the Floodplain (western BCV) area via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Chemicals of concern. Table F.62c lists the COCs for exposure of a future industrial worker to the COPCs in the floodplain soils in the Floodplain (western BCV) area via the four primary exposure pathways/routes listed in Sect. F.5.3.1. No COCs were identified for this receptor.

DARA

Carcinogenic risks. Table F.63a lists the risks for exposure of a future industrial worker to the carcinogenic COPCs in the DARA inventoried soils via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Noncarcinogenic HQs. Table F.63b lists the HQs for exposure of a future industrial worker to the noncarcinogenic COPCs in the DARA inventoried soils via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Chemicals of concern. Table F.63c lists the COCs for exposure of a future industrial worker to the COPCs in the DARA inventoried soils via the four primary exposure pathways/routes listed in Sect. F.5.3.1. Three organic (hexachlorodibenzo-p-dioxins, tetrachlorodibenzo-p-dioxins, and PCB-1254) and three radiological (^{234,235,238}U) COCs were identified for this receptor.

Oil Landfarm Storage Pad

Carcinogenic risks. Table F.64a lists the risks for exposure of a future industrial worker to the carcinogenic COPCs in the OLF SP inventoried soils via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Noncarcinogenic HQs. Table F.64b lists the HQs for exposure of a future industrial worker to the noncarcinogenic COPCs in the OLF SP inventoried soils via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Chemicals of concern. Table F.64c lists the COCs for exposure of a future industrial worker to the COPCs in the OLF SP inventoried soils via the four primary exposure pathways/routes listed in Sect. F.5.3.1. One inorganic (beryllium), one organic (PCBs), and two radiological ($^{235,238}U$) COCs were identified for this receptor.

Bear Creek Road Debris Burial and Creekside Debris Burial

Carcinogenic risks. Table F.65a lists the risks for exposure of a future industrial worker to the carcinogenic COPCs in the BCR DB and CS DB hot-spot soils via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Noncarcinogenic HQs. Table F.65b lists the HQs for exposure of a future industrial worker to the noncarcinogenic COPCs in the BCR DB and CS DB hot-spot soils via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Chemicals of concern. Table F.65c lists the COCs for exposure of a future industrial worker to the COPCs in the BCR DB and CS DB hot-spot soils via the four primary exposure pathways/routes listed in Sect. F.5.3.1. No COCs were identified for this receptor.

Floodplain soil (by transect)

Because of the large distances between floodplain soil transects, an evaluation of risks/HQs for each transect was performed. This information also gives the reader and the BCV FS valley-wide risk/HQ information for the floodplain soils (refer to Appendix B, Fig. B.50, for soil sampling location information).

Carcinogenic risks. Table F.66a lists the risks for exposure of a future industrial worker to the carcinogenic COPCs, per transect, in the floodplain soils via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Noncarcinogenic HQs. Table F.66b lists the HQs for exposure of a future industrial worker to the noncarcinogenic COPCs, per transect, in the floodplain soils via the four primary exposure pathways/routes listed in Sect. F.5.3.1.

Chemicals of concern. Table F.66c lists the COCs for exposure of a future industrial worker to the COPCs, per transect, in the floodplain soils via the four primary exposure pathways/routes listed in Sect. F.5.3.1. No COCs were identified for this receptor.

F.5.3.2 Recreational Receptor

The future hypothetical recreational scenario was evaluated for the Floodplain (western BCV) area (i.e., the area starting just west of the BGs and ending at Hwy 95) using current concentrations. Creek floodplain soils and sediments, surface/spring water, and fish are the media evaluated for the recreational receptor in this BHHRA. The exposure pathways/routes to be evaluated include incidental ingestion of soil and dry-sediments; incidental ingestion of surface water (while swimming); inhalation of dust/particulates and VOCs in soil and dry-sediment; inhalation of VOCs

in surface water (while swimming); dermal contact with soil and sediments; dermal contact with surface water (while swimming); external exposure to radionuclides in the soil and sediments; and ingestion of fish. For a description of the data used and how the data were aggregated for each medium for each source area/functional area in this BHHRA, refer to Sects. F.2.3.1–F.2.3.4. A summary of the human health COCs identified for the future recreational receptor in the Floodplain (western BCV) area in this BHHRA is presented in Sect. F.5.4.3.

Floodplain (western BCV) area

Carcinogenic risks. Table F.67a lists the risks for exposure of a future recreational receptor to the carcinogenic COPCs in the floodplain soils and sediments, surface water, and fish in the Floodplain (western BCV) via the primary exposure pathways/routes listed in Sect. F.5.3.2.

Noncarcinogenic HQs. Table F.67b lists the HQs for exposure of a future recreational receptor to the noncarcinogenic COPCs in the floodplain soils and sediments, surface water, and fish in the Floodplain (western BCV) area via the primary exposure pathways/routes listed in Sect. F.5.3.2.

Chemicals of concern. Table F.67c lists the COCs for exposure of a future recreational receptor to the COPCs in the floodplain soils and sediments, surface water, and fish in the Floodplain (western BCV) area via the primary exposure pathways/routes listed in Sect. F.5.3.2. No COCs were identified for the floodplain soils and sediments and for the surface water; one inorganic (mercury) and two organic (PCB-1254 and PCB-1260) COCs were identified for the BCV fish for this receptor.

Floodplain soil [by transect in Floodplain (western BCV) area]

Because of the large distances between floodplain soil transects, an evaluation of risks/HQs for each transect located in the Floodplain (western BCV) area was performed. This information also gives the reader and the BCV FS valley-wide risk/HQ information for the floodplain soils (refer to Appendix B, Fig. B.50, for floodplain soil sampling location information).

Carcinogenic risks. Table F.68a lists the risks for exposure of a future recreational receptor to the carcinogenic COPCs, per transect, in the floodplain soils via the four primary soil exposure pathways/routes listed in Sect. F.5.3.2.

Noncarcinogenic HQs. Table F.68b lists the HQs for exposure of a future recreational receptor to the noncarcinogenic COPCs, per transect, in the floodplain soils via the four primary soil exposure pathways/routes listed in Sect. F.5.3.2.

Chemicals of concern. Table F.68c lists the COCs for exposure of a future recreational receptor to the COPCs, per transect, in the floodplain soils via the four primary soil exposure pathways/routes listed in Sect. F.5.3.2. No COCs were identified for this receptor.

Floodplain sediment [by location in Floodplain (western BCV) area]

Because of the large distances between floodplain sediment sampling locations, an evaluation of risks/HQs for each sediment location located in the Floodplain (western BCV) area was performed. This information also gives the reader and the BCV FS valley-wide risk/HQ information for the floodplain sediments (refer to Appendix B, Fig. B.50, for sediment sampling location information).

Carcinogenic risks. Table F.69a lists the risks for exposure of a future recreational receptor to the carcinogenic COPCs, per location, in the floodplain sediments via the four primary sediment exposure pathways/routes listed in Sect. F.5.3.2.

Noncarcinogenic HQs. Table F.69b lists the HQs for exposure of a future recreational receptor to the noncarcinogenic COPCs, per location, in the floodplain sediments via the four primary sediment exposure pathways/routes listed in Sect. F.5.3.2.

Chemicals of concern. Table F.69c lists the COCs for exposure of a future recreational receptor to the COPCs, per location, in the floodplain sediments via the four primary sediment exposure pathways/routes listed in Sect. F.5.3.2. No COCs were identified for this receptor.

F.5.3.3 Resident

The reasonable maximum exposure scenario for the future hypothetical resident was evaluated for each of the functional areas in the BCV CA (using current measured and estimated concentrations). Exposures to COPCs in the uncapped soils (e.g., BCV OU1 soil samples taken adjacent to capped areas), hot-spot soils (e.g., identified BY/BY contaminated soils), the DARA and OLF SP inventoried soils, the creek floodplain soils and sediments, the OLF soils-in-place capped soils, the capped waste inventories (i.e., the BGs waste inventory and the S-3 Ponds soil/sediment/sludge waste inventory), the BGs leachate, BCV groundwater (for each source area/functional area aggregate and well-by-well), and BCV surface/spring water (for each source area/functional area aggregate and location-by-location) are evaluated for the future residential receptor in this BHHRA. The exposure pathways/routes to be evaluated include incidental ingestion of soil and dry-sediments; ingestion of surface water and groundwater (and leachate); inhalation of dust/particulates and VOCs in soil and dry-sediment; inhalation of VOCs in surface water and groundwater (and leachate); dermal contact with soil, sediments, surface water, and groundwater (and leachate); and external exposure to radionuclides in the soil and sediment.

For a description of the data used and how the data were aggregated for each medium for each source area/functional area in this BHHRA, refer to Sects. F.2.3.1–F.2.3.4. A summary of the human health COCs identified for the future resident for the source areas/functional areas (and valley-wide for groundwater, surface water, and floodplain soils/sediments) in this BHHRA is presented in Sect. F.5.4.4.

Any exposure to the contaminants in the buried waste in the BGs is considered to be unacceptable to human health in terms of risk/hazards. The uncertainty in the estimations of the contaminant concentrations in the BGs wastes is high, although unquantifiable; therefore, the accuracy of the risk/HQs is difficult to quantitate. An attempt to quantitate risks/HQs has been made for future hypothetical residential exposures to the buried wastes in the BGs. Such a conservative scenario (i.e., residential land use) is unlikely because the BCV CA is located within the DOE-owned, Y-12 Plant property of the ORR; the area between the BGs and the S-3 Ponds will be evaluated in the BCV FS as industrial land use only (for current and for future land uses). However, the intent of this residential evaluation is to (1) provide managers with a conservative estimate of potential risks to future receptors (i.e., the reasonable maximum exposure) from exposure to contaminants in the BCV CA media, (2) remain consistent with the NCP, and (3) provide for comparisons across the DOE facilities.

S-3 Ponds

Carcinogenic risks. Table F.70a lists the risks for exposure of a future resident to the carcinogenic COPCs in the uncapped soils adjacent to the S-3 Ponds, the S-3 Ponds waste (soil/sediment/sludge) inventory, and the groundwater and surface water located at/downgradient of the S-3 Ponds via the primary exposure pathways/routes listed in Sect. F.5.3.3.

Noncarcinogenic HQs. Table F.70b lists the HQs for exposure of a future resident to the noncarcinogenic COPCs in the uncapped soils adjacent to the S-3 Ponds, the S-3 Ponds waste (soil/sediment/sludge) inventory, and the groundwater and surface water located at/downgradient of the S-3 Ponds via the primary exposure pathways/routes listed in Sect. F.5.3.3.

Chemicals of concern. Table F.70c lists the COCs for exposure of a future resident to the COPCs in the uncapped soils adjacent to the S-3 Ponds, the S-3 Ponds waste (soil/sediment/sludge) inventory, and the groundwater and surface water located at/downgradient of the S-3 Ponds via the primary exposure pathways/routes listed in Sect. F.5.3.3. Two inorganic (arsenic and mercury) COCs were identified for the soils adjacent to the S-3 Ponds; four inorganic (As, Be, Ni, and U), one organic (PCB-1248), and 12 radiological (^{137}Cs, ^{237}Np, $^{238,239/240}$Pu, ^{106}Ru, ^{99}Tc, ^{228,230,232}Th, and ^{234,235,238}U) COCs were identified for the waste inventory; 13 inorganic (Ba, Be, B, Cd, Cr, fluoride, Mn, Hg, Ni, nitrate, nitrite, Sr, and U), 10 organic [1,1-dichloroethene, 2,4-dinitrophenol, benzene, bis(2-ethylhexyl)phthalate, chloroform, di-N-octylphthalate, methylene chloride, tetrachloroethene, trichloroethene, and vinyl chloride], and 11 radiological [^{241}Am, ^{137}Cs, ^{237}Np, Ra (total alpha), ^{90}Sr, ^{99}Tc, ^{228}Th, ^{3}H, and ^{234,235,238}U] COCs were identified for the groundwater; and seven inorganic (Ba, Be, Cd, fluoride, Mn, nitrate, and U), one organic (tetrachloroethene), and five radiological (^{90}Sr, ^{99}Tc, and $^{233/234,235,238}$U) primary COCs were identified for the surface water for this receptor.

Oil Landfarm

Carcinogenic risks. Table F.71a lists the risks for exposure of a future resident to the carcinogenic COPCs in the uncapped soils adjacent to the OLF cap, the OLF soils-in-place capped soils, and the groundwater and surface water located at/downgradient of the OLF via the primary exposure pathways/routes listed in Sect. F.5.3.3.

Noncarcinogenic HQs. Table F.71b lists the HQs for exposure of a future resident to the noncarcinogenic COPCs in the uncapped soils adjacent to the OLF cap, the OLF soils-in-place capped soils, and the groundwater and surface water located at/downgradient of the OLF via the primary exposure pathways/routes listed in Sect. F.5.3.3.

Chemicals of concern. Table F.71c lists the COCs for exposure of a future resident to the COPCs in the uncapped soils adjacent to the OLF cap, the OLF soils-in-place capped soils, and the groundwater and surface water located at/downgradient of the OLF via the primary exposure pathways/routes listed in Sect. F.5.3.3. One inorganic (arsenic), one organic (PCB-1260), and four radiological (^{60}Co, ^{212}Pb, ^{208}Tl, and ^{238}U) COCs were identified for the soils adjacent to the OLF cap; one inorganic (uranium), three organic (PCB-1254, PCB-1260, and PCBs), and three radiological (^{234,235,238}U) COCs were identified for the OLF soils-in-place; eight inorganic (Ba, Be, B, Cd, Cr, fluoride, Mn, and Hg), 11 organic (1,1-dichloroethene, 1,2-dichloroethane, benzene, carbon tetrachloride, chloroform, methylene chloride, PCB-1254, tetrachloroethene, trans-1,2-dichloroethene, trichloroethene, and vinyl chloride), and 9 radiological (^{137}Cs, ^{212}Pb, ^{237}Np, ^{40}K, ^{228,230}Th, and ^{234,235,238}U) COCs were identified for the groundwater; and six inorganic (As, Ba, Cd, fluoride, nitrate, and U) and five radiological (^{90}Sr, ^{99}Tc, and $^{233/234,235,238}$U) COCs were identified

for the surface water for this receptor. [Note that the groundwater and surface water aggregates used to represent potential exposures at the OLF are also used for SLF-1 and BY/BY; therefore, the COCs for these media for these three areas will be the same.]

Sanitary Landfill 1

Carcinogenic risks. Table F.72a lists the risks for exposure of a future resident to the carcinogenic COPCs in the uncapped soils adjacent to the SLF-1 and the groundwater and surface water located at/downgradient of the SLF-1 via the primary exposure pathways/routes listed in Sect. F.5.3.3.

Noncarcinogenic HQs. Table F.72b lists the HQs for exposure of a future resident to the noncarcinogenic COPCs in the uncapped soils adjacent to the SLF-1 and the groundwater and surface water located at/downgradient of the SLF-1 via the primary exposure pathways/routes listed in Sect. F.5.3.3.

Chemicals of concern. Table F.72c lists the COCs for exposure of a future resident to the COPCs in the uncapped soils adjacent to the SLF-1 and the groundwater and surface water located at/downgradient of the SLF-1 via the primary exposure pathways/routes listed in Sect. F.5.3.3. One inorganic (mercury), eight organic [benzo[a]anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, PCB-1232, PCB-1254, and PCB-1260], and three radiological (^{60}Co and ^{235,238}U) COCs were identified for the soils adjacent to the cap; eight inorganics (Ba, Be, B, Cd, Cr, fluoride, Mn, and Hg), 11 organic (1,1-dichloroethene, 1,2-dichloroethane, benzene, carbon tetrachloride, chloroform, methylene chloride, PCB-1254, tetrachloroethene, trans-1,2-dichloroethene, trichloroethene, and vinyl chloride), and 9 radiological (^{137}Cs, ^{212} Pb, ^{237}Np, ^{40}K, ^{228,230}Th, and ^{234,235,238}U) COCs were identified for the groundwater; and six inorganic (As, Ba, Cd, fluoride, nitrate, and U) and five radiological (^{90}Sr, ^{99}Tc, and $^{233/234,235,238}$U) COCs were identified for the surface water for this receptor.

Boneyard/Burnyard

Carcinogenic risks. Table F.73a lists the risks for exposure of a future resident to the carcinogenic COPCs in the BY/BY soils and hot-spot soils and the groundwater and surface water located at/downgradient of the BY/BY via the primary exposure pathways/routes listed in Sect. F.5.3.3.

Noncarcinogenic HQs. Table F.73b lists the HQs for exposure of a future resident to the noncarcinogenic COPCs in the BY/BY soils and hot-spot soils and the groundwater and surface water located at/downgradient of the BY/BY via the primary exposure pathways/routes listed in Sect. F.5.3.3.

Chemicals of concern. Table F.73c lists the COCs for exposure of a future resident to the COPCs in the BY/BY soils and hot-spot soils and the groundwater and surface water located at/downgradient of the BY/BY via the primary exposure pathways/routes listed in Sect. F.5.3.3. Ten inorganic (Sb, As, Be, Cd, Cr, Mn, Hg, Ni, Ag, and Zn), nine organic (2,3,7,8-tetrachlorodibenzodioxin, benzo[a]anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, PCB 1254, and PCB 1260), and three radiological (^{234,235,238}U) primary COCs were identified for the BY/BY soils; two radiological (^{235,238}U) COCs were identified for the hot-spot soils; eight inorganic (Ba, Be, B, Cd, Cr, fluoride, Mn, and Hg), 11 organic (1,1-dichloroethene, 1,2-dichloroethane, benzene, carbon

tetrachloride, chloroform, methylene chloride, PCB-1254, tetrachloroethene, trans-1,2-dichloroethene, trichloroethene, and vinyl chloride), and 9 radiological (^{137}Cs, ^{212}Pb, ^{237}Np, ^{40}K, ^{228,230}Th, and ^{234,235,238}U) COCs were identified for the groundwater; and six inorganic (As, Ba, Cd, fluoride, nitrate, and U) and five radiological (^{90}Sr, ^{99}Tc, and $^{233/234,235,238}$U) COCs were identified for the surface water for this receptor.

Burial Grounds

Any exposure to the contaminants in the buried waste in the BGs is considered to be unacceptable to human health in terms of risk/hazards. The uncertainty in the estimations of the concentrations is unknown but high; therefore, the accuracy of the risk/HQs is difficult to quantitate, but an attempt to quantitate risks/HQs has been made for future hypothetical residential uses of the BGs.

Carcinogenic risks. Table F.74a lists the risks for exposure of a future resident to the carcinogenic COPCs in the uncapped soils adjacent to the BGs, BG D-East hot-spot soils, the BGs waste inventory, the groundwater (and leachate), and the surface water at/downgradient of the BGs via the primary exposure pathways/routes listed in Sect. F.5.3.3.

Noncarcinogenic HQs. Table F.74b lists the HQs for exposure of a future resident to the noncarcinogenic COPCs in the uncapped soils adjacent to the BGs, BG D-East hot-spot soils, the BGs waste inventory, the groundwater (and leachate), and the surface water at/downgradient of the BGs via the primary exposure pathways/routes listed in Sect. F.5.3.3.

Chemicals of concern. Table F.74c lists the COCs for exposure of a future resident to the COPCs in the uncapped soils adjacent to the BGs, BG D-East hot-spot soils, the BGs waste inventory, the groundwater (and leachate), and the surface water at/downgradient of the BGs via the primary exposure pathways/routes listed in Sect. F.5.3.3. Table F.74c presents location-specific (e.g., BG A-16) and media-specific (e.g., inventoried waste) COCs.

In summary, three inorganic (As, Be, V), three organic (PCB-1248, PCB-1254, and PCB-1260), and three radiological (^{60}Co, ^{208}Tl, and ^{238}U) COCs were identified for the BGs soils adjacent to the caps; one inorganic (beryllium) and three radiological (^{234,235,238}U) COCs were identified for the D-East hot-spot soils; four inorganic (Be, Cr, mercuric chloride, and U), eight organic (4,4'-DDT, PCBs, tetrachloroethene, 1,1,1-trichloroethane, trichloroethane, trichloroethene, benzidine, and benzene), and four radiological (^{232}Th and ^{234,235,238}U) COCs were identified for the BG waste inventory; five inorganic (Ba, Be, Cd, Cr, and fluoride), 14 organic (1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,1-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethane, 1,2-dichloroethene, benzene, chloroform, methylene chloride, tetrachloroethene, trans-1,2-dichloroethene, trichloroethene, trichlorofluoromethane, and vinyl chloride), and four radiological (^{137}Cs, ^{40}K, ^{228}Th, and ^{238}U) COCs were identified for the BGs groundwater; eleven inorganic (As, Ba, Be, B, Cr, Mn, Mo, Ni, U, V, and Zn), 22 organic [1,1,2-trichloroethane, 1,1-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethane, 1,4-dichlorobenzene, 1,4-dioxane, 2,4-dimethylphenol, 2,4-dinitrotoluene, 2,6-dinitrotoluene, benzene, benzidine, bis(2-ethylhexyl)phthalate, chloroform, cis-1,2-dichloroethene, di-N-octylphthalate, dibromochloromethane, methylene chloride, pentachlorophenol, PCBs, tetrachloroethene, trichloroethene, and vinyl chloride], and 8 radiological [^{137}Cs, ^{237}Np, Ra (total alpha), ^{99}Tc, ^{3}H, and ^{234,235,238}U] COCs were identified in the BGs leachate; and one inorganic (beryllium), nine organic (1,1,2-trichloroethane, 1,1-dichloroethene, 1,2-dichloroethane, 1,2-dichloroethene, benzene,

chloroform, tetrachloroethene, trichloroethene, and vinyl chloride), and four radiological (^{40}K, ^{228}Th, and $^{233/234,238}U$) COCs were identified for the BGs surface water for this receptor.

Floodplain (western BCV) area

Carcinogenic risks. Table F.75a lists the risks for exposure of a future resident to the carcinogenic COPCs in the floodplain soils and sediments, groundwater, and surface water in the Floodplain (western BCV) area via the primary exposure pathways/routes listed in Sect. F.5.3.3.

Noncarcinogenic HQs. Table F.75b lists the HQs for exposure of a future resident to the noncarcinogenic COPCs in the floodplain soils and sediments, groundwater, and surface water in the Floodplain (western BCV) area via the primary exposure pathways/routes listed in Sect. F.5.3.3.

Chemicals of concern. Table F.75c lists the COCs for exposure of a future resident to the COPCs in the floodplain soils and sediments, groundwater, and surface water in the Floodplain (western BCV) area via the primary exposure pathways/routes listed in Sect. F.5.3.3. No COCs were identified for the floodplain soils, groundwater, and surface water; three inorganic (As, Cr, and Mn) and one organic (PCB-1254) COCs were identified for the sediment for this receptor.

DARA

Carcinogenic risks. Table F.76a lists the risks for exposure of a future resident to the carcinogenic COPCs in the DARA inventoried soils via the four primary soil exposure pathways/routes listed in Sect. F.5.3.3.

Noncarcinogenic HQs. Table F.76b lists the HQs for exposure of a future resident to the noncarcinogenic COPCs in the DARA inventoried soils via the four primary soil exposure pathways/routes listed in Sect. F.5.3.3.

Chemicals of concern. Table F.76c lists the COCs for exposure of a future resident to the COPCs in the DARA inventoried soils via the four primary soil exposure pathways/routes listed in Sect. F.5.3.3. Four organic (hexachlorodibenzo-p-dioxins, tetrachlorodibenzo-p-dioxins, PCB-1254, and pentachlorobenzene) and three radiological ($^{234,235,238}U$) COCs were identified for this receptor.

Oil Landfarm Storage Pad

Carcinogenic risks. Table F.77a lists the risks for exposure of a future resident to the carcinogenic COPCs in the OLF SP inventoried soils via the four primary soil exposure pathways/routes listed in Sect. F.5.3.3.

Noncarcinogenic HQs. Table F.77b lists the HQs for exposure of a future resident to the noncarcinogenic COPCs in the OLF SP inventoried soils via the four primary soil exposure pathways/routes listed in Sect. F.5.3.3.

Chemicals of concern. Table F.77c lists the COCs for exposure of a future resident to the COPCs in the OLF SP inventoried soils via the four primary soil exposure pathways/routes listed in Sect. F.5.3.3. Two inorganic (arsenic and beryllium), one organic (PCBs), and three radiological ($^{234,235,238}U$) COCs were identified for this receptor.

Bear Creek Road Debris Burial and Creekside Debris Burial

Carcinogenic risks. Table F.78a lists the risks for exposure of a future resident to the carcinogenic COPCs in the BCR DB and CS DB hot-spot soils via the four primary soil exposure pathways/routes listed in Sect. F.5.3.3.

Noncarcinogenic HQs. Table F.78b lists the HQs for exposure of a future resident to the noncarcinogenic COPCs in the BCR DB and CS DB hot-spot soils via the four primary soil exposure pathways/routes listed in Sect. F.5.3.3.

Chemicals of concern. Table F.78c lists the COCs for exposure of a future resident to the COPCs in the BCR DB and CS DB hot-spot soils via the four primary soil exposure pathways/routes listed in Sect. F.5.3.3. For the BCR DB: six inorganic (As, Ba, Be, Cd, Cr, and Hg), one organic (PCB-1254), and six radiological (^{137}Cs, ^{243}Cm, ^{228}Th, and ^{234,235,238}U) COCs were identified for this receptor. For the CS DB: four inorganic (As, Be, Cr, and Hg), seven organic [benzo[a]anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, and PCB-1254], and five radiological (^{137}Cs, ^{228}Th, and ^{234,235,238}U) COCs were identified for this receptor.

Groundwater: valley-wide (by well)

To provide the reader and the FS with valley-wide (and location-specific) human health risk and HQ information, each groundwater (including BG leachate) sampling location was evaluated (well-by-well) in this BHHRA. A summary (including graphical representations) of this information is provided in Sect. F.5.4.4.

Carcinogenic risks. Table F.79a lists the risks for exposure of a future resident to the carcinogenic COPCs in the BCV groundwater, per sampling location, via the three primary water exposure pathways listed in Sect. F.5.3.3.

Noncarcinogenic HQs. Table F.79b lists the HQs for exposure of a future resident to the noncarcinogenic COPCs in the BCV groundwater, per sampling location, via the three primary water exposure pathways listed in Sect. F.5.3.3.

Chemicals of concern. Table F.79c lists the COCs for exposure of a future resident to the COPCs in the BCV groundwater, per sampling location, via the three primary water exposure pathways listed in Sect. F.5.3.3. Eighteen inorganic, 39 organic, and 14 radiological COCs were identified for this receptor for the BCV groundwater (including BGs leachate); for specific COCs identified per sampling location, refer to Table F.79c.

Groundwater: valley-wide (by Picket)

To provide the reader and the FS with valley-wide (and location-specific) human health risk and HQ information, each set of Maynardville exit pathway groundwater Picket wells were evaluated (e.g., Picket A) in this BHHRA.

Carcinogenic risks. Table F.80a lists the risks for exposure of a future resident to the carcinogenic COPCs in the BCV groundwater, for each set of Picket wells, via the three primary water exposure pathways listed in Sect. F.5.3.3.

Noncarcinogenic HQs. Table F.80b lists the HQs for exposure of a future resident to the noncarcinogenic COPCs in the BCV groundwater, for each set of Picket wells, via the three primary water exposure pathways listed in Sect. F.5.3.3.

Chemicals of concern. Table F.80c lists the COCs for exposure of a future resident to the COPCs in the BCV groundwater, for each set of Picket wells, via the three primary water exposure pathways listed in Sect. F.5.3.3. No COCs were identified for Pickets A, C, and W; three inorganic (chromium, nitrate, and uranium), three organic (1,1-dichloroethene, carbon tetrachloride, and trichloroethene), and three radiological (^{99}Tc and ^{234,238}U) COCs were identified for Picket B for this receptor. The reader should note that Picket B is located in the Maynardville exit pathway approximately half-way between the BGs and the BY/BY.

Surface water and spring water: valley-wide (by location)

To provide the reader and the FS with valley-wide (and location-specific) human health risk and HQ information, each surface water sampling location was evaluated (location-by-location) in this BHHRA. A summary (including graphical representations) of this information is provided in Sect. F.5.4.4.

Carcinogenic risks. Table F.81a lists the risks for exposure of a future resident to the carcinogenic COPCs in the BCV surface water, per sampling location, via the three primary water exposure pathways listed in Sect. F.5.3.3.

Noncarcinogenic HQs. Table F.81b lists the HQs for exposure of a future resident to the noncarcinogenic COPCs in the BCV surface water, per sampling location, via the three primary water exposure pathways listed in Sect. F.5.3.3.

Chemicals of concern. Table F.81c lists the COCs for exposure of a future resident to the COPCs in the BCV surface water, per sampling location, via the three primary water exposure pathways listed in Sect. F.5.3.3. Twelve inorganic, 10 organic, and 10 radiological COCs were identified for this receptor for the BCV surface water; for specific COCs identified per sampling location, refer to Table F.81c.

To provide the reader and the FS with human health risk and HQ information at an exposure point just west of the most western source area/functional area (i.e., the BGs), a surface water aggregate for BCK-9.4 and SS-5 was evaluated in this BHHRA.

Carcinogenic risks. Table F.81d lists the risks for exposure of a future resident to the carcinogenic COPCs in the BCV surface water, at location BCK-9.4/SS-5, via the three primary water exposure pathways listed in Sect. F.5.3.3.

Noncarcinogenic HQs. Table F.81e lists the HQs for exposure of a future resident to the noncarcinogenic COPCs in the BCV surface water, at location BCK-9.4/SS-5, via the three primary water exposure pathways listed in Sect. F.5.3.3.

Chemicals of concern. Table F.81f lists the COCs for exposure of a future resident to the COPCs in the BCV surface water, at location BCK-9.4/SS-5, via the three primary water exposure pathways listed in Sect. F.5.3.3. Four inorganic (boron, fluoride, nitrate, and uranium) COCs were identified at this location for this receptor.

Floodplain soil (by transect)

Because of the large distances between floodplain soil transects, an evaluation of risks/HQs for each transect was performed. This information also gives the reader and the BCV FS valley-wide risk/HQ information for the floodplain soils (refer to Appendix B, Fig. B.50, for floodplain soil sampling location information).

Carcinogenic risks. Table F.82a lists the risks for exposure of a future resident to the carcinogenic COPCs, per transect, in the floodplain soils via the four primary soil exposure pathways/routes listed in Sect. F.5.3.3.

Noncarcinogenic HQs. Table F.82b lists the HQs for exposure of a future resident to the noncarcinogenic COPCs, per transect, in the floodplain soils via the four primary soil exposure pathways/routes listed in Sect. F.5.3.3.

Chemicals of concern. Table F.82c lists the COCs for exposure of a future resident to the COPCs, per transect, in the floodplain soils via the four primary soil exposure pathways/routes listed in Sect. F.5.3.3. One inorganic (beryllium), one organic (PCB-1260), and three radiological ($^{234,235,238}U$) COCs were identified for Transect-04 (located along NT-8 and across Bear Creek at the BGs). For Transect/Trench-SP04 (located near Hwy 95), one organic (PCB-1254) COC was identified for this receptor

Floodplain sediment (by location)

Because of the large distances between floodplain sediment sampling locations, an evaluation of risks/HQs for each sediment location was performed. This information also gives the reader and the BCV FS valley-wide risk/HQ information for the floodplain sediments (refer to Appendix B, Fig. B.50, for sediment sampling location information).

Carcinogenic risks. Table F.83a lists the risks for exposure of a future resident to the carcinogenic COPCs, per location, in the floodplain sediments via the four primary sediment exposure pathways/routes listed in Sect. F.5.3.3.

Noncarcinogenic HQs. Table F.83b lists the HQs for exposure of a future resident to the noncarcinogenic COPCs, per location, in the floodplain sediments via the four primary sediment exposure pathways/routes listed in Sect. F.5.3.3.

Chemicals of concern. Table F.83c lists the COCs for exposure of a future resident to the COPCs, per location, in the floodplain sediments via the four primary sediment exposure pathways/routes listed in Sect. F.5.3.3. For sampling location SD02, six inorganic (As, Be, Cd, Mn, Hg, and Ni), two organic [benzo(a)pyrene and PCB-1260], and two radiological ($^{235,238}U$) COCs were identified. For SD04, seven inorganic (Sb, As, Cd, Cr, Mn, Hg, and V), seven organic [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, PCB-1254, and PCB-1260], and three radiological ($^{234,235,238}U$) COCs were identified. For SD07, four inorganic (As, Cd, Cr, and Mn) COCs were identified. In addition, for SD08, three inorganic (As, Ba, and Mn) COCs were identified; while for SD09, one inorganic (beryllium), one organic (PCB-1260), and two radiological ($^{235,238}U$) COCs were identified. For SD10, two inorganic (arsenic and manganese) and one organic (PCB-1254) COCs were identified. For SD11, three inorganic (As, Cr, and Mn) and one organic (PCB-1254) COCs were identified. Furthermore, for SD14, four inorganic (As, Be, Cd, and Mn) and four radiological (^{228}Th and

$^{234,235,238}U$) COCs were identified for this receptor. The reader should note that only two of these sediment sampling locations, SD10 (in Bear Creek between NT-8 and NT-9) and SD11 (in Bear Creek near NT-11), are located in the Floodplain (western BCV) area (i.e., are west of the BGs). No COCs were identified for any other sampling locations.

F.5.3.4 Residential Consumption of Homegrown Leafy Vegetables

For each of the source areas/functional areas in BCV, risks, HQs, and COCs from consumption of contaminated homegrown leafy vegetables were evaluated (using vegetable concentrations modeled from the current measured and estimated soil and water concentrations) for the BCV quantitative COPCs; the results are listed in Table F.84. The methodology (parameters, assumptions, equations, etc.) used to estimate contaminant concentrations in leafy vegetables based on soil and water concentrations is presented by Energy Systems (1996b). Of the 84 quantitatively evaluated COPCs (Tables F.14–F.31), 79 could be evaluated for the vegetable ingestion exposure pathway/route, and 70 of the 79 were identified as COCs for this pathway. The number of COPCs that could be evaluated quantitatively for this pathway/route of exposure (i.e., 79) is limited by the availability of chemical-specific information for each COPC [e.g., B_{vw}: wet root uptake (McKone 1994)]. This risk (and HQ) information is provided to the reader for informational purposes only; COCs identified for this exposure scenario (i.e., residential ingestion of homegrown leafy vegetables) will not be considered as primary COCs in the BHHRA.

F.5.4 RISK CHARACTERIZATION SUMMARY

A summary of the results of the human health risk and hazard characterization for exposure to the COPCs in various media for the source areas/functional areas evaluated in this BHHRA is provided below in Exhibits F.1–F.4, Tables F.85–F.88, and Figs. F.2–F.7.

The COCs identified for each land use evaluated in this BHHRA (i.e., current "unprotected" maintenance worker, future industrial worker, future recreational receptor, and future resident) for each source area/functional area are reported in Exhibits F.1–F.4, respectively. [Note: COCs are contaminants with individual risks $\geq$ 1.0E-06 and/or individual HQs $\geq$ 0.1, for a given medium within a land use scenario with a total risk $\geq$ 1E-04 and/or a total HI $\geq$ 1.0, respectively (EPA 1995a).]

Figures F.2–F.7 include a graphical representation of the results of the location-specific residential risk and HQ evaluations of the BCV groundwater and surface water; Tables F.85–F.88 support Figs. F.2–F.7 by providing the COPC-specific percent contribution to the total residential risk and HI for each sampling location.

The numerical risk and HQ results presented in this section must be interpreted in the context of the uncertainties, assignments, and assumptions associated with this BHHRA and the data (especially the historical inventory data) upon which the risk estimates are based (refer to Chapter F.2 and Sects. F.3.4, F.4.4–F.4.6, and F.5.6).

F.5.4.1 Current "Unprotected" Maintenance Worker

The COCs identified for the current "unprotected" maintenance worker, for each source area/functional area in the BCV BHHRA, are listed in Exhibit F.1. The exhibit also presents the frequency of detection for each COC, the UCL95 exposure concentration, and the risk and HQ

Exhibit F.1. Bear Creek Valley "unprotected" maintenance worker chemicals of concern

Area	Medium	COCs[a]	Frequency of Detect	UCL95 Conc.[b]	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ	Inhalation HQ	Dermal HQ
S-3 Ponds											
S-3 Ponds	Soil (1-9)	None									
S-3 Ponds	Soil (10)	None									
Oil Landfarm											
OLF	Soil	None									
Sanitary Landfill-1											
SLF-1	Soil	None									
Boneyard/Burnyard											
BY/BY	Soil	None									
BY/BY	Soil (hot spot)	Uranium-235	1/1	7.36E+02	1.6E-06			1.3E-04			
BY/BY	Soil (hot spot)	Uranium-238	1/1	4.76E+04	1.3E-04	2.5E-06		1.6E-03			
Burial Grounds											
BG A-16	Soil	None									
BG A-17	Soil	None									
BG A-18	Soil	None									
BG A-North	Soil	None									
BG A-South	Soil	None									
BG B	Soil	None									
BG C-East	Soil	None									
BG C-West	Soil	None									
BG D-East	Soil	None									
BG D-East	Soil (hot spot)	Uranium-234	1/1	1.54E+05	3.1E-04	9.1E-06		2.2E-06			
BG D-East	Soil (hot spot)	Uranium-235	1/1	2.56E+03	5.4E-06			4.5E-04			
BG D-East	Soil (hot spot)	Uranium-238	1/1	2.09E+05	5.8E-04	1.1E-05		7.2E-03			
BG D-South	Soil	None									
BG WIP-North	Soil	None									
BG WIP-South	Soil	None									

Exhibit F.1. (continued)

Area	Medium	COCs[a]	Frequency of Detect	UCL95 Conc.[b]	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ	Inhalation HQ	Dermal HQ
Floodplain (western BCV)											
FP (wBCV)	Soil (creek floodplain)	None									
Disposal Area Remedial Action Solids Unit											
DARA	Soil Inventory	None									
Oil Landfarm Storage Pad											
OLF SP	Soil Inventory	None									
Bear Creek Road Debris Burial											
BCR DB	Soil (hot spot)	None									
Creekside Debris Burial											
CS DB	Soil (hot spot)	None									

[a] The COCs presented in this table are associated with data aggregates which best represent each source area/functional area, i.e., location-specific COCs are not shown in this table.
[b] The units of measure for the UCL95 concentrations for radionuclides are pCi/g and pCi/L for soil and water, respectively; for chemicals, the units are mg/L and mg/kg for water and soil, respectively.

Exhibit F.2. Bear Creek Valley industrial worker chemicals of concern

Area	Medium[a]	COCs[b]	Frequency of Detect	UCL95 Conc.[c]	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ	Inhalation HQ	Dermal HQ
S-3 Ponds											
S-3 Ponds	Soil (1-9)	None									
S-3 Ponds	Soil (10)	None									
S-3 Ponds	Waste Inv. (soil)	Beryllium		2.74E+00	2.1E-06		1.3E-05				
S-3 Ponds	Waste Inv. (soil)	PCB-1248		5.67E+00	7.6E-06		5.4E-06				
S-3 Ponds	Waste Inv. (soil)	Cesium-137		4.77E+00				4.6E-05			
S-3 Ponds	Waste Inv. (soil)	Neptunium-237		9.85E+00				2.1E-05			
S-3 Ponds	Waste Inv. (soil)	Plutonium-238		2.53E+01	2.3E-06						
S-3 Ponds	Waste Inv. (soil)	Ruthenium-106		3.33E+01				1.2E-04			
S-3 Ponds	Waste Inv. (soil)	Technetium-99		7.52E+03	3.3E-06						
S-3 Ponds	Waste Inv. (soil)	Thorium-228		2.67E+02	1.9E-05			1.2E-03			
S-3 Ponds	Waste Inv. (soil)	Thorium-230		5.44E+02	6.4E-06						
S-3 Ponds	Waste Inv. (soil)	Uranium-234		1.24E+02	1.7E-06						
S-3 Ponds	Waste Inv. (soil)	Uranium-235		8.06E+00				9.8E-06			
S-3 Ponds	Waste Inv. (soil)	Uranium-238		3.32E+02	6.4E-06			8.0E-05			
Oil Landfarm											
OLF	Soil	Arsenic	8/8	1.13E+01	3.0E-06						
OLF	Soil	Cobalt-60	4/8	1.54E+00				6.9E-05			
OLF	Soil	Lead-212	1/8	2.60E+00				3.6E-06			
OLF	Soil	Thallium-208	1/8	4.60E+00				3.0E-04			
OLF	Soil Inventory	None									
Sanitary Landfill-1											
SLF	Soil	None									
Boneyard/Burnyard											
B/BY	Soil	Antimony	12/12	2.95E+02					3.6E-01		1.1E+00
BY/BY	Soil	Arsenic	15/15	2.16E+01	5.7E-06						
BY/BY	Soil	Beryllium	14/15	1.70E+00	1.3E-06		8.1E-06				
BY/BY	Soil	Benzo(a)anthracene	14/14	6.85E+01	8.7E-06		1.8E-05				
BY/BY	Soil	Benzo(a)pyrene	14/14	4.60E+01	5.9E-05		1.2E-04				
BY/BY	Soil	Benzo(b)fluoranthene	14/14	5.97E+01	7.6E-06		1.6E-05				
BY/BY	Soil	Benzo(k)fluoranthene	14/14	3.97E+01			1.0E-06				

Exhibit F.2. (continued)

Area	Medium[a]	COCs[b]	Frequency of Detect	UCL95 Conc.[c]	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ	Inhalation HQ	Dermal HQ
BY/BY	Soil	Dibenzo(a,h)anthracene	13/14	3.37E+00	4.3E-06		8.8E-06				
BY/BY	Soil	Indeno(1,2,3-cd)pyrene	14/14	2.17E+01	2.8E-06		5.6E-06				
BY/BY	Soil	Uranium-234	17/17	2.60E+02	3.6E-06						
BY/BY	Soil	Uranium-235	15/17	8.62E+00				1.0E-05			
BY/BY	Soil	Uranium-238	17/17	5.27E+02	1.0E-05			1.3E-04			
BY/BY	Soil (hot spot)	Uranium-235	1/1	7.36E+02	1.1E-05			8.9E-04			
BY/BY	Soil (hot spot)	Uranium-238	1/1	4.76E+04	9.2E-04	1.7E-05		1.1E-02			
Burial Grounds											
BG A-16	Soil	Thallium-208	1/2	3.70E+00				2.4E-04			
BG A-16	Waste Inv. (soil)	None									
BG A-17	Soil	Thallium-208	1/2	3.70E+00				2.4E-04			
BG A-17	Waste Inv. (soil)	None									
BG A-18	Soil	Thallium-208	1/2	3.70E+00				2.4E-04			
BG A-18	Waste Inv. (soil)	None									
BG A-North	Soil	None									
BG A-North	Waste Inv. (soil)	Beryllium		3.00E-01			1.4E-06				
BG A-North	Waste Inv. (soil)	Total Uranium		1.10E+04					1.8E+00		1.3E-01
BG A-North	Waste Inv. (soil)	PCBs		1.30E+03	1.7E-03		1.2E-03				
BG A-North	Waste Inv. (soil)	Uranium-234 (calc.)		3.73E+03	5.2E-05	1.5E-06					
BG A-North	Waste Inv. (soil)	Uranium-235 (calc.)		1.70E+02	2.5E-06			2.1E-04			
BG A-North	Waste Inv. (soil)	Uranium-238 (calc.)		3.64E+03	7.0E-05	1.3E-06		8.7E-04			
BG A-South	Soil	None									
BG A-South	Waste Inv. (soil)	Beryllium		1.20E+00			5.7E-06				
BG A-South	Waste Inv. (soil)	Total Uranium		1.50E+04					2.4E+00		1.8E-01
BG A-South	Waste Inv. (soil)	Benzene		1.40E+02		1.5E-05					
BG A-South	Waste Inv. (soil)	PCBs		2.10E+01	2.8E-05		2.0E-05				
BG A-South	Waste Inv. (soil)	Tetrachloroethene		8.90E+02	8.1E-06	5.6E-06	5.1E-06				
BG A-South	Waste Inv. (soil)	Trichloroethene		8.50E+01		1.9E-06					
BG A-South	Waste Inv. (soil)	Uranium-234 (calc.)		5.09E+03	7.1E-05	2.1E-06					
BG A-South	Waste Inv. (soil)	Uranium-235 (calc.)		2.31E+02	3.4E-06			2.8E-04			
BG A-South	Waste Inv. (soil)	Uranium-238 (calc.)		4.96E+03	9.6E-05	1.8E-06		1.2E-03			

Exhibit F.2. (continued)

Area	Medium[a]	COCs[b]	Frequency of Detect	UCL95 Conc.[c]	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ	Inhalation HQ	Dermal HQ
BG B	Soil	None									
BG B	Waste Inv. (soil)	Total Uranium		3.00E+05					4.9E+01		3.6E+00
BG B	Waste Inv. (soil)	Uranium-234 (calc.)		1.02E+05	1.4E-03	4.2E-05		9.9E-06			
BG B	Waste Inv. (soil)	Uranium-235 (calc.)		4.63E+03	6.8E-05	1.8E-06		5.6E-03			
BG B	Waste Inv. (soil)	Uranium-238 (calc.)		9.92E+04	1.9E-03	3.6E-05		2.3E-02			
BG C-East	Soil	None									
BG C-East	Waste Inv. (soil)	Beryllium		1.10E+03	8.3E-04		5.2E-03		1.1E-01		6.8E-01
BG C-East	Waste Inv. (soil)	Total Uranium		2.10E+04					3.4E+00		2.5E-01
BG C-East	Waste Inv. (soil)	Thorium-232 (calc.)		5.78E+02	5.9E-06						
BG C-East	Waste Inv. (soil)	Uranium-234 (calc.)		7.13E+03	9.9E-05	2.9E-06					
BG C-East	Waste Inv. (soil)	Uranium-235 (calc.)		3.24E+02	4.8E-06			3.9E-04			
BG C-East	Waste Inv. (soil)	Uranium-238 (calc.)		6.94E+03	1.3E-04	2.5E-06		1.7E-03			
BG C-West	Soil	None									
BG C-West	Waste Inv. (soil)	Beryllium		1.10E+03	8.3E-04		5.2E-03		1.1E-01		6.8E-01
BG C-West	Waste Inv. (soil)	Total Uranium		2.20E+04					3.6E+00		2.7E-01
BG C-West	Waste Inv. (soil)	Thorium-232 (calc.)		3.38E+02	3.5E-06						
BG C-West	Waste Inv. (soil)	Uranium-234 (calc.)		7.47E+03	1.0E-04	3.0E-06					
BG C-West	Waste Inv. (soil)	Uranium-235 (calc.)		3.39E+02	5.0E-06			4.1E-04			
BG C-West	Waste Inv. (soil)	Uranium-238 (calc.)		7.27E+03	1.4E-04	2.6E-06		1.7E-03			
BG D-East	Soil	None									
BG D-East	Soil (hot spot)	Beryllium	1/1	5.90E-01			2.8E-06				
BG D-East	Soil (hot spot)	Uranium-234	1/1	1.54E+05	2.1E-03	6.3E-05		1.5E-05			
BG D-East	Soil (hot spot)	Uranium-235	1/1	2.56E+03	3.8E-05			3.1E-03			
BG D-East	Soil (hot spot)	Uranium-238	1/1	2.09E+05	4.1E-03	7.6E-05		4.9E-02			
BG D-East	Waste Inv. (soil)	Total Uranium		2.40E+05					3.9E+01		2.9E+00
BG D-East	Waste Inv. (soil)	Uranium-234 (calc.)		8.14E+04	1.1E-03	3.3E-05		8.0E-06			
BG D-East	Waste Inv. (soil)	Uranium-235 (calc.)		3.70E+03	5.4E-05	1.4E-06		4.5E-03			
BG D-East	Waste Inv. (soil)	Uranium-238 (calc.)		7.93E+04	1.5E-03	2.9E-05		1.9E-02			
BG D-South	Soil	None									
BG D-South	Waste Inv. (soil)	Total Uranium		2.40E+05					3.9E+01		2.9E+00
BG D-South	Waste Inv. (soil)	Uranium-234 (calc.)		8.14E+04	1.1E-03	3.3E-05		8.0E-06			
BG D-South	Waste Inv. (soil)	Uranium-235 (calc.)		3.70E+03	5.4E-05	1.4E-06		4.5E-03			

Exhibit F.2. (continued)

Area	Medium[a]	COCs[b]	Frequency of Detect	UCL95 Conc.[c]	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ	Inhalation HQ	Dermal HQ
BG D-South	Waste Inv. (soil)	Uranium-238 (calc.)		7.93E+04	1.5E-03	2.9E-05		1.9E-02			
BG D-West,E,J	Waste Inv. (soil)	Total Uranium		2.60E+05					4.2E+01		3.2E+00
BG D-West,E,J	Waste Inv. (soil)	Uranium-234 (calc.)		8.82E+04	1.2E-03	3.6E-05		8.6E-06			
BG D-West,E,J	Waste Inv. (soil)	Uranium-235 (calc.)		4.01E+03	5.9E-05	1.5E-06		4.8E-03			
BG D-West,E,J	Waste Inv. (soil)	Uranium-238 (calc.)		8.60E+04	1.7E-03	3.1E-05		2.0E-02			
BG WIP-North	Soil	None									
BG WIP-North	Waste Inv. (soil)	Beryllium		2.60E+01	2.0E-05		1.2E-04				
BG WIP-North	Waste Inv. (soil)	Total Uranium		7.20E+04					1.2E+01		8.7E-01
BG WIP-North	Waste Inv. (soil)	Benzene		1.30E+02		1.4E-05					
BG WIP-North	Waste Inv. (soil)	Benzidine		3.10E+01	1.2E-03		9.9E-04				
BG WIP-North	Waste Inv. (soil)	PCBs		1.70E+00	2.3E-06		1.6E-06				
BG WIP-North	Waste Inv. (soil)	Uranium-234 (calc.)		2.44E+04	3.4E-04	1.0E-05		2.4E-06			
BG WIP-North	Waste Inv. (soil)	Uranium-235 (calc.)		1.11E+03	1.6E-05			1.3E-03			
BG WIP-North	Waste Inv. (soil)	Uranium-238 (calc.)		2.38E+04	4.6E-04	8.6E-06		5.7E-03			
BG WIP-South	Soil	None									
BG WIP-South	Waste Inv. (soil)	Total Uranium		7.50E+04					1.2E+01		9.1E-01
BG WIP-South	Waste Inv. (soil)	Uranium-234 (calc.)		2.55E+04	3.5E-04	1.0E-05		2.5E-06			
BG WIP-South	Waste Inv. (soil)	Uranium-235 (calc.)		1.16E+03	1.7E-05			1.4E-03			
BG WIP-South	Waste Inv. (soil)	Uranium-238 (calc.)		2.48E+04	4.8E-04	9.0E-06		5.9E-03			
Floodplain (western BCV)											
FP (wBCV)	Soil (creek floodplain)	None									
Disposal Area Remedial Action Solids Storage Unit											
DARA	Soil Inventory	HxCDD[d]	22/32	2.65E-03	2.9E-06		3.6E-06				
DARA	Soil Inventory	PCB-1254	32/32	1.03E+02					2.5E+00		1.8E+00
DARA	Soil Inventory	2,3,7,8-TCDD[d]	2/32	2.40E-03	6.3E-05		8.0E-05				
DARA	Soil Inventory	Uranium-234	32/32	1.14E+02	1.6E-06						
DARA	Soil Inventory	Uranium-235	32/32	4.91E+00				5.9E-06			
DARA	Soil Inventory	Uranium-238	32/32	7.69E+01	1.5E-06			1.8E-05			
Oil Landfarm Storage Pad											
OLF SP	Soil Inventory	Beryllium	40/40	5.82E+00	4.4E-06		2.8E-05				

Exhibit F.2. (continued)

Area	Medium[a]	COCs[b]	Frequency of Detect	UCL95 Conc.[c]	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ	Inhalation HQ	Dermal HQ
OLF SP	Soil Inventory	PCBs	40/40	2.65E+01	3.6E-05		2.5E-05				
OLF SP	Soil Inventory	Uranium-235	40/40	1.53E+00				1.9E-06			
OLF SP	Soil Inventory	Uranium-238	40/40	2.40E+01				5.7E-06			
Bear Creek Road Debris Burial											
BCR DB	Soil (hot spot)	None									
Creekside Debris Burial											
CS DB	Soil (hot spot)	None									

[a] Waste Inv. (soil) = Waste Inventory (soil)
[b] The COCs presented in this table are associated with data aggregates which best represent each source area/functional area, i.e., location-specific COCs are not shown in this table.
[c] The units of measure for the UCL95 concentrations for radionuclides are pCi/g and pCi/L for soil and water, respectively; for chemicals, the units are mg/L and mg/kg for water and soil, respectively.
[d] For the DARA soils inventory, hexachlorodibenzo-p-dioxins were evaluated as HxCDD, and tetrachlorodibenzo-p-dioxins were evaluated as 2,3,7,8-TCDD.

Exhibit F.3. Bear Creek Valley recreational chemicals of concern

Area	Medium	COCs[a]	Frequency of Detect	UCL95 Conc.[b]	Ingestion Risk[c]	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ (child)[c]	Ingestion HQ (adult)	Inhalation HQ	Dermal HQ
Floodplain (western BCV)												
FP (wBCV)	Fish	Mercury	35/35	1.30E+00						1.3E+00		
FP (wBCV)	Fish	PCB-1254	35/35	7.70E-01						3.9E+00		
FP (wBCV)	Fish	PCB-1260	35/35	8.90E-01	3.0E-04							
FP (wBCV)	Sediment	None										
FP (wBCV)	Soil (creek floodplain)	None										
FP (wBCV)	Surface Water	None										

[a] The COCs presented in this table are associated with data aggregates which best represent each source area/functional area, i.e., location-specific COCs are not shown in this table.

[b] The units of measure for the UCL95 concentrations for radionuclides are pCi/g and pCi/L for soil and water, respectively; for chemicals, the units are mg/L and mg/kg for water and soil, respectively.

[c] Recreational receptors include: adult/child combination (i.e., age-adjusted intake factor) for incidental ingestion of soil and sediment (for carcinogens/risk), adult and child considered separately (for noncarcinogens/HQ), and adult only for all other exposure media and pathways (Energy Systems 1996c; EPA 1991a).

Exhibit F.4. Bear Creek Valley residential chemicals of concern

Area	Medium	COCs[a]	Frequency of Detect	UCL95 Conc.[b]	Ingestion Risk[c]	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ (child)[c]	Ingestion HQ (adult)	Inhalation HQ	Dermal HQ
S-3 Ponds												
S-3 Ponds	Groundwater	Barium	104/104	1.56E+02						6.1E+01		2.1E+00
S-3 Ponds	Groundwater	Beryllium	18/66	1.92E-02	9.7E-04		2.4E-04			1.1E-01		
S-3 Ponds	Groundwater	Boron	87/91	3.63E-01						1.1E-01		
S-3 Ponds	Groundwater	Cadmium	93/154	2.69E-01						1.5E+01		3.6E+00
S-3 Ponds	Groundwater	Chromium	23/157	2.40E-02						1.3E-01		
S-3 Ponds	Groundwater	Fluoride	84/152	2.99E+00						1.4E+00		
S-3 Ponds	Groundwater	Manganese	93/95	1.01E+01						2.0E+00		1.2E-01
S-3 Ponds	Groundwater	Mercury	47/167	5.20E-03						4.7E-01		
S-3 Ponds	Groundwater	Nickel	28/74	3.29E+00						4.5E+00		
S-3 Ponds	Groundwater	Nitrate (as N)	155/155	2.11E+03						3.6E+01		1.8E-01
S-3 Ponds	Groundwater	Nitrite (as N)	1/9	6.70E+00						1.8E+00		
S-3 Ponds	Groundwater	Strontium	80/80	8.80E+01						4.0E+00		
S-3 Ponds	Groundwater	Total Uranium	129/163	2.56E+00						2.3E+01		
S-3 Ponds	Groundwater	1,1-Dichloroethene	12/195	2.63E-03	1.9E-05	1.9E-04						
S-3 Ponds	Groundwater	2,4-Dinitrophenol	2/11	3.20E-02						4.4E-01		
S-3 Ponds	Groundwater	Benzene	10/195	2.61E-03		4.4E-06						
S-3 Ponds	Groundwater	Bis(2-ethylhexyl)phthalate	6/11	1.83E-02	3.0E-06							
S-3 Ponds	Groundwater	Chloroform	87/199	6.20E-03		2.9E-05						
S-3 Ponds	Groundwater	Di-N-Octylphthalate	2/11	2.79E-03								2.8E-01
S-3 Ponds	Groundwater	Methylene Chloride	82/203	2.42E-02	2.1E-06	2.3E-06						
S-3 Ponds	Groundwater	Tetrachloroethene	108/203	4.21E-01	2.6E-04	4.9E-05	2.3E-04			1.2E+00		1.0E+00
S-3 Ponds	Groundwater	Trichloroethene	51/196	5.28E-03		1.9E-06						
S-3 Ponds	Groundwater	Vinyl Chloride	10/195	5.04E-03	1.1E-04	8.9E-05	2.0E-06					
S-3 Ponds	Groundwater	Americium-241	5/8	3.14E+01	2.2E-04							
S-3 Ponds	Groundwater	Cesium-137	1/3	6.00E+00	4.0E-06							
S-3 Ponds	Groundwater	Neptunium-237	7/10	5.87E+02	3.7E-03							
S-3 Ponds	Groundwater	Radium (total alpha)	2/2	3.51E+01	2.2E-04							
S-3 Ponds	Groundwater	Strontium-90	8/9	1.92E+02	2.2E-04							
S-3 Ponds	Groundwater	Technetium-99	10/10	6.94E+04	2.0E-03							
S-3 Ponds	Groundwater	Thorium-228	1/3	3.20E+00	1.6E-05							

Exhibit F.4. (continued)

Area	Medium	COCs[a]	Frequency of Detect	UCL95 Conc.[b]	Ingestion Risk[c]	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ (child)[c]	Ingestion HQ (adult)	Inhalation HQ	Dermal HQ
S-3 Ponds	Groundwater	Tritium	9/11	4.10E+03	6.1E-06							
S-3 Ponds	Groundwater	Uranium-234	10/10	3.14E+03	2.9E-03							
S-3 Ponds	Groundwater	Uranium-235	8/10	3.53E+02	3.5E-04							
S-3 Ponds	Groundwater	Uranium-238	10/10	7.48E+03	9.7E-03							
S-3 Ponds	Soil (1-9)	Arsenic	18/18	7.22E+00	1.7E-05				3.1E-01			
S-3 Ponds	Soil (1-9)	Mercury	15/18	2.65E+01					1.1E+00	1.2E-01		
S-3 Ponds	Soil (10)	None										
S-3 Ponds	Surface Water	Barium	55/55	3.08E-01						1.2E-01		
S-3 Ponds	Surface Water	Beryllium	5/55	2.25E-04	1.1E-05		2.8E-06					
S-3 Ponds	Surface Water	Cadmium	4/16	9.78E-03						5.4E-01		1.3E-01
S-3 Ponds	Surface Water	Fluoride	55/55	6.15E-01						2.8E-01		
S-3 Ponds	Surface Water	Manganese	54/55	1.15E+00						2.3E-01		
S-3 Ponds	Surface Water	Nitrate (as N)	55/55	9.74E+01						1.7E+00		
S-3 Ponds	Surface Water	Total Uranium	20/20	6.10E-02						5.6E-01		
S-3 Ponds	Surface Water	Tetrachloroethene	37/55	2.85E-03	1.7E-06		1.6E-06					
S-3 Ponds	Surface Water	Strontium-90	7/11	1.39E+00	1.6E-06							
S-3 Ponds	Surface Water	Technetium-99	8/9	3.27E+02	9.6E-06							
S-3 Ponds	Surface Water	Uranium-233/234	34/35	2.83E+01	2.6E-05							
S-3 Ponds	Surface Water	Uranium-235	16/35	1.60E+00	1.6E-06							
S-3 Ponds	Surface Water	Uranium-238	34/35	5.87E+01	7.6E-05							
S-3 Ponds	Waste Inv. (soil)	Arsenic		1.12E+00	2.6E-06							
S-3 Ponds	Waste Inv. (soil)	Beryllium		2.74E+00	1.8E-05		3.7E-05					
S-3 Ponds	Waste Inv. (soil)	Nickel		5.50E+02					3.5E-01			
S-3 Ponds	Waste Inv. (soil)	Total Uranium		9.92E+02					4.2E+00	4.5E-01		
S-3 Ponds	Waste Inv. (soil)	PCB-1248		5.67E+00	6.8E-05		1.5E-05					
S-3 Ponds	Waste Inv. (soil)	Cesium-137		4.77E+00				2.3E-04				
S-3 Ponds	Waste Inv. (soil)	Neptunium-237		9.85E+00	3.7E-06			1.0E-04				
S-3 Ponds	Waste Inv. (soil)	Plutonium-238		2.53E+01	9.4E-06							
S-3 Ponds	Waste Inv. (soil)	Plutonium-239/240		2.54E+00	1.0E-06							
S-3 Ponds	Waste Inv. (soil)	Ruthenium-106		3.33E+01	1.4E-06			5.8E-04				
S-3 Ponds	Waste Inv. (soil)	Technetium-99		7.52E+03	1.3E-05							

Exhibit F.4. (continued)

Area	Medium	COCs[a]	Frequency of Detect	UCL95 Conc.[b]	Ingestion Risk[c]	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ (child)[c]	Ingestion HQ (adult)	Inhalation HQ	Dermal HQ
S-3 Ponds	Waste Inv. (soil)	Thorium-228		2.67E+02	7.8E-05	1.3E-06		6.1E-03				
S-3 Ponds	Waste Inv. (soil)	Thorium-230		5.44E+02	2.6E-05							
S-3 Ponds	Waste Inv. (soil)	Thorium-232		8.75E+01	3.6E-06							
S-3 Ponds	Waste Inv. (soil)	Uranium-234		1.24E+02	6.9E-06							
S-3 Ponds	Waste Inv. (soil)	Uranium-235		8.06E+00				4.9E-05				
S-3 Ponds	Waste Inv. (soil)	Uranium-238		3.32E+02	2.6E-05			4.0E-04				
Oil Landfarm, Sanitary Landfill-1, and Boneyard/Burnyard												
OLF,BY/BY,SLF-1	Groundwater	Barium	71/71	3.45E-01						1.4E-01		
OLF,BY/BY,SLF-1	Groundwater	Beryllium	17/71	4.40E-04	2.2E-05		5.4E-06					
OLF,BY/BY,SLF-1	Groundwater	Boron	65/65	3.55E-01						1.1E-01		
OLF,BY/BY,SLF-1	Groundwater	Cadmium	9/73	3.29E-03						1.8E-01		
OLF,BY/BY,SLF-1	Groundwater	Chromium	33/95	3.00E-02						1.6E-01		
OLF,BY/BY,SLF-1	Groundwater	Fluoride	26/82	4.00E-01						1.8E-01		
OLF,BY/BY,SLF-1	Groundwater	Manganese	72/74	1.09E+00						2.1E-01		
OLF,BY/BY,SLF-1	Groundwater	Mercury	9/71	3.12E-03						2.8E-01		
OLF,BY/BY,SLF-1	Groundwater	1,1-Dichloroethene	77/117	2.97E-02	2.1E-04	2.1E-03	4.5E-06					
OLF,BY/BY,SLF-1	Groundwater	1,2-Dichloroethane	13/116	4.90E-03	5.2E-06	2.6E-05						
OLF,BY/BY,SLF-1	Groundwater	Benzene	35/116	6.91E-03	2.4E-06	1.2E-05						
OLF,BY/BY,SLF-1	Groundwater	Carbon Tetrachloride	11/117	3.26E-03	5.0E-06	1.0E-05				1.3E-01		
OLF,BY/BY,SLF-1	Groundwater	Chloroform	25/116	1.01E-02		4.8E-05						
OLF,BY/BY,SLF-1	Groundwater	Methylene Chloride	24/115	8.21E-02	7.2E-06	7.9E-06						
OLF,BY/BY,SLF-1	Groundwater	PCB-1254	1/5	4.50E-04						6.2E-01		5.7E-01
OLF,BY/BY,SLF-1	Groundwater	Tetrachloroethene	55/117	1.01E-01	6.2E-05	1.2E-05	5.6E-05			2.8E-01		2.5E-01
OLF,BY/BY,SLF-1	Groundwater	Trans-1,2-Dichloroethene	28/31	1.37E-01						1.9E-01		
OLF,BY/BY,SLF-1	Groundwater	Trichloroethene	84/117	1.29E-01	1.7E-05	4.5E-05	4.3E-06					
OLF,BY/BY,SLF-1	Groundwater	Vinyl Chloride	30/117	9.69E-03	2.2E-04	1.7E-04	3.8E-06					
OLF,BY/BY,SLF-1	Groundwater	Cesium-137	1/9	4.60E+00	3.1E-06							
OLF,BY/BY,SLF-1	Groundwater	Lead-212	1/6	1.56E+01	5.9E-06							
OLF,BY/BY,SLF-1	Groundwater	Neptunium-237	1/3	2.40E-01	1.5E-06							
OLF,BY/BY,SLF-1	Groundwater	Potassium-40	1/6	1.51E+02	4.0E-05							

Exhibit F.4. (continued)

Area	Medium	COCs[a]	Frequency of Detect	UCL95 Conc.[b]	Ingestion Risk[c]	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ (child)[c]	Ingestion HQ (adult)	Inhalation HQ	Dermal HQ
OLF,BY/BY,SLF-1	Groundwater	Thorium-228	4/9	1.29E+00	6.3E-06							
OLF,BY/BY,SLF-1	Groundwater	Thorium-230	6/9	2.14E+00	1.7E-06							
OLF,BY/BY,SLF-1	Groundwater	Uranium-234	9/9	1.30E+03	1.2E-03							
OLF,BY/BY,SLF-1	Groundwater	Uranium-235	5/9	2.89E+01	2.9E-05							
OLF,BY/BY,SLF-1	Groundwater	Uranium-238	8/9	7.21E+02	9.4E-04							
OLF,BY/BY,SLF-1	Surface Water	Arsenic	5/43	8.16E-04	1.4E-05							
OLF,BY/BY,SLF-1	Surface Water	Barium	52/52	2.75E-01						1.1E-01		
OLF,BY/BY,SLF-1	Surface Water	Cadmium	5/8	7.52E-03						4.1E-01		
OLF,BY/BY,SLF-1	Surface Water	Fluoride	39/52	1.16E+00						5.3E-01		
OLF,BY/BY,SLF-1	Surface Water	Nitrate (as N)	38/52	4.93E+01						8.4E-01		
OLF,BY/BY,SLF-1	Surface Water	Total Uranium	10/10	2.24E-01						2.0E+00		
OLF,BY/BY,SLF-1	Surface Water	Strontium-90	3/13	9.30E-01	1.1E-06							
OLF,BY/BY,SLF-1	Surface Water	Technetium-99	2/12	8.41E+01	2.5E-06							
OLF,BY/BY,SLF-1	Surface Water	Uranium-233/234	21/42	5.62E+01	5.2E-05							
OLF,BY/BY,SLF-1	Surface Water	Uranium-235	19/42	5.26E+00	5.2E-06							
OLF,BY/BY,SLF-1	Surface Water	Uranium-238	21/42	1.11E+02	1.5E-04							
Oil Landfarm												
OLF	Soil	Arsenic	8/8	1.13E+01	2.6E-05		1.3E-06		4.8E-01			
OLF	Soil	PCB-1260	3/8	1.16E-01	1.4E-06							
OLF	Soil	Cobalt-60	4/8	1.54E+00				3.5E-04				
OLF	Soil	Lead-212	1/8	2.60E+00				1.8E-05				
OLF	Soil	Thallium-208	1/8	4.60E+00				1.5E-03				
OLF	Soil	Uranium-238	8/8	1.94E+00				2.3E-06				
OLF	Soil Inventory	Total Uranium	140/149	8.72E+01					3.7E-01			
OLF	Soil Inventory	PCB-1254	70/93	5.79E+00					3.7E+00	4.0E-01		2.3E-01
OLF	Soil Inventory	PCB-1260	57/57	7.37E+00	8.9E-05		2.0E-05					
OLF	Soil Inventory	PCBs	183/186	8.90E+00	1.1E-04		2.4E-05					
OLF	Soil Inventory	Uranium-234 (calc.)	140/149	2.98E+01	1.7E-06							
OLF	Soil Inventory	Uranium-235 (calc.)	140/149	1.35E+00				8.2E-06				
OLF	Soil Inventory	Uranium-238 (calc.)	140/149	2.90E+01	2.3E-06			3.5E-05				

Exhibit F.4. (continued)

Area	Medium	COCs[a]	Frequency of Detect	UCL95 Conc.[b]	Ingestion Risk[c]	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ (child)[c]	Ingestion HQ (adult)	Inhalation HQ	Dermal HQ
Sanitary Landfill-1												
SLF-1	Soil	Mercury	5/5	2.68E+01					1.1E+00	1.2E-01		
SLF-1	Soil	Benzo(a)anthracene	3/5	3.65E+00	4.2E-06		2.7E-06					
SLF-1	Soil	Benzo(a)pyrene	3/5	2.70E+00	3.1E-05		2.0E-05					
SLF-1	Soil	Benzo(b)fluoranthene	3/5	3.70E+00	4.2E-06		2.7E-06					
SLF-1	Soil	Dibenzo(a,h)anthracene	1/5	7.08E-01	8.1E-06		5.2E-06					
SLF-1	Soil	Indeno(1,2,3-cd)pyrene	3/5	9.95E-01	1.1E-06							
SLF-1	Soil	PCB-1232	1/5	8.22E-01	9.9E-06		2.2E-06					
SLF-1	Soil	PCB-1254	2/5	1.21E+00					7.7E-01			
SLF-1	Soil	PCB-1260	1/4	8.57E-02	1.0E-06							
SLF-1	Soil	Cobalt-60	1/5	1.30E+00				2.9E-04				
SLF-1	Soil	Uranium-235	4/5	4.84E-01				2.9E-06				
SLF-1	Soil	Uranium-238	5/5	1.55E+01	1.2E-06			1.9E-05				
Boneyard/Burnyard												
BY/BY	Soil	Antimony	12/12	2.95E+02					9.4E+00	1.0E+00		2.7E+00
BY/BY	Soil	Arsenic	15/15	2.16E+01	5.1E-05		2.5E-06		9.2E-01			
BY/BY	Soil	Beryllium	14/15	1.70E+00	1.1E-05		2.3E-05					
BY/BY	Soil	Cadmium	11/15	2.75E+01					3.5E-01			2.0E-01
BY/BY	Soil	Chromium	15/15	8.10E+01					2.1E-01			
BY/BY	Soil	Manganese	15/15	1.56E+03					1.4E-01			
BY/BY	Soil	Mercury	15/15	4.32E+01					1.8E+00	2.0E-01		1.5E-01
BY/BY	Soil	Nickel	15/15	1.57E+03					1.0E+00	1.1E-01		
BY/BY	Soil	Silver	14/15	4.54E+01					1.2E-01			
BY/BY	Soil	Zinc	15/15	4.38E+03					1.9E-01			
BY/BY	Soil	2,3,7,8-TCDD	2/3	7.72E-06	1.8E-06							
BY/BY	Soil	Benzo(a)anthracene	14/14	6.85E+01	7.8E-05		5.0E-05					
BY/BY	Soil	Benzo(a)pyrene	14/14	4.60E+01	5.3E-04		3.4E-04					
BY/BY	Soil	Benzo(b)fluoranthene	14/14	5.97E+01	6.8E-05		4.4E-05					
BY/BY	Soil	Benzo(k)fluoranthene	14/14	3.97E+01	4.5E-06		2.9E-06					
BY/BY	Soil	Dibenzo(a,h)anthracene	13/14	3.37E+00	3.8E-05		2.5E-05					

Exhibit F.4. (continued)

Area	Medium	COCs[a]	Frequency of Detect	UCL95 Conc.[b]	Ingestion Risk[c]	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ (child)[c]	Ingestion HQ (adult)	Inhalation HQ	Dermal HQ
BY/BY	Soil	Indeno(1,2,3-cd)pyrene	14/14	2.17E+01	2.5E-05		1.6E-05					
BY/BY	Soil	PCB-1254	11/11	3.48E+00					2.2E+00	2.4E-01		1.4E-01
BY/BY	Soil	PCB-1260	3/10	5.29E-01	6.4E-06		1.4E-06					
BY/BY	Soil	Uranium-234	17/17	2.60E+02	1.5E-05							
BY/BY	Soil	Uranium-235	15/17	8.62E+00				5.3E-05				
BY/BY	Soil	Uranium-238	17/17	5.27E+02	4.1E-05			6.4E-04				
BY/BY	Soil (hot spot)	Uranium-235	1/1	7.36E+02	4.4E-05			4.5E-03				
BY/BY	Soil (hot spot)	Uranium-238	1/1	4.76E+04	3.7E-03	2.9E-05		5.6E-02				
Burial Grounds												
BG	Groundwater	Barium	97/97	2.83E-01						1.1E-01		
BG	Groundwater	Beryllium	14/96	3.45E-04	1.7E-05		4.2E-06					
BG	Groundwater	Cadmium	24/126	3.74E-03						2.0E-01		
BG	Groundwater	Chromium	48/127	3.48E-02						1.9E-01		
BG	Groundwater	Fluoride	67/103	1.14E+00						5.2E-01		
BG	Groundwater	1,1,1-Trichloroethane	82/146	5.68E-01						1.7E-01	2.7E-01	
BG	Groundwater	1,1,2-Trichloroethane	15/135	2.27E-02	1.5E-05	7.6E-05				1.6E-01		
BG	Groundwater	1,1-Dichloroethane	97/146	6.46E-01						1.8E-01	6.2E-01	
BG	Groundwater	1,1-Dichloroethene	71/145	5.41E-01	3.8E-03	3.7E-02	8.2E-05			1.6E+00		
BG	Groundwater	1,2-Dichloroethane	51/136	1.85E-02	2.0E-05	9.9E-05						
BG	Groundwater	1,2-Dichloroethene	74/105	1.47E-01						4.5E-01		
BG	Groundwater	Benzene	57/137	4.38E-02	1.5E-05	7.4E-05						
BG	Groundwater	Chloroform	41/138	3.92E-02	2.8E-06	1.9E-04				1.1E-01		
BG	Groundwater	Methylene Chloride	52/136	2.63E-02	2.3E-06	2.5E-06						
BG	Groundwater	Tetrachloroethene	102/147	3.15E+00	1.9E-03	3.7E-04	1.7E-03			8.6E+00		7.7E+00
BG	Groundwater	Trans-1,2-Dichloroethene	36/38	4.24E+00						5.8E+00		
BG	Groundwater	Trichloroethene	109/147	1.66E+00	2.1E-04	5.9E-04	5.6E-05					
BG	Groundwater	Trichlorofluoromethane	2/6	8.19E-01							5.6E-01	
BG	Groundwater	Vinyl Chloride	83/143	2.71E-01	6.0E-03	4.8E-03	1.1E-04					
BG	Groundwater	Cesium-137	2/12	5.77E+00	3.8E-06							
BG	Groundwater	Potassium-40	1/6	1.29E+02	3.4E-05							

Exhibit F.4. (continued)

Area	Medium	COCs[a]	Frequency of Detect	UCL95 Conc.[b]	Ingestion Risk[c]	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ (child)[c]	Ingestion HQ (adult)	Inhalation HQ	Dermal HQ
BG	Groundwater	Thorium-228	7/12	1.20E+00	5.8E-06							
BG	Groundwater	Uranium-238	6/12	9.31E-01	1.2E-06							
BG	Surface Water	Beryllium	6/35	2.28E-04	1.2E-05		2.8E-06					
BG	Surface Water	1,1,2-Trichloroethane	5/34	2.00E-03	1.3E-06	6.7E-06						
BG	Surface Water	1,1-Dichloroethene	31/34	8.72E-03	6.1E-05	6.1E-04	1.3E-06					
BG	Surface Water	1,2-Dichloroethane	13/27	2.95E-03	3.1E-06	1.6E-05						
BG	Surface Water	1,2-Dichloroethene	33/34	2.11E-01						6.4E-01		
BG	Surface Water	Benzene	7/34	2.58E-03		4.4E-06						
BG	Surface Water	Chloroform	31/34	4.39E-03		2.1E-05						
BG	Surface Water	Tetrachloroethene	32/34	6.17E-02	3.8E-05	7.2E-06	3.4E-05			1.7E-01		1.5E-01
BG	Surface Water	Trichloroethene	32/34	4.84E-02	6.2E-06	1.7E-05	1.6E-06					
BG	Surface Water	Vinyl Chloride	32/34	1.70E-02	3.8E-04	3.0E-04	6.7E-06					
BG	Surface Water	Potassium-40	1/2	1.30E+02	3.4E-05							
BG	Surface Water	Thorium-228	3/8	3.09E-01	1.5E-06							
BG	Surface Water	Uranium-233/234	35/35	1.34E+01	1.2E-05							
BG	Surface Water	Uranium-238	35/35	3.77E+01	4.9E-05							
Seep 1	Leachate	1,1,2-Trichloroethane	1/1	3.00E-03	2.0E-06	1.0E-05						
Seep 1	Leachate	1,1-Dichloroethane	1/1	4.00E-01						1.1E-01	3.8E-01	
Seep 1	Leachate	1,1-Dichloroethene	1/1	1.30E-02	9.2E-05	9.2E-04	2.0E-06					
Seep 1	Leachate	1,2-Dichloroethane	1/1	7.00E-03	7.5E-06	3.7E-05						
Seep 1	Leachate	2,4-Dimethylphenol	1/1	2.10E-01						2.9E-01		1.5E-01
Seep 1	Leachate	2,4-Dinitrotoluene	1/1	1.00E-03	8.0E-06							
Seep 1	Leachate	2,6-Dinitrotoluene	1/1	2.00E-03	1.6E-05							
Seep 1	Leachate	Benzene	1/1	1.90E-02	6.5E-06	3.2E-05						
Seep 1	Leachate	Benzidine	1/1	5.00E-03	1.3E-02		5.3E-05					
Seep 1	Leachate	Bis(2-ethylhexyl)phthalate	1/1	3.30E-02	5.4E-06		1.6E-06					
Seep 1	Leachate	Chloroform	1/1	4.00E-03		1.9E-05						
Seep 1	Leachate	Cis-1,2-Dichloroethene	1/1	4.90E+00						1.3E+01		3.3E-01
Seep 1	Leachate	Di-N-Octylphthalate	1/1	4.00E-03								4.0E-01
Seep 1	Leachate	Dibromochloromethane	1/1	4.00E-03	3.9E-06							
Seep 1	Leachate	Pentachlorophenol	1/1	6.00E-03	8.5E-06		1.3E-05					

Exhibit F.4. (continued)

Area	Medium	COCs[a]	Frequency of Detect	UCL95 Conc.[b]	Ingestion Risk[c]	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ (child)[c]	Ingestion HQ (adult)	Inhalation HQ	Dermal HQ
Seep 1	Leachate	PCBs	1/1	3.20E-01	2.9E-02		2.7E-02					
Seep 1	Leachate	Vinyl Chloride	1/1	9.90E-01	2.2E-02	1.7E-02	3.9E-04					
Seep 1	Leachate	Cesium-137	1/1	6.10E+00	4.0E-06							
Seep 1	Leachate	Neptunium-237	1/1	7.50E-01	4.7E-06							
Seep 1	Leachate	Uranium-234	1/1	6.30E+00	5.9E-06							
Seep 1	Leachate	Uranium-238	1/1	4.70E+00	6.1E-06							
Seep 2	Leachate	Arsenic	1/2	8.00E-01	1.4E-02		8.3E-05			7.3E+01		4.3E-01
Seep 2	Leachate	Barium	2/2	2.89E+00						1.1E+00		
Seep 2	Leachate	Beryllium	1/2	1.11E+00	5.5E-02		1.3E-02			6.1E+00		1.5E+00
Seep 2	Leachate	Boron	2/2	1.75E+01						5.3E+00		
Seep 2	Leachate	Chromium	1/2	2.80E-01						1.5E+00		1.9E-01
Seep 2	Leachate	Manganese	2/2	1.87E+01						3.7E+00		2.2E-01
Seep 2	Leachate	Molybdenum	1/2	7.00E-02						3.8E-01		
Seep 2	Leachate	Nickel	1/2	3.60E-01						4.9E-01		
Seep 2	Leachate	Total Uranium	2/2	1.49E+00						1.4E+01		
Seep 2	Leachate	Vanadium	1/2	8.90E-01						3.5E+00		8.4E-01
Seep 2	Leachate	Zinc	1/2	3.20E+00						2.9E-01		
Seep 2	Leachate	1,2-Dichloroethane	2/2	2.00E-03	2.1E-06	1.1E-05						
Seep 2	Leachate	1,4-Dioxane	1/1	1.80E-01	2.3E-05							
Seep 2	Leachate	Benzene	1/2	4.00E-03	1.4E-06	6.8E-06						
Seep 2	Leachate	Methylene Chloride	2/2	5.60E-02	4.9E-06	5.4E-06						
Seep 2	Leachate	Vinyl Chloride	2/2	1.00E-02	2.2E-04	1.8E-04	3.9E-06					
Seep 2	Leachate	Neptunium-237	1/1	8.50E-01	5.4E-06							
Seep 2	Leachate	Technetium-99	1/1	1.10E+02	3.2E-06							
Seep 2	Leachate	Tritium	1/1	4.20E+03	6.3E-06							
Seep 2	Leachate	Uranium-234	1/1	5.80E+01	5.4E-05							
Seep 2	Leachate	Uranium-235	1/1	3.90E+00	3.8E-06							
Seep 2	Leachate	Uranium-238	1/1	3.50E+02	4.6E-04							
Seeps 3&4	Leachate	Barium	2/2	2.22E+00						8.7E-01		
Seeps 3&4	Leachate	Beryllium	2/2	3.30E-02	1.7E-03		4.0E-04			1.8E-01		
Seeps 3&4	Leachate	Boron	2/2	1.26E+02						3.8E+01		1.0E-01

Exhibit F.4. (continued)

Area	Medium	COCs[a]	Frequency of Detect	UCL95 Conc.[b]	Ingestion Risk[c]	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ (child)[c]	Ingestion HQ (adult)	Inhalation HQ	Dermal HQ
Seeps 3&4	Leachate	Manganese	2/2	1.35E+01						2.6E+00		1.6E-01
Seeps 3&4	Leachate	Molybdenum	1/2	1.40E-01						7.7E-01		
Seeps 3&4	Leachate	Vanadium	1/2	6.00E-02						2.3E-01		
Seeps 3&4	Leachate	1,1,2-Trichloroethane	1/2	1.00E-03		3.3E-06						
Seeps 3&4	Leachate	1,1-Dichloroethane	2/2	4.10E-01						1.1E-01	3.9E-01	
Seeps 3&4	Leachate	1,1-Dichloroethene	2/2	3.00E-02	2.1E-04	2.1E-03	4.6E-06					
Seeps 3&4	Leachate	1,2-Dichloroethane	2/2	8.00E-03	8.5E-06	4.3E-05						
Seeps 3&4	Leachate	1,4-Dichlorobenzene	2/2	2.60E-02	7.3E-06		1.2E-06					
Seeps 3&4	Leachate	1,4-Dioxane	1/1	2.00E-01	2.6E-05							
Seeps 3&4	Leachate	Benzene	2/2	5.30E-02	1.8E-05	9.0E-05						
Seeps 3&4	Leachate	Cis-1,2-Dichloroethene	2/2	9.20E-01						2.5E+00		
Seeps 3&4	Leachate	Methylene Chloride	2/2	3.30E-02	2.9E-06	3.2E-06						
Seeps 3&4	Leachate	PCBs	2/2	9.50E-03	8.6E-04		8.0E-04					
Seeps 3&4	Leachate	Tetrachloroethene	2/2	1.80E-02	1.1E-05	2.1E-06	9.9E-06					
Seeps 3&4	Leachate	Trichloroethene	2/2	2.10E-02	2.7E-06	7.4E-06						
Seeps 3&4	Leachate	Vinyl Chloride	2/2	1.80E-01	4.0E-03	3.2E-03	7.1E-05					
Seeps 3&4	Leachate	Uranium-234 (calc.)	2/2	3.43E+00	3.2E-06							
Seeps 3&4	Leachate	Uranium-238 (calc.)	2/2	3.34E+00	4.3E-06							
C-West Toe	Leachate	Barium	2/2	5.24E-01						2.1E-01		
C-West Toe	Leachate	Beryllium	1/2	3.00E-03	1.5E-04		3.7E-05					
C-West Toe	Leachate	Boron	2/2	6.33E+01						1.9E+01		
C-West Toe	Leachate	Manganese	2/2	1.01E+01						2.0E+00		1.2E-01
C-West Toe	Leachate	Molybdenum	1/2	3.00E-02						1.6E-01		
C-West Toe	Leachate	Total Uranium	2/2	4.40E-02						4.0E-01		
C-West Toe	Leachate	1,1-Dichloroethane	2/2	1.30E-01							1.2E-01	
C-West Toe	Leachate	1,1-Dichloroethene	1/2	8.00E-03	5.6E-05	5.6E-04	1.2E-06					
C-West Toe	Leachate	1,2-Dichloroethane	2/2	7.00E-03	7.5E-06	3.7E-05						
C-West Toe	Leachate	1,4-Dichlorobenzene	2/2	1.40E-02	3.9E-06							
C-West Toe	Leachate	1,4-Dioxane	1/1	1.90E-01	2.5E-05							
C-West Toe	Leachate	Benzene	2/2	3.90E-02	1.3E-05	6.6E-05						
C-West Toe	Leachate	Bis(2-ethylhexyl)phthalate	1/1	7.00E-03	1.2E-06							

Exhibit F.4. (continued)

Area	Medium	COCs[a]	Frequency of Detect	UCL95 Conc.[b]	Ingestion Risk[c]	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ (child)[c]	Ingestion HQ (adult)	Inhalation HQ	Dermal HQ
C-West Toe	Leachate	Cis-1,2-Dichloroethene	2/2	1.90E-01						5.2E-01		
C-West Toe	Leachate	Methylene Chloride	2/2	4.70E-02	4.1E-06	4.5E-06						
C-West Toe	Leachate	PCBs	2/2	1.80E-02	1.6E-03		1.5E-03					
C-West Toe	Leachate	Tetrachloroethene	1/2	8.00E-03	4.9E-06		4.4E-06					
C-West Toe	Leachate	Trichloroethene	1/2	2.30E-02	3.0E-06	8.1E-06						
C-West Toe	Leachate	Vinyl Chloride	2/2	5.60E-02	1.2E-03	9.9E-04	2.2E-05					
C-West Toe	Leachate	Neptunium-237	1/1	5.20E-01	3.3E-06							
C-West Toe	Leachate	Radium (total alpha)	1/1	6.50E-01	4.0E-06							
C-West Toe	Leachate	Tritium	1/1	2.40E+03	3.6E-06							
C-West Toe	Leachate	Uranium-234	1/1	3.90E+00	3.6E-06							
C-West Toe	Leachate	Uranium-238	1/1	6.10E+00	7.9E-06							
BG A-16	Soil	PCB-1248	1/2	4.00E-01	4.8E-06		1.1E-06					
BG A-16	Soil	Thallium-208	1/2	3.70E+00				1.2E-03				
BG A-16	Waste Inv. (soil)	Total Uranium		6.10E+02					2.6E+00	2.8E-01		
BG A-16	Waste Inv. (soil)	Uranium-234 (calc.)		2.07E+02	1.2E-05							
BG A-16	Waste Inv. (soil)	Uranium-235 (calc.)		9.40E+00				5.7E-05				
BG A-16	Waste Inv. (soil)	Uranium-238 (calc.)		2.02E+02	1.6E-05			2.4E-04				
BG A-17	Soil	PCB-1248	1/2	4.00E-01	4.8E-06		1.1E-06					
BG A-17	Soil	Thallium-208	1/2	3.70E+00				1.2E-03				
BG A-17	Waste Inv. (soil)	Total Uranium		6.10E+02					2.6E+00	2.8E-01		
BG A-17	Waste Inv. (soil)	Uranium-234 (calc.)		2.07E+02	1.2E-05							
BG A-17	Waste Inv. (soil)	Uranium-235 (calc.)		9.40E+00				5.7E-05				
BG A-17	Waste Inv. (soil)	Uranium-238 (calc.)		2.02E+02	1.6E-05			2.4E-04				
BG A-18	Soil	PCB-1248	1/2	4.00E-01	4.8E-06		1.1E-06					
BG A-18	Soil	Thallium-208	1/2	3.70E+00				1.2E-03				
BG A-18	Waste Inv. (soil)	Total Uranium		6.10E+02					2.6E+00	2.8E-01		
BG A-18	Waste Inv. (soil)	Uranium-234 (calc.)		2.07E+02	1.2E-05							
BG A-18	Waste Inv. (soil)	Uranium-235 (calc.)		9.40E+00				5.7E-05				
BG A-18	Waste Inv. (soil)	Uranium-238 (calc.)		2.02E+02	1.6E-05			2.4E-04				
BG A-North	Soil	None										
BG A-North	Waste Inv. (soil)	Beryllium		3.00E-01	2.0E-06		4.0E-06					

Exhibit F.4. (continued)

Area	Medium	COCs[a]	Frequency of Detect	UCL95 Conc.[b]	Ingestion Risk[c]	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ (child)[c]	Ingestion HQ (adult)	Inhalation HQ	Dermal HQ
BG A-North	Waste Inv. (soil)	Total Uranium		1.10E+04					4.7E+01	5.0E+00		3.1E-01
BG A-North	Waste Inv. (soil)	PCBs		1.30E+03	1.6E-02		3.5E-03					
BG A-North	Waste Inv. (soil)	Uranium-234 (calc.)		3.73E+03	2.1E-04	2.6E-06		1.8E-06				
BG A-North	Waste Inv. (soil)	Uranium-235 (calc.)		1.70E+02	1.0E-05			1.0E-03				
BG A-North	Waste Inv. (soil)	Uranium-238 (calc.)		3.64E+03	2.8E-04	2.2E-06		4.4E-03				
BG A-South	Soil	None										
BG A-South	Waste Inv. (soil)	Beryllium		1.20E+00	8.1E-06		1.6E-05					
BG A-South	Waste Inv. (soil)	Total Uranium		1.50E+04					6.4E+01	6.8E+00		4.3E-01
BG A-South	Waste Inv. (soil)	1,1,1-Trichloroethane		9.60E+02					1.4E-01			
BG A-South	Waste Inv. (soil)	Benzene		1.40E+02	6.4E-06	2.5E-05	1.3E-06					
BG A-South	Waste Inv. (soil)	PCBs		2.10E+01	2.5E-04		5.6E-05					
BG A-South	Waste Inv. (soil)	Tetrachloroethene		8.90E+02	7.2E-05	9.5E-06	1.4E-05		1.1E+00	1.2E-01		
BG A-South	Waste Inv. (soil)	Trichloroethene		8.50E+01	1.5E-06	3.2E-06	1.9E-06					
BG A-South	Waste Inv. (soil)	Uranium-234 (calc.)		5.09E+03	2.8E-04	3.5E-06		2.5E-06				
BG A-South	Waste Inv. (soil)	Uranium-235 (calc.)		2.31E+02	1.4E-05			1.4E-03				
BG A-South	Waste Inv. (soil)	Uranium-238 (calc.)		4.96E+03	3.9E-04	3.0E-06		6.0E-03				
BG B	Soil	Arsenic	4/4	2.75E+01	6.5E-05		3.1E-06		1.2E+00	1.3E-01		
BG B	Soil	PCB-1254	2/4	8.39E+00					5.4E+00	5.7E-01		3.4E-01
BG B	Soil	PCB-1260	1/4	3.02E+01	3.6E-04		8.0E-05					
BG B	Soil	Uranium-238	4/4	9.26E+00				1.1E-05				
BG B	Waste Inv. (soil)	Total Uranium		3.00E+05					1.3E+03	1.4E+02		8.5E+00
BG B	Waste Inv. (soil)	Thorium-232 (calc.)		4.47E+01	1.8E-06							
BG B	Waste Inv. (soil)	Uranium-234 (calc.)		1.02E+05	5.7E-03	7.0E-05		5.0E-05				
BG B	Waste Inv. (soil)	Uranium-235 (calc.)		4.63E+03	2.7E-04	2.9E-06		2.8E-02				
BG B	Waste Inv. (soil)	Uranium-238 (calc.)		9.92E+04	7.7E-03	6.0E-05		1.1E-01				
BG C-East	Soil	Arsenic	2/2	3.94E+01	9.3E-05		4.5E-06		1.7E+00	1.8E-01		
BG C-East	Soil	Beryllium	2/2	4.80E+00	3.2E-05		6.4E-05					
BG C-East	Soil	Vanadium	2/2	6.88E+01					1.3E-01			
BG C-East	Soil	Uranium-238	2/2	3.60E+01	2.8E-06			4.3E-05				
BG C-East	Waste Inv. (soil)	Beryllium		1.10E+03	7.4E-03		1.5E-02		2.8E+00	3.0E-01		1.6E+00
BG C-East	Waste Inv. (soil)	Total Uranium		2.10E+04					8.9E+01	9.6E+00		6.0E-01

Exhibit F.4. (continued)

Area	Medium	COCs[a]	Frequency of Detect	UCL95 Conc.[b]	Ingestion Risk[c]	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ (child)[c]	Ingestion HQ (adult)	Inhalation HQ	Dermal HQ
BG C-East	Waste Inv. (soil)	Thorium-232 (calc.)		5.78E+02	2.4E-05							
BG C-East	Waste Inv. (soil)	Uranium-234 (calc.)		7.13E+03	4.0E-04	4.9E-06		3.5E-06				
BG C-East	Waste Inv. (soil)	Uranium-235 (calc.)		3.24E+02	1.9E-05			2.0E-03				
BG C-East	Waste Inv. (soil)	Uranium-238 (calc.)		6.94E+03	5.4E-04	4.2E-06		8.4E-03				
BG C-West	Soil	Arsenic	10/10	2.48E+01	5.8E-05		2.8E-06		1.1E+00	1.1E-01		
BG C-West	Soil	PCB-1260	1/9	4.20E-01	5.1E-06		1.1E-06					
BG C-West	Soil	Cobalt-60	1/10	1.20E+00				2.7E-04				
BG C-West	Soil	Uranium-238	10/10	1.46E+01	1.1E-06			1.8E-05				
BG C-West	Waste Inv. (soil)	Beryllium		1.10E+03	7.4E-03		1.5E-02		2.8E+00	3.0E-01		1.6E+00
BG C-West	Waste Inv. (soil)	Total Uranium		2.20E+04					9.4E+01	1.0E+01		6.3E-01
BG C-West	Waste Inv. (soil)	Thorium-232 (calc.)		3.38E+02	1.4E-05							
BG C-West	Waste Inv. (soil)	Uranium-234 (calc.)		7.47E+03	4.2E-04	5.1E-06		3.7E-06				
BG C-West	Waste Inv. (soil)	Uranium-235 (calc.)		3.39E+02	2.0E-05			2.1E-03				
BG C-West	Waste Inv. (soil)	Uranium-238 (calc.)		7.27E+03	5.7E-04	4.4E-06		8.8E-03				
BG D-East	Soil (hot spot)	Beryllium	1/1	5.90E-01	4.0E-06		7.9E-06					
BG D-East	Soil (hot spot)	Uranium-234	1/1	1.54E+05	8.6E-03	1.1E-04		7.6E-05				
BG D-East	Soil (hot spot)	Uranium-235	1/1	2.56E+03	1.5E-04	1.6E-06		1.5E-02				
BG D-East	Soil (hot spot)	Uranium-238	1/1	2.09E+05	1.6E-02	1.3E-04		2.2E-01				
BG D-East	Soil	Arsenic	2/2	3.94E+01	9.3E-05		4.5E-06		1.7E+00	1.8E-01		
BG D-East	Soil	Beryllium	2/2	4.80E+00	3.2E-05		6.4E-05					
BG D-East	Soil	Vanadium	2/2	6.88E+01					1.3E-01			
BG D-East	Soil	Uranium-238	2/2	3.60E+01	2.8E-06			4.3E-05				
BG D-East	Waste Inv. (soil)	Total Uranium		2.40E+05					1.0E+03	1.1E+02		6.8E+00
BG D-East	Waste Inv. (soil)	Uranium-234 (calc.)		8.14E+04	4.6E-03	5.6E-05		4.0E-05				
BG D-East	Waste Inv. (soil)	Uranium-235 (calc.)		3.70E+03	2.2E-04	2.4E-06		2.2E-02				
BG D-East	Waste Inv. (soil)	Uranium-238 (calc.)		7.93E+04	6.2E-03	4.8E-05		9.1E-02				
BG D-South	Soil	Arsenic	4/4	2.75E+01	6.5E-05		3.1E-06		1.2E+00	1.3E-01		
BG D-South	Soil	PCB-1254	2/4	8.39E+00					5.4E+00	5.7E-01		3.4E-01
BG D-South	Soil	PCB-1260	1/4	3.02E+01	3.6E-04		8.0E-05					
BG D-South	Soil	Uranium-238	4/4	9.26E+00				1.1E-05				
BG D-South	Waste Inv. (soil)	Total Uranium		2.40E+05					1.0E+03	1.1E+02		6.8E+00

Exhibit F.4. (continued)

Area	Medium	COCs[a]	Frequency of Detect	UCL95 Conc.[b]	Ingestion Risk[c]	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ (child)[c]	Ingestion HQ (adult)	Inhalation HQ	Dermal HQ
BG D-South	Waste Inv. (soil)	Uranium-234 (calc.)		8.14E+04	4.6E-03	5.6E-05		4.0E-05				
BG D-South	Waste Inv. (soil)	Uranium-235 (calc.)		3.70E+03	2.2E-04	2.4E-06		2.2E-02				
BG D-South	Waste Inv. (soil)	Uranium-238 (calc.)		7.93E+04	6.2E-03	4.8E-05		9.1E-02				
BG D-West,E,J	Waste Inv. (soil)	Total Uranium		2.60E+05					1.1E+03	1.2E+02		7.4E+00
BG D-West,E,J	Waste Inv. (soil)	Uranium-234 (calc.)		8.82E+04	4.9E-03	6.1E-05		4.3E-05				
BG D-West,E,J	Waste Inv. (soil)	Uranium-235 (calc.)		4.01E+03	2.4E-04	2.6E-06		2.4E-02				
BG D-West,E,J	Waste Inv. (soil)	Uranium-238 (calc.)		8.60E+04	6.7E-03	5.2E-05		9.9E-02				
BG WIP-North	Soil	Arsenic	4/4	2.75E+01	6.5E-05		3.1E-06		1.2E+00	1.3E-01		
BG WIP-North	Soil	PCB-1254	2/4	8.39E+00					5.4E+00	5.7E-01		3.4E-01
BG WIP-North	Soil	PCB-1260	1/4	3.02E+01	3.6E-04		8.0E-05					
BG WIP-North	Soil	Uranium-238	4/4	9.26E+00				1.1E-05				
BG WIP-North	Waste Inv. (soil)	Beryllium		2.60E+01	1.8E-04		3.5E-04					
BG WIP-North	Waste Inv. (soil)	Mercuric Chloride		1.70E+01					7.2E-01			
BG WIP-North	Waste Inv. (soil)	Total Uranium		7.20E+04					3.1E+02	3.3E+01		2.0E+00
BG WIP-North	Waste Inv. (soil)	4,4'-DDT		4.90E+00	2.6E-06				1.3E-01			
BG WIP-North	Waste Inv. (soil)	Benzene		1.30E+02	5.9E-06	2.3E-05	1.2E-06					
BG WIP-North	Waste Inv. (soil)	Benzidine		3.10E+01	1.1E-02		2.8E-03		1.3E-01			
BG WIP-North	Waste Inv. (soil)	PCBs		1.70E+00	2.0E-05		4.5E-06					
BG WIP-North	Waste Inv. (soil)	Trichloroethane		7.70E+00		1.5E-06						
BG WIP-North	Waste Inv. (soil)	Thorium-232 (calc.)		6.32E+01	2.6E-06							
BG WIP-North	Waste Inv. (soil)	Uranium-234 (calc.)		2.44E+04	1.4E-03	1.7E-05		1.2E-05				
BG WIP-North	Waste Inv. (soil)	Uranium-235 (calc.)		1.11E+03	6.6E-05			6.8E-03				
BG WIP-North	Waste Inv. (soil)	Uranium-238 (calc.)		2.38E+04	1.9E-03	1.4E-05		2.8E-02				
BG WIP-South	Soil	Arsenic	4/4	2.75E+01	6.5E-05		3.1E-06		1.2E+00	1.3E-01		
BG WIP-South	Soil	PCB-1254	2/4	8.39E+00					5.4E+00	5.7E-01		3.4E-01
BG WIP-South	Soil	PCB-1260	1/4	3.02E+01	3.6E-04		8.0E-05					
BG WIP-South	Soil	Uranium-238	4/4	9.26E+00				1.1E-05				
BG WIP-South	Waste Inv. (soil)	Chromium		4.70E+01					1.2E-01			
BG WIP-South	Waste Inv. (soil)	Total Uranium		7.50E+04					3.2E+02	3.4E+01		2.1E+00
BG WIP-South	Waste Inv. (soil)	Uranium-234 (calc.)		2.55E+04	1.4E-03	1.7E-05		1.3E-05				
BG WIP-South	Waste Inv. (soil)	Uranium-235 (calc.)		1.16E+03	6.8E-05			7.1E-03				

Exhibit F.4. (continued)

Area	Medium	COCs[a]	Frequency of Detect	UCL95 Conc.[b]	Ingestion Risk[c]	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ (child)[c]	Ingestion HQ (adult)	Inhalation HQ	Dermal HQ
BG WIP-South	Waste Inv. (soil)	Uranium-238 (calc.)		2.48E+04	1.9E-03	1.5E-05		3.0E-02				
Floodplain (western BCV)												
FP (wBCV)	Groundwater	None										
FP (wBCV)	Sediment	Arsenic	6/8	1.20E+01	2.8E-05		1.4E-06		5.1E-01			
FP (wBCV)	Sediment	Chromium	8/8	6.58E+01					1.7E-01			
FP (wBCV)	Sediment	Manganese	8/8	2.42E+03					2.2E-01			
FP (wBCV)	Sediment	PCB-1254	3/8	3.33E-01					2.1E-01			
FP (wBCV)	Soil (creek floodplain)	None										
FP (wBCV)	Surface Water	None										
Disposal Area Remedial Action Soils Storage Unit												
DARA	Soil Inventory	HxCDD[d]	22/32	2.65E-03	2.6E-05		1.0E-05					
DARA	Soil Inventory	PCB-1254	32/32	1.03E+02					6.6E+01	7.1E+00		4.2E+00
DARA	Soil Inventory	Pentachlorobenzene	3/32	2.50E+01					4.0E-01			
DARA	Soil Inventory	2,3,7,8-TCDD[d]	2/32	2.40E-03	5.6E-04		2.2E-04					
DARA	Soil Inventory	Uranium-234	32/32	1.14E+02	6.4E-06							
DARA	Soil Inventory	Uranium-235	32/32	4.91E+00				3.0E-05				
DARA	Soil Inventory	Uranium-238	32/32	7.69E+01	6.0E-06			9.3E-05				
Oil Landfarm Storage Pad												
OLF SP	Soil Inventory	Arsenic	40/40	2.55E+00	6.0E-06				1.1E-01			
OLF SP	Soil Inventory	Beryllium	40/40	5.82E+00	3.9E-05		7.8E-05					
OLF SP	Soil Inventory	PCBs	40/40	2.65E+01	3.2E-04		7.1E-05					
OLF SP	Soil Inventory	Uranium-234	40/40	2.25E+01	1.3E-06							
OLF SP	Soil Inventory	Uranium-235	40/40	1.53E+00				9.4E-06				
OLF SP	Soil Inventory	Uranium-238	40/40	2.40E+01	1.9E-06			2.9E-05				
Bear Creek Road Debris Burial												
BCR DB	Soil (hot spot)	Arsenic	1/1	1.07E+01	2.5E-05		1.2E-06		4.6E-01			
BCR DB	Soil (hot spot)	Barium	1/1	6.33E+02					1.2E-01			
BCR DB	Soil (hot spot)	Beryllium	1/1	8.80E-01	5.9E-06		1.2E-05					

Exhibit F.4. (continued)

Area	Medium	COCs[a]	Frequency of Detect	UCL95 Conc.[b]	Ingestion Risk[c]	Inhalation Risk	Dermal Risk	External Exposure Risk	Ingestion HQ (child)[c]	Ingestion HQ (adult)	Inhalation HQ	Dermal HQ
BCR DB	Soil (hot spot)	Cadmium	1/1	1.56E+01					2.0E-01			1.1E-01
BCR DB	Soil (hot spot)	Chromium	1/1	7.81E+01					2.0E-01			
BCR DB	Soil (hot spot)	Mercury	1/1	5.40E+00					2.3E-01			
BCR DB	Soil (hot spot)	PCB-1254	1/1	3.60E+00					2.3E+00	2.5E-01		1.5E-01
BCR DB	Soil (hot spot)	Cesium-137	1/1	1.19E+00				5.7E-05				
BCR DB	Soil (hot spot)	Curium-243	1/1	3.30E-01				1.3E-06				
BCR DB	Soil (hot spot)	Thorium-228	1/1	8.80E-01				2.0E-05				
BCR DB	Soil (hot spot)	Uranium-234	1/1	4.11E+02	2.3E-05							
BCR DB	Soil (hot spot)	Uranium-235	1/1	1.81E+00				1.1E-05				
BCR DB	Soil (hot spot)	Uranium-238	1/1	6.38E+01	5.0E-06			7.7E-05				
Creekside Debris Burial												
CS DB	Soil (hot spot)	Arsenic	1/1	7.90E+00	1.9E-05				3.4E-01			
CS DB	Soil (hot spot)	Beryllium	1/1	1.40E+00	9.4E-06		1.9E-05					
CS DB	Soil (hot spot)	Chromium	1/1	1.07E+02					2.7E-01			
CS DB	Soil (hot spot)	Mercury	1/1	3.30E+01					1.4E+00	1.5E-01		1.1E-01
CS DB	Soil (hot spot)	Benzo(a)anthracene	1/1	1.00E+01	1.1E-05		7.3E-06					
CS DB	Soil (hot spot)	Benzo(a)pyrene	1/1	8.00E+00	9.1E-05		5.8E-05					
CS DB	Soil (hot spot)	Benzo(b)fluoranthene	1/1	1.40E+01	1.6E-05		1.0E-05					
CS DB	Soil (hot spot)	Benzo(k)fluoranthene	1/1	1.30E+01	1.5E-06							
CS DB	Soil (hot spot)	Dibenzo(a,h)anthracene	1/1	3.50E-01	4.0E-06		2.6E-06					
CS DB	Soil (hot spot)	Indeno(1,2,3-cd)pyrene	1/1	2.20E+00	2.5E-06		1.6E-06					
CS DB	Soil (hot spot)	PCB-1254	1/1	1.20E+00					7.7E-01			
CS DB	Soil (hot spot)	Cesium-137	1/1	2.10E-01				1.0E-05				
CS DB	Soil (hot spot)	Thorium-228	1/1	2.20E+00				5.0E-05				
CS DB	Soil (hot spot)	Uranium-234	1/1	2.79E+01	1.6E-06							
CS DB	Soil (hot spot)	Uranium-235	1/1	1.45E+00				8.8E-06				
CS DB	Soil (hot spot)	Uranium-238	1/1	2.48E+01	1.9E-06			3.0E-05				

[a] The COCs presented in this table are associated with data aggregates which best represent each source area/functional area, i.e., location-specific COCs are not shown in this table.
[b] The units of measure for the UCL95 concentrations for radionuclides are pCi/g and pCi/L for soil and water, respectively; for chemicals, the units are mg/L and mg/kg for water and soil, respectively.

Exhibit F.4. (continued)

[c] Residential receptors include: adult/child combination (i.e., age-adjusted intake factor) for incidental ingestion of soil and sediment (for carcinogens/risk), adult and child considered separately (for noncarcinogens/HQ), and adult only for all other exposure media and pathways (Energy Systems 1996c; EPA 1991a).

[d] For the DARA soil inventory, hexachlorodibenzo-p-dioxins were evaluated as HxCDD, and tetrachlorodibenzo-p-dioxins were evaluated as 2,3,7,8-TCDD.

results for only those exposure pathways/routes for which the COPC is a COC. For details of the exposure media and pathways/routes evaluated for the maintenance worker, refer to Sect. F.5.2.1.

The results of the location-specific floodplain soils risk and HQ characterization ("unprotected" maintenance worker scenario) can be found in Sect. F.5.2.1; no COCs were identified in the location-specific evaluation of risk (and HQ) for this receptor.

F.5.4.2 Future Industrial Worker

The COCs identified for the future industrial worker, for each source area/functional area in the BCV BHHRA, are listed in Exhibit F.2. The exhibit also lists the frequency of detection for each COC, the UCL95 exposure concentration, and the risk and HQ results for only those exposure pathways/routes for which the COPC is a COC. For details of the exposure media and pathways/routes evaluated for the industrial worker, refer to Sect. F.5.3.1.

The results of the location-specific floodplain soils risk and HQ characterization (industrial scenario) can be found in Sect. F.5.3.1; no COCs were identified in the location-specific evaluation of risk (and HQ) for this receptor.

F.5.4.3 Future Recreational Receptor

The COCs identified for the future recreational receptor, for the Floodplain (western BCV) area in the BCV BHHRA, are listed in Exhibit F.3. The exhibit also presents the frequency of detection for each COC, the UCL95 exposure concentration, and the risk and HQ results for only those exposure pathways/routes for which the COPC is a COC. For details of the exposure media and pathways/routes evaluated for the recreational receptor, refer to Sect. F.5.3.2.

The results of the location-specific floodplain soils and sediments risk and HQ characterization (recreational scenario) can be found in Sect. F.5.3.2; no COCs were identified in the location-specific evaluation of risk (and HQ) for this receptor.

F.5.4.4 Future Resident

The COCs identified for the future resident, for each source area/functional area in the BCV BHHRA, are listed in Exhibit F.4. The exhibit also presents the frequency of detection for each COC, the UCL95 exposure concentration, and the risk and HQ results for only those exposure pathways/routes for which the COPC is a COC. For details of the exposure media and pathways/routes evaluated for the resident, refer to Sect. F.5.3.3.

Figures F.2–F.7 include a graphical representation of the results of the location-specific residential risk and HQ evaluations of the BCV groundwater and surface water; Tables F.85–F.88 support Figs. F.2–F.7 by providing the COPC-specific percent contribution to the total residential risk and HI for each sampling location.

Figure F.2 shows the BCV groundwater locations with a total risk (i.e., summed risks from all COPCs identified per sampling location across all appropriate exposure pathways) greater than 1.0E-06; colors are provided to indicate whether the risk at each groundwater location is driven by inorganic, organic, or radiological COPCs. Figure F.3 shows the BCV groundwater locations with a total risk greater than 1.0E-04, and Fig. F.4 shows the groundwater locations with a total HI greater than 1. Similarly, Fig. F.5 shows the BCV surface water locations with a total risk greater than

1.0E-06; Fig. F.6 shows the surface water locations with a total risk greater than 1.0E-04; and Fig. F.7 shows the surface water locations with a total HI greater than 1.

Tables F.86 and F.88 contain groundwater and surface water COPCs, respectively, that contribute at least 10% to the total sampling location HI and/or have individual contaminant HIs across all pathways ≥ 1. Tables F.85 and F.87 contain groundwater and surface water COPCs, respectively, that contribute at least 10% to the total sampling location risk and/or have individual contaminant risks across all pathways ≥ 1.0E-04.

From the results of the location-specific surface water/spring water residential risk characterization (Sect. F.5.3.3), of particular interest is the risk and HQ information at a potential exposure point (the integration point) in the Maynardville exit pathway just west of the most western BCV source area/functional area (i.e., aggregate BCK-9.4/SS-5 just west of the BGs). For this surface water location (BCK-9.4/SS-5), boron, fluoride, nitrate, and uranium metal were identified as COCs.

The location-specific groundwater residential risk characterization results (Sect. F.5.3.3) for the data aggregate of wells in Picket-A (i.e., the set of groundwater wells just west of the BGs) show no COCs (total well risk = 2.6E-05 and total well HI = 0.30). However, for GW-684 (an individual well in the Picket-A aggregate), two COCs were identified (nitrate and uranium metal: total well HI = 1.0). Furthermore, no COCs were identified for the data aggregate of Picket-W wells (total well risk = 5.5E-05 and total well HI = 0.82) located in the Maynardville exit pathway west of Picket-A; however, for GW-711 (an individual well in the Picket-W aggregate), two COCs were identified (boron and strontium metal: total well HI = 1.0).

The results of the location-specific floodplain soils and sediments risk characterization (residential scenario) can be found in Sect. F.5.3.3. For the floodplain soils, beryllium, PCB-1260, and $^{234,235,238}U$ were identified as COCs for Transect-04 for this receptor (Transect-04 is located along NT-8 and across Bear Creek at the BGs) and for soils in Transect/Trench-SP04 (located near Hwy 95), PCB-1254 was identified as a COC for this residential receptor. For the Bear Creek sediments, As, Ba, Be, Cd, Cr, Hg, Mn, Ni, Sb, V, PAHs, PCBs, ^{228}Th, and $^{234,235,238}U$ were identified as COCs for this residential receptor. For location-specific information, refer to "Floodplain sediment (by location)" in Sect. F.5.3.3. The reader should note that only two sediment sampling locations [SD10 (in Bear Creek between NT-8 and NT-9) and SD11 (in Bear Creek near NT-11)] in the Floodplain (western BCV) area have COCs (which include only As, Cr, Mn, and PCB-1254) for this receptor.

The results of the leafy vegetable risk and HQ characterization can be found in Sect. F.5.3.4; a total of 70 COCs were identified for this pathway/route of exposure.

F.5.5 PYROPHORIC AND EXPLOSIVE AGENTS ASSESSMENT FOR THE BURIAL GROUNDS

The CERCLA process does not mandate that physical hazards be addressed as part of the baseline risk assessment. However, the nature of the materials buried in the BCV BGs and the history of uncontrolled and, at times, unexpected pyrophoric and explosive events there support the need for a discussion of the physical hazards associated with the site. These hazards have already been partially addressed by the placement of RCRA caps over BG Areas A and C-West in 1989 (Energy Systems 1994a). A cap was also completed in 1994 over Area B, the Walk-in Pits, and part

of C-East (DOE 1994). This cap differed from the RCRA-style cap in that it had a fabric-formed, grout-filled revetment mat exterior, and not an outer vegetative layer. This cap was uniquely designed to maintain slope stability despite steep areas (DOE 1994). In addition, the revetment cap and the cap over C-West have gas vents to prevent excessive pressure buildup in the subsurface (DOE 1990, 1994).

Previous pyrophoric and explosive events in the BCV BGs. The materials buried in BG areas A, B, C, D, and J, and the Walk-in Pits include pyrophoric, shock-sensitive, and/or incompatible wastes (Geraghty and Miller 1984, Bailey 1995). Pyrophoric materials include depleted uranium chips in Areas B, D, and J, and thorium and depleted uranium saw fines in the Walk-in Pits adjacent to Area B (Bailey 1995). Pyrophoricity can result from the high heat of oxide formation when a sufficient surface area (such as that present in the saw fines or chips) of certain materials is exposed to air. Uranium, thorium, and picric acid have pyrophoric potential under normal environmental conditions. In addition, the hydrides of uranium and thorium have a high dust explosion potential, reacting explosively when exposed to air.

Because uncovered uranium chips and saw fines will oxidize rapidly, creating the potential for pyrophoric events, depleted uranium chips, saw fines, and alloys were transported to the burial grounds in dumpsters, drums, or cans containing tap water and dragout coolant. Vent holes were frequently cut in the tops of cans to prevent lids from "ejecting" (Bailey 1995). Even when covered with water, uranium saw fines or chips can oxidize (albeit more slowly than if uncovered), releasing hydrogen gas from the water to the surrounding soil (Windholz 1976). The resulting hydrogen-saturated soil has the potential for explosion when exposed to air. In addition, uranium and thorium hydrides can detonate the hydrogen gas through self-ignition, friction, or vibration. Soil vents, which have been installed in some BGs locations, help prevent the hydrogen gas buildup that can lead to explosions. Another way to prevent such explosions is to burn the chips, leaving less unoxidized material available for an oxidation reaction. Chips were therefore placed in earthen trenches in the BGs and ignited in an effort to reduce the possibility of spontaneous combustion at a later, unknown time.

After 1968, uranium chips were no longer intentionally ignited at the time of burial, and the trenches were left open (Bailey 1995). In the late 1970s, soil covers were periodically placed over the trenches in an effort to demonstrate similarities between a permitted landfill operation and BGs operations (Bailey 1995). Beginning in the 1980s, the cover was composed of clay instead of the local shale used in earlier years. Since the chips had been known to ignite after shallow cover was applied, the 1980s version of the cover was thicker and included the use of a dirt "wall and floor" for the purposes of equipment operator safety and regulatory compliance.

Despite the use of thicker soil covers and regardless of the chips' location with respect to the water table, the materials spontaneously ignited, usually within 3 to 4 years of the original burial (Bailey 1995). However, one trench in Area D burned spontaneously approximately 6 years after the uranium chips were buried. One pit fire was observed in Area J from June 1987 to November 1987 (Bailey 1995). Small chip fires occurred frequently in the eastern section of Area D until approximately 1983 and have continued less frequently since then. One chip fire occurred in Area D's western section in 1986. Area D was also the scene of a uranium chip fire and explosion that erupted through a 4-ft, compacted soil cap, throwing slag more than 50 ft; this eruption was attributed by Energy Systems personnel to the buildup of hydrogen gas that had been liberated from water by uranium under the soil cap. An assessment of the potential for chip fires should consider the fact that the same disposal trench can burn more than one time.

Area D was operated until 1989. Subsidence and stressed vegetation have been observed at the area as recently as early 1995, which bears evidence that not all of the uranium has been oxidized (Smith 1995b).

Potential for future pyrophoric and explosive events at the BCV BGs. Numerous factors influence the likelihood of pyrophoric and explosive events, making a quantitative assessment of physical hazards potential impractical. These factors include chemical properties and physical form; whether the chemicals are containerized; quantities of chemicals; the age of the chemicals (which affects concentration, crystallization, and other characteristics); local environmental conditions (e.g., moisture, temperature, acidity/alkalinity); contact among reactive chemicals; and the types of maintenance and/or remediation activities that could apply significant pressure, thermal energy, or other disruptions to the site. In general, the longer waste sits/settles, the more untrustworthy it becomes (Bailey 1995). In addition, the lack of an exact waste inventory contributes significant uncertainty to a qualitative or quantitative analysis of the physical hazard potential.

The ignition temperature for uranium metal particles (disposed of in large quantities in the BGs) is a function of particle geometry, size, or specific surface area; heating rate; and gas composition as well as the quantity and distribution of powder within the storage container. The most important variable affecting the ignition temperature was found to be the specific surface area (surface area per gram) of the uranium particles (Crenshaw 1994). Uranium will undergo combustion if the oxide layer of the fines is disturbed in the presence of air. Any handling is capable of disturbing this oxide layer, which is why uranium fines are often stored in oil.

Fire hazards for the B and D areas are due to chips and metal scraps (i.e., plate and chunks from certain areas of the manufacturing site) of depleted uranium (Bailey 1995). Because the concurrent disposal of chips and metal chunks increases the probability of the metal scraps catching fire, separate collection and disposal practices were intended for uranium chips, saw fines, and metal chunks (Bailey 1995). However, at least one fire occurred due to the simultaneous disposal of metals and uranium chips in drums inappropriately marked "metals." Although the metal scraps ignite less readily and oxidize less vigorously than uranium chips, individual fires involving the metal scrap have lasted 2 to 3 months and have occurred regardless of the presence of a dirt cover.

Shock-sensitive items were disposed of in the Walk-in Pits adjacent to Area B in areas designated for organic, acidic, and caustic chemicals; these items include picric acid, aged ethers and peroxides, and an uncertain number of unidentified chemicals. Picric acid and ethers can detonate from contact with heat, striking, compression, or friction (Bretherick 1985). Peroxides of ethers are extremely shock-sensitive compounds that form at certain concentrations in ethyl ether, diisopropyl ether, dioxane, and tetrahydrofurans (Bretherick 1985). Although some variability in the degree of explosive potential exists among ethers, many "aged" ethers can detonate violently when concentrated by evaporation, and can also combine with a variety of materials to form mixtures detonatable by heat, shock, or friction. The formation of crystals in some ethers creates a significant potential for explosion (Bretherick 1985). Picric acid, when mixed with bases, forms explosive salts. Picrates and heavy metals such as lead form incompatible mixtures that can easily explode by sympathetic detonation (NFPA 1986, Sittig 1985).

Because waste disposals in the Walk-in Pits consisted of a combination of shock-sensitive materials, laboratory chemicals, and uranium and thorium saw fines, some of the chemicals and materials disposed of in the same areas could be incompatible. Such incompatibilities would create the potential for fire, explosion, or the generation and release of toxic compounds. Although there is explosion potential in the Walk-in Pits from the generation of hydrogen gas, no explosion there

has ever been recorded. In addition, although saw fines are pyrophoric, Y-12 Plant personnel have not observed saw fine fires in the Walk-in Pits (Bailey 1995). No definitive explanation for the lack of pyrophoric activity in the saw fines disposal area is available. Moreover, the fact that 82% of a sample of depleted uranium saw fines (Bailey 1995) was unoxidized indicates that the saw fines should still be capable of pyrophoric reactions. Adding to the uncertainty regarding pyrophoric and explosive potential is the fact that several chemical aspects of the saw fine disposal method were unknown due to the classified nature of some of the waste.

Although the likelihood of a saw fine fire has not been quantified, some evaluations were conducted in the mid-1970s that considered the potential for saw fines to serve as initiating agents in reactions with such chemicals as picrics and ethers or as participants in previously initiated reactions with nearby chemicals (Bailey 1995). These evaluations were interpreted as indicating that an explosion could result under certain conditions. Because there was no way of determining whether past activities may have allowed those conditions to develop, a great deal of uncertainty was associated with the evaluations. At one time, an estimate was made of the potential blast magnitude resulting from a skid of sawfines either initiating a reaction or causing sympathetic reactions of nearby chemicals (picrics, ethers, etc.). The estimate also considered the potential magnitude of a reaction from chemicals initiating a reaction or causing a sympathetic reaction with the uranium sawfines. In both cases, the potential magnitude of a blast was estimated as the magnitude generated by 10 lbs of black powder, although there was no indication whether this was the initial, final, or mid-reaction level to expect (Bailey 1995). As a result of these evaluations, cover, spacing, quantity limits and other measures were implemented for the purpose of preventing and/or controlling potential explosions/fires.

The historical absence of fires in the Walk-in Pits should be considered with caution in light of the fact that the surfaces of certain areas of the Walk-in Pits have never been disturbed by vehicles or other equipment. In fact, soil covering in the early years of the Y-12 Plant was accomplished using a drag line with abundant boom and cable to drop dirt from the bucket with no attempts at smoothing or compacting the surface (Bailey 1995).

The explosive and pyrophoric potential at the BGs has been the subject of substantial investigation. One projection resulting from information gathered from several sources in the 1980s was that the risk of fire, explosive reactions, the generation of toxic gas, and the propagation of explosions was greatest in the Walk-in Pits, where uranium and thorium saw fines and organic compounds such as picric acid and ethers (which could act as detonators or initiators of reactions) are present (Bailey 1995). The wastes in the Walk-in Pits are such that interactions among them could be synergistic (Geraghty and Miller 1984, Bailey 1995).

An assessment of the potential hazards from mixing incompatible wastes in BG Areas A, B, C, D and the Walk-in Pits (Geraghty and Miller 1984) was conducted in 1984 to facilitate the remedial action decisions being considered at the time (primarily excavation). At that time, it was considered likely that incompatible reactions in certain areas of the BGs had occurred and were still occurring, as evidenced by field sampling activities in which toxic and combustible gases were observed to emanate from the majority of the wells. The report emphasized the great uncertainty in terms of both the types and quantities of materials placed in the BGs. In addition, reactions between combinations of two types (i.e., binary combinations) were assessed, but reactions of three or more types and reactions subsequent to the initial binary reaction were not assessed. Exhibit F.5 illustrates the types of potential reactions considered and the areas in which the reactions might occur (Geraghty and Miller 1984). Additional conclusions of the incompatibility study are: (1) it is reasonable to

Exhibit F.5. Potential reaction consequences resulting from contact among disposed wastes in the Bear Creek Valley Burial Grounds

Reaction Consequence	Area A	Area B	Area C	Area D	Walk-in Pits (N&S)
Generates heat by chemical reaction	x	x	x	x	x
Produce fire from extremely exothermic reactions, ignition of reaction mixtures or of the reaction products	x	x	x	x	x
Generates innocuous gases such as N_2, CO_2, etc., but can cause pressurization and rupture of closed containers	x	x	x		x
Generates toxic gases such as HCN, H_2S, etc.	x		x	x	x
Generates flammable gases such as H_2, C_2H_2, etc.	x	x	x		x
Produces explosion due to extremely vigorous reactions or reactions producing enough heat to detonate unstable reactants, or reaction products	x	x	x	x	x
Produces violent polymerization resulting in the generation of extreme heat and sometimes toxic and flammable gases	x		x		x
Solubilizes toxic substances including metals	x	x	x	x	x
Radiation hazard	x	x	x		x

expect (according to the 1984 report) that excavation will foster additional reactions through re-exposure to air and unavoidable mixing as the wastes are handled; (2) incompatible wastes have been mixed together in all portions of the BGs; (3) essentially all types of hazards are possible in Area A; (4) there is less likelihood of violent polymerization or toxic gas generation in Area B; (5) essentially the same hazards, although with somewhat different likelihoods, are present in Area C and the Walk-in Pits as in Area A; and (6) the potential exists for gas generation, pressure buildup, and the solubilization of metals in Area D.

The pyrophoric materials in the BGs, particularly the saw fines in the Walk-in Pits and the newer chip disposal areas in Area D, were considered to present hazards from spontaneous fires, slagging, and slumping of earth cover after fires or explosion and fire from hydrogen gas accumulations. While most of the uranium chips in Area B and eastern portions of Area D are believed to have converted to oxides by 1995, it is considered quite possible that some in portions of Areas E and J and the western portion of Area D remain unoxidized (Bailey 1995). Uranium present in Areas B and D could continue to oxidize in water, releasing hydrogen that could ultimately create the potential for explosive events (Bailey 1995). Several vents designed to prevent the buildup of hydrogen gas have been installed in Area B. In the context of installing a RCRA cap, slope stability was a concern identified primarily for the Walk-in Pit north of Area B, the Walk-in Pit south of Area B, and the slope and toe portions of Area D if significant fill would be required.

In 1992, visitors from Sandia National Laboratories assessed the blast potential from proposed capping operations at the Walk-in Pits (Slezak 1992). The investigators concluded that the potential for initiating an explosion was low and that the most likely explosive hazard was an underground hydrogen/air explosion stemming from the mechanical disruption and ensuing chemical reactions of the large amounts of buried uranium saw fines.

In conclusion, although an apparent potential exists for pyrophoric and explosive events at the BGs, estimates of the probability associated with these events are variable, depending upon the information source. In terms of evaluating the potential hazard to workers at the site, the full range of probabilities should be considered.

F.5.6 UNCERTAINTIES AND ASSUMPTIONS IN THE RISK CHARACTERIZATION

Risk assessment as a scientific activity is subject to uncertainty (Table F.89), although the methodology used in this BHHRA follows EPA guidelines. As noted earlier, the risk evaluation in this report is subject to uncertainty pertaining to sampling and analysis, selection of COPCs, exposure assessment estimations, and availability of toxicological data. The reader should also refer to the uncertainties discussed in Sects. F.2.6, F.3.4, and F.4.6, because these uncertainties also affect the characterization of human health risks and HQs for BCV.

Uncertainties related to the summation of HQs and carcinogenic risk estimates across chemicals and pathways are a primary uncertainty in the risk characterization. In the absence of information on the toxicity of specific chemical mixtures, additive (i.e., cumulative) risks and HQs are assumed (EPA 1989a). Limitations of this approach for noncarcinogens include: (1) the effects of a mixture of chemicals are generally unknown; it is possible that the interactions could be synergistic or antagonistic; (2) the RfDs have different accuracy and precision and are not based on the same severity or effect; and (3) HQ or chronic daily intake summation is most properly applied to compounds that induce the same effects by the same mechanism. Therefore, the potential for

occurrence of noncarcinogenic effects can be overestimated for chemicals that act by different mechanisms and on different target organs.

Limitations of the additive risk approach for multiple carcinogens include (1) the slope factors represent the upper 95th percentile estimate of potency; therefore, summing individual risks can result in an excessively conservative estimate of total lifetime cancer risk and (2) the target organs of multiple carcinogens may be different, so the risks would not be additive. In the absence of data, adaptivity for risks and HQs was assumed for this BHHRA. However, because total risks and HIs are usually driven by a few specific chemicals, segregation of risks and HIs by target organ would most likely not have resulted in significantly different outcomes.

Additional uncertainty can be associated with the method of selection of COCs. For this BHHRA, COCs were selected for a given medium/land use combination, as contaminants with individual risks $\geq$ 1.0E-06 and/or individual HQs $\geq$ 0.1, for a given medium within a land use scenario with a total risk $\geq$ 1.0E-04 and/or a total HI $\geq$ 1.0, respectively.

Potential risks and hazards were not determined for the 84 COPCs that could not be evaluated quantitatively due to the unavailability of toxicity information and/or values for those analytes. Therefore, uncertainties exist which could underestimate the risks/hazards to human health.

Uncertainties associated with the land use scenarios, and the parameters within, are discussed in Sect. F.3.4. In particular, uncertainty is associated with the estimation of the exposure frequency for the BCV site-specific maintenance worker. The exposure frequency parameter is variable; it depends on what specific BCV activity is being performed (e.g., cap inspection). The exposure frequency used in this BHHRA for this receptor (36 d/year) is the average of the exposure frequencies for the various BCV CA site-related activities.

Uncertainties in the toxicity values can over- or underestimate risks and HQs (refer to Sect. F.4.6). For three COPCs identified as COCs in this BHHRA (1,1,1-trichloroethane, trichloroethene, and tetrachloroethene), withdrawn toxicity values were used; therefore, there are higher uncertainties with the risk and HQ estimates associated with these COCs. In addition, for manganese, the EPA-approved (IRIS) RfD of 0.14 mg/kg-d was used for estimating hazards (HQs) from exposure to manganese in soil, water, and diet media; however, recent information in IRIS suggests that it may be more appropriate to modify this manganese toxicity value (by a modifying factor of 3) when estimating HQs from exposure to manganese in water and soils. Therefore, HQs calculated for manganese in this BHHRA were potentially underestimated by a factor of 3.

Exposures to known dense nonaqueous phase liquids in the BGs (e.g., residential ingestion of dense nonaqueous phase liquids) were not evaluated quantitatively in this BHHRA. Therefore, there are uncertainties (i.e., underestimations) associated with the estimates of total risks and HQs for this medium; however, exposure to dense nonaqueous phase liquids is considered to be at unacceptable human health risk and HQ levels. In addition, there is a high amount of uncertainty with the identification of the site-related contaminants and COPCs in the BGs waste inventory (buried wastes) and with the estimation of their representative exposure concentrations. These uncertainties occur because most of the site-related contaminant information for the BGs is based on historical, and potentially incomplete, inventory records and personnel interviews. The uncertainties in the identity and representative concentrations of the site-related contaminants are also reflected in the risk and HQ estimates for potential exposures to the BGs wastes.

Additional uncertainties exist in the BGs because of the potential physical hazards associated with the site, due to its history of uncontrolled and unanticipated pyrophoric and explosive events (refer to Sect. F.5.5). This BHHRA qualitatively evaluated this potential hazard to human health; the quantitative risk and HQs determined for the BGs functional area do not take this potential physical safety hazard into account and therefore may underestimate the health risks in the BGs.

Similar uncertainties exist for the site-related contaminants and COPCs and their representative concentrations estimated from the S-3 Ponds historical inventoried wastes/sludges. The uncertainties can over- or underestimate the risks and HQs determined for potential future exposures to the buried/capped wastes in the S-3 Ponds.

Furthermore, uncertainties are associated with the applicability of future residential and industrial exposures to the BGs, OLF, an S-3 Ponds capped buried wastes and soils. Estimating exposures to such media are conservative in terms of protecting human health but may overestimate risks and HQs.

Exposure assumptions such as considering soil depths of 0 to 8 ft as surface soil for the maintenance, industrial, and residential evaluations may over- or underestimate the risks from exposure to the COPCs within these soils. This assumption was made for two reasons: (1) because of the actual soil sampling data (i.e., varied and large sampling intervals/depths) that were taken in BCV and (2) to be conservative in terms of protecting human health by considering subsurface soil exposures to residents (e.g., from digging a basement).

For the BCR DB area, the hot-spot soil sample was diluted in the field to meet off-site laboratory radiological level requirements; therefore, the risk and HQ estimates for exposure to the COPCs in the BCR DB area were potentially underestimated.

Uncertainties are associated with the %GI values used to modify the oral toxicity values used in the determination of dermal risks and HQs (refer to Sect. F.4.3). Similar uncertainties are associated with the toxicity equivalency factors values used to estimate risks from exposure to dioxins and PAHs (refer to Sect. F.4.4). Numerous potential uncertainties associated with the toxicity data used in this BHHRA are discussed in Sect. F.4.6.

In addition, the assumptions and assignments listed in Sect. F.2.3 (e.g., chromium was evaluated as chromium VI, and isotopic uranium concentrations were calculated from estimated uranium metal concentrations in the BGs) can over- and/or underestimate the risks and HQs determined for the BCV source areas/functional areas.

F.6 SUMMARY AND CONCLUSIONS

F.6.1 CHEMICALS OF POTENTIAL CONCERN

The BCV CA BHHRA qualitative and quantitative COPCs are listed by medium for each source area/functional area (and for each sampling location for groundwater, surface water, and floodplain soils/sediments) in Tables F.14–F.39. Approximately 182 site-related contaminants were identified as COPCs in this BHHRA. Chapter F.2 provides descriptions of the assumptions (e.g., data aggregation), assignments (e.g., chromium evaluated as chromium VI), and uncertainties (e.g., estimated site-related contaminants concentrations for the BGs were based on historical waste inventory records and information) associated with the development of these COPCs.

F.6.2 EXPOSURE ASSESSMENT

The Y-12 Plant is owned by DOE, consists of approximately 800 acres, and is located along the northeastern boundary of the ORR, adjacent to the city of Oak Ridge. The BCV CA is located on the DOE-owned property of the Y-12 Plant on the ORR. The approximate BCV CA boundary (east to west) starts just west of the operational Y-12 Plant facilities at the hydraulic divide between BCV and UEFPC and ends at Hwy 95 and is approximately 8 miles long. North-to-south, the BCV CA approximately encompasses the area between the ridge of Pine Ridge and the base of Chestnut Ridge.

This comprehensive BHHRA for the entire BCV CA included the evaluation of potential risks and HQs from exposure to the current concentrations of COPCs in all media (i.e., groundwater, surface water, soils, sediments, wastes, leachate, inventoried wastes/soils/sludges, and fish) for (1) all primary source areas (S-3 Ponds, OLF, SLF-1, BY/BY, and BGs), (2) the Floodplain (western BCV) area, (3) the DARA and OLF SP facilities, (4) the BCR DB and CS DB areas, (5) the Bear Creek floodplain soils and sediments, (6) the groundwater, and (7) the surface water and spring water associated with BCV. Four hypothetical land use scenarios were evaluated: (1) a current "unprotected" maintenance worker, (2) a future industrial worker, (3) a future resident, and (4) a future recreational receptor [evaluated for the Floodplain (western BCV) area only]. For the actual current land use conditions in the BCV CA, no completed exposure pathways (nor receptors) have been identified for exposure to the BCV media for these four land uses.

Currently, most areas in the BCV CA are auxiliary facilities and historical Y-12 Plant disposal sites/areas. Therefore, personnel visiting or working in the BCV CA have limited exposures and include "maintenance" or "sampler" workers, fully protected from exposure to contamination via adherence to Health and Safety Plans, the use of protective equipment when necessary, and OSHA/SARA training. To be conservative in terms of protecting human health, and upon request of EPA Region IV (as a means of evaluating a current worst case scenario), potential risks from exposures to an "unprotected" maintenance worker were evaluated in this BHHRA. The exposure pathways/routes evaluated for this receptor included incidental ingestion of soil, inhalation of dust/particulates and VOCs in soil, dermal contact with the soil, and external exposure to radionuclides in the soil (refer to Table F.40 and Fig. F.1). The exposure parameters used in this site-specific BCV maintenance worker assessment can also be considered representative of other potential short-term exposures in the BCV CA (e.g., a trespasser).

Risks from exposure to BCV COPCs were evaluated for future industrial land use. The exposure pathways/routes evaluated included incidental ingestion of soils, inventoried soils, and

inventoried wastes; inhalation of dust/particulates and VOCs in soils, inventoried soils, and inventoried wastes; dermal contact with the soils, inventoried soils, and inventoried wastes; and external exposure to radionuclides in the soils and inventoried wastes and soils (refer to Table F.41 and Fig. F.1).

Risks were evaluated for a future recreational land use [for the Floodplain (western BCV) area only]. Exposure pathways/routes evaluated for the future recreational land use included incidental ingestion of soil (including sediment), incidental ingestion of surface water (including spring water) while swimming, inhalation of dust/particulates and VOCs in soil, dermal contact with soil, dermal contact with surface water while swimming, external exposure to radionuclides in the soil, inhalation of VOCs in surface water while swimming, and ingestion of fish (refer to Table F.42 and Fig. F.1).

A reasonable maximum exposure estimate of the risk to future human receptors in the BCV CA was determined using a residential exposure scenario. Because the BCV CA is within the DOE-owned, Y-12 Plant property of the ORR and because the area between the BGs and the S-3 Ponds will be evaluated in the BCV FS as industrial land use only (for current and for future land uses), such a conservative residential scenario is unlikely. However, the intent of this residential evaluation is to (1) provide managers with a conservative estimate of potential risks to future receptors from exposure to contaminants in the BCV CA media, (2) be consistent with the NCP, and (3) provide for comparisons across DOE facilities. The routes/pathways of exposure evaluated for the residential exposure scenario included dermal contact with the soil/sediments, inventoried soils, and inventoried wastes; dermal contact with groundwater, leachate, and surface water (including spring water) while showering; incidental ingestion of the soil/sediments, inventoried soils, and inventoried wastes; ingestion of groundwater, leachate, and surface water/spring water; inhalation of dust/particulates and VOCs in soil, sediments, inventoried soils, and inventoried wastes; inhalation of VOCs from groundwater, leachate, and surface water for all indoor uses; external exposure to radionuclides in the soil/sediments, inventoried soils, and inventoried wastes; and ingestion of homegrown leafy vegetables (refer to Table F.43 and Fig. F.1).

F.6.3 TOXICITY ASSESSMENT

Quantitative and qualitative toxicity information, assignments, assumptions, and uncertainties for the BCV BHHRA COPCs can be found in Chapter F.4. Tables F.44–F.46 contain quantitative toxicity information (e.g., the EPA-approved slope factors and RfDs) for the COPCs, and toxicity profiles for each of the COCs are provided in Sect. F.4.7.

F.6.4 RISK CHARACTERIZATION—COCS

The results of the risk, HQ, and COCs evaluations for this BHHRA are provided in Tables F.47–F.84 and are discussed in Chapter F.5; these risk, HQ, and COCs tables are provided for each of the four land uses, for the appropriate exposure media, for each source area/functional area in the BCV CA.

The BHHRA results are summarized in Sect. F.5.4 and are further presented in Exhibits F.1–F.4, Figs. F.2–F.7, and Tables F.85–F.88. COCs are identified for each land use, and graphical representations of the valley-wide groundwater and surface water risks and HQs are also presented in Sect. F.5.4.

The reader should refer to Sect. F.5.4 of this BHHRA for a detailed summary of the risk and HQ characterization. Three COPCs were identified as COCs ($^{234,235,238}U$) in this BHHRA for the "unprotected" maintenance worker scenario (identified exposure pathways/routes of concern include incidental ingestion of soil, inhalation of dust/soil, and external exposure to the radionuclides in the soil). Thirty-three COCs were identified for the industrial worker scenario [exposure pathways/routes of concern include incidental ingestion of soil (including inventoried wastes/soils), inhalation of dust/soil, dermal contact with soils, and external exposure to the radionuclides in the soil]. Three COCs (Hg, PCB-1254, and PCB-1260 in BCV fish) were identified for the recreational receptor (exposure pathway/route of concern includes ingestion of fish). Ninety-four COCs were identified for the residential scenario [all exposure pathways/routes evaluated (refer to Sect. F.6.2) are of concern for this receptor]. Approximately 84 COPCs could not be evaluated quantitatively in this BHHRA due to the unavailability of toxicity values; these COPCs are included in the qualitative COPCs tables in Sect. F.2.5 (Tables F.14–F.39).

Exhibit F.6 summarizes the results of this BHHRA by medium of concern. A medium (e.g., groundwater) is considered to be of concern if COCs were identified for that medium. For example, many COCs were identified for residential use of S-3 Ponds groundwater; therefore, S-3 Ponds groundwater is a medium of concern for residential use. In Exhibit F.6, the character "Y" (for yes) is listed under those source areas (for each land use) that have COCs identified for each medium evaluated. Exhibits F.1–F.4 present the specific COCs that contribute to each medium of concern identified in Exhibit F.6.

The numerical risk and HQ results presented in this section must be interpreted in the context of the uncertainties, assignments, and assumptions associated with this BHHRA and with the data (especially the historical inventory data) upon which the risk estimates were based (refer to Chapter F.2 and Sects. F.3.4, F.4.4–F.4.6, and F.5.6).

The total cumulative risks and HIs are summarized graphically for each of the source areas/functional areas (for the four land uses considered in this BHHRA) in Figs. F.8 and F.9, respectively. (Note, the risk and HI results presented in the figures pertain to the representative aggregated data for each source area/functional area; i.e., risks/HIs for individual sampling locations are not represented in these figures.)

S-3 Ponds. Numerous COCs (inorganics, organics, and radionuclides) were identified for a future hypothetical resident from exposure to the groundwater, surface water, and buried/capped waste associated with the S-3 Ponds. Only arsenic and mercury were identified as COCs for this residential receptor from exposure to the soils adjacent to the S-3 Ponds cap. Many COCs (beryllium, PCB-1254, and many radionuclides) were identified for a future hypothetical industrial worker from exposure to the buried/capped waste associated with the S-3 Ponds. No COCs were identified for this industrial receptor for exposure to the soils adjacent to the S-3 Ponds cap. No COCs were identified for a hypothetical current "unprotected" maintenance worker from exposure to the soils adjacent to the S-3 Ponds cap.

Oil Landfarm. Numerous COCs (inorganics, organics, and radionuclides) were identified for a future hypothetical resident from exposure to the groundwater, surface water, soils (adjacent to cap), and inventoried soils (beneath the cap) associated with the OLF. Four COCs (arsenic, ^{60}Co, ^{212}Pb, and ^{208}Tl) were identified for a future hypothetical industrial worker from exposure to the soils adjacent to the OLF cap. No COCs were identified for this industrial receptor from exposure to the inventoried soils beneath the cap. No COCs were identified for a hypothetical current "unprotected" maintenance worker from exposure to the soils adjacent to the OLF cap.

Exhibit F.6. Human health media of concern for the Bear Creek Valley source areas/functional areas

	S-3 Ponds			Oil Landfarm			Boneyard/ Burnyard			Sanitary Landfill-1			Burial Grounds			DARA			OLF Storage Pad			BC Road Debris			Creekside Debris			Floodplain Area (western BCV)			
Medium	R	I	M	R	I	M	R	I	M	R	I	M	R	I	M	R	I	M	R	I	M	R	I	M	R	I	M	R	I	M	Rc
Groundwater	Y			Y			Y			Y			Y															N[a]			
Surface water	Y			Y			Y			Y			Y															N[b]			N
Soil (source area)	Y	N	N	Y	Y	N	Y	Y	N	Y	N	N	Y	Y	N																
Soil (hot spot)							Y	Y	Y				Y	Y	Y							Y	N	N	Y	N	N				
Waste Inventory	Y	Y											Y	Y																	
Soil Inventory				Y	N											Y	Y	N	Y	Y	N										
Leachate													Y																		
Fish																															Y
Creek Sediment																												Y[c]			N
Floodplain Soils																												N[d]	N	N	N

R = Residential; I = Industrial; M = Maintenance; Rc = Recreational; Y = Yes; N = No
A blank box implies "not applicable" and/or "not evaluated".
[a] With the exception of location-specific COCs in GW-711 (Picket W well).
[b] With the exception of location-specific COCs at location BCK-0.63 (near East Fork Poplar Creek).
[c] Sediment COCs were identified at locations SD10 (in Bear Creek between NT-8 and NT-9) and SD11 (in Bear Creek near NT-11).
[d] With the exception of location-specific COCs at location SP04 (near Hwy 95).

Boneyard/Burnyard. Numerous COCs (inorganics, organics, and radionuclides) were identified for a future hypothetical resident from exposure to the groundwater, surface water, and soils associated with the BY/BY; $^{235,238}U$ are COCs identified for this residential receptor from exposure to the hot-spot soils in the BY/BY. Many COCs (antimony, arsenic, beryllium, various PAHs, and $^{234,235,238}U$) were identified for a future hypothetical industrial worker from exposure to the soils associated with the BY/BY; $^{235,238}U$ are COCs identified for this industrial receptor from exposure to the hot-spot soils in the BY/BY. No COCs were identified for a hypothetical current "unprotected" maintenance worker from exposure to the BY/BY soils; $^{235,238}U$ are COCs identified for this maintenance worker receptor from exposure to the hot-spot soils in the BY/BY.

Sanitary Landfill-1. Numerous COCs (inorganics, organics, and radionuclides) were identified for a future hypothetical resident from exposure to the groundwater, surface water, and soils (adjacent to cap) associated with the SLF-1. No COCs were identified for either the future hypothetical industrial worker or the hypothetical current "unprotected" maintenance worker from exposure to the soils adjacent to the SLF-1 cap.

Burial Grounds. Numerous COCs (inorganics, organics, and radionuclides) were identified for a future hypothetical resident from exposure to the groundwater, surface water, soils (adjacent to caps), hot-spot soils (near D-East), and buried/capped wastes associated with the BGs. The primary COCs in the buried waste are beryllium, uranium, PCBs, VOCs, ^{232}Th, and $^{234,235,238}U$. Volatile organic compounds comprise the majority of the COCs in the BGs groundwater and surface water for this residential receptor. Numerous COCs (inorganics, organics, and radionuclides) were identified for a future hypothetical industrial worker from exposure to the soils adjacent to caps, hot-spot soils near D-East, and buried wastes associated with the BGs. The only COC in the soils (adjacent to caps) is ^{208}Tl; COCs in the BGs D-East hot-spot soils are beryllium and $^{234,235,238}U$. The primary COCs in the buried waste for this industrial receptor are beryllium, uranium, PCBs, VOCs, ^{232}Th, and $^{234,235,238}U$. No COCs were identified for the hypothetical current "unprotected" maintenance worker from exposure to the soils adjacent to the BGs caps; $^{234,235,238}U$ are COCs identified for this maintenance worker receptor from exposure to the D-East hot-spot soils.

The BGs have been the subject of several investigations into potential physical hazards associated with the site due to its history of uncontrolled and unanticipated pyrophoric and explosive events (refer to Sect. F.5.5). While the hazards have already been partially addressed by the placement of caps over BG Areas A, C-West, B, the Walk-in Pits, and parts of C-East, a review of the available information revealed that significant uncertainty remains regarding the potential for pyrophoric and explosive events. It is reasonable to assume that incompatible chemicals and some quantity of unoxidized uranium and thorium solids present potential hazards. Therefore, the full range of probabilities should be considered in terms of evaluating the potential hazard to future human receptors (e.g., workers) at the BGs.

Floodplain (western BCV) area. No COCs were identified for a future hypothetical resident from exposure to the groundwater, surface water, and floodplain soils associated with the Floodplain (western BCV) area, with the exception of one floodplain soil location (SP04 near Hwy 95); PCB-1254 is the COC for location SP04. Four COCs (As, Cr, Mn, and PCB-1254) were identified for sediment locations SD10 (in Bear Creek between NT-8 and NT-9) and SD11 (in Bear Creek near NT-11) for the residential receptor. No COCs were identified for either the future hypothetical industrial worker or the hypothetical current "unprotected" maintenance worker from exposure to the floodplain soils associated with the Floodplain (western BCV) area. No COCs were identified for the future hypothetical recreational receptor from exposure to the surface water, floodplain soils,

and sediments in the Floodplain (western BCV) area. Mercury, PCB-1254, and PCB-1260 are identified as COCs for this recreational receptor from consumption of Bear Creek fish.

Disposal Area Remedial Action Solids Storage Unit. COCs identified for a future hypothetical resident from exposure to the inventoried soils stored in the DARA are dioxins (hexachlorodibenzo-p-dioxins and tetrachlorodibenzo-p-dioxins), PCB-1254, pentachlorobenzene, and $^{234,235,238}U$. COCs identified for a future hypothetical industrial worker from exposure to the inventoried soils stored in the DARA are dioxins (hexachlorodibenzo-p-dioxins and tetrachlorodibenzo-p-dioxins), PCB-1254, and $^{234,235,238}U$. No COCs were identified for the hypothetical current "unprotected" maintenance worker from exposure to the inventoried soils stored in the DARA.

Oil Landfarm Storage Pad. COCs identified for a future hypothetical resident from exposure to the inventoried soils stored in the OLF SP are arsenic, beryllium, PCBs, and $^{234,235,238}U$. Beryllium, PCBs, and $^{235,238}U$ are COCs identified for a future hypothetical industrial worker from exposure to the inventoried soils stored in the OLF SP. No COCs were identified for the hypothetical current "unprotected" maintenance worker from exposure to the inventoried soils stored in the OLF SP.

Bear Creek Road Debris Burial. Numerous COCs (inorganics, PCB-1254, and radionuclides) were identified for a future hypothetical resident from exposure to the hot-spot soils associated with the BCR DB. No COCs were identified for either the future hypothetical industrial worker or the hypothetical current "unprotected" maintenance worker from exposure to the hot-spot soils associated with the BCR DB.

Creekside Debris Burial. Numerous COCs [inorganics, organics (many PAHs), and radionuclides] were identified for a future hypothetical resident from exposure to the hot-spot soils associated with the CS DB. No COCs were identified for either the future hypothetical industrial worker or the hypothetical current "unprotected" maintenance worker from exposure to the hot-spot soils associated with the CS DB.

Groundwater and surface water (exit pathway). The location-specific groundwater residential risk characterization results for the data aggregate of wells in Picket-A (i.e., the set of groundwater wells just west of the BGs) show no COCs (total well risk = 2.6E-05 and total well HI = 0.30). However, for GW-684 (an individual well in the Picket-A aggregate), two COCs were identified (nitrate and uranium metal: total well HI = 1.0). Furthermore, no COCs were identified for the data aggregate of Picket-W wells (total well risk = 5.5E-05 and total well HI = 0.82) located in the Maynardville exit pathway west of Picket-A; however, for GW-711 (an individual well in the Picket-W aggregate), two COCs were identified (boron and strontium metal: total well HI = 1.0).

The results of the location-specific surface water/spring water residential risk characterization at a potential exposure point (the integration point) in the Maynardville exit pathway just west of the most western BCV source area/functional area (i.e., aggregate BCK-9.4/SS-5 just west of the BGs) show boron, fluoride, nitrate, and uranium metal as COCs.

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F.8 FIGURES

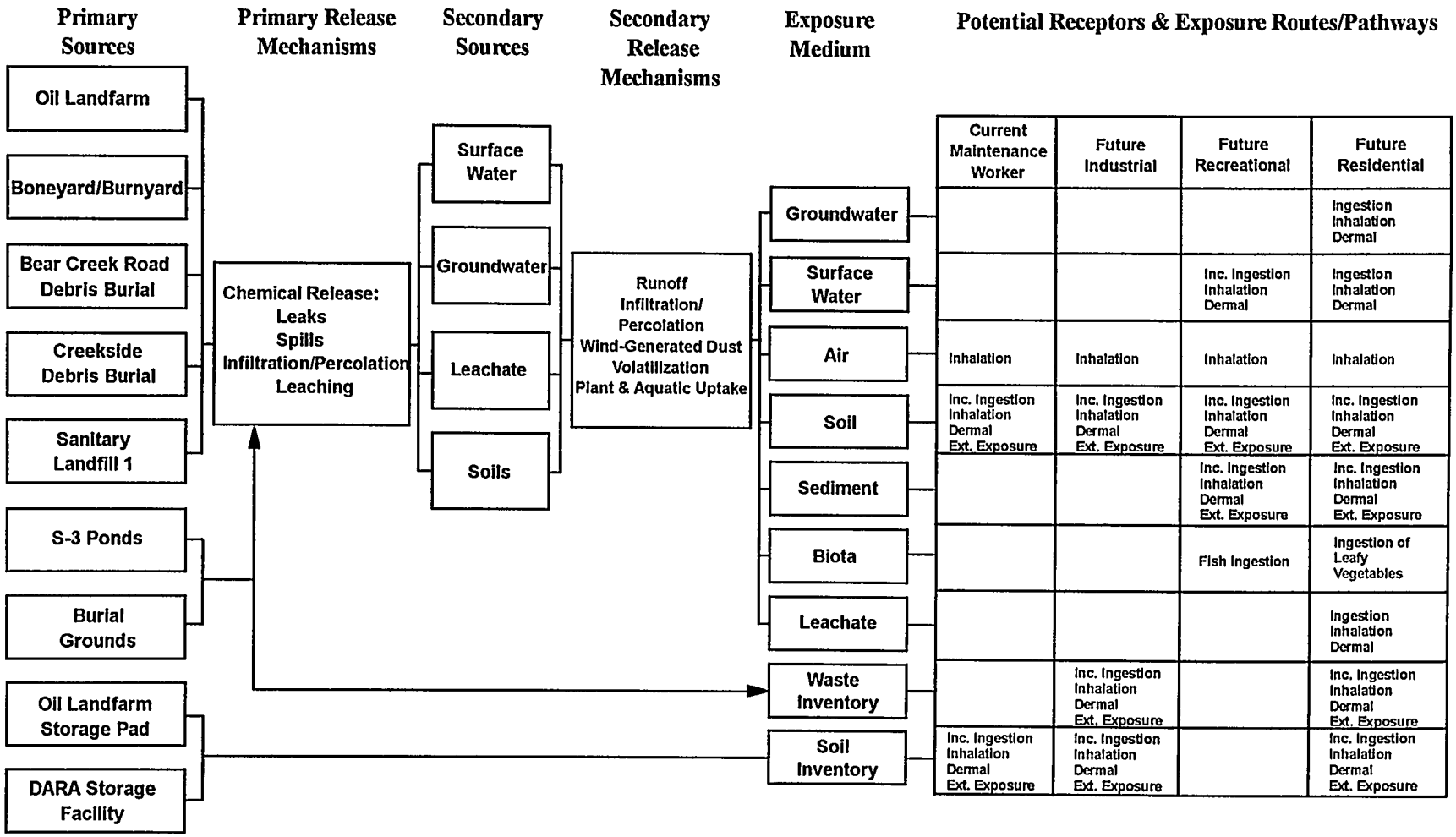


Fig. F.1. Bear Creek Valley conceptual site model for human receptors.

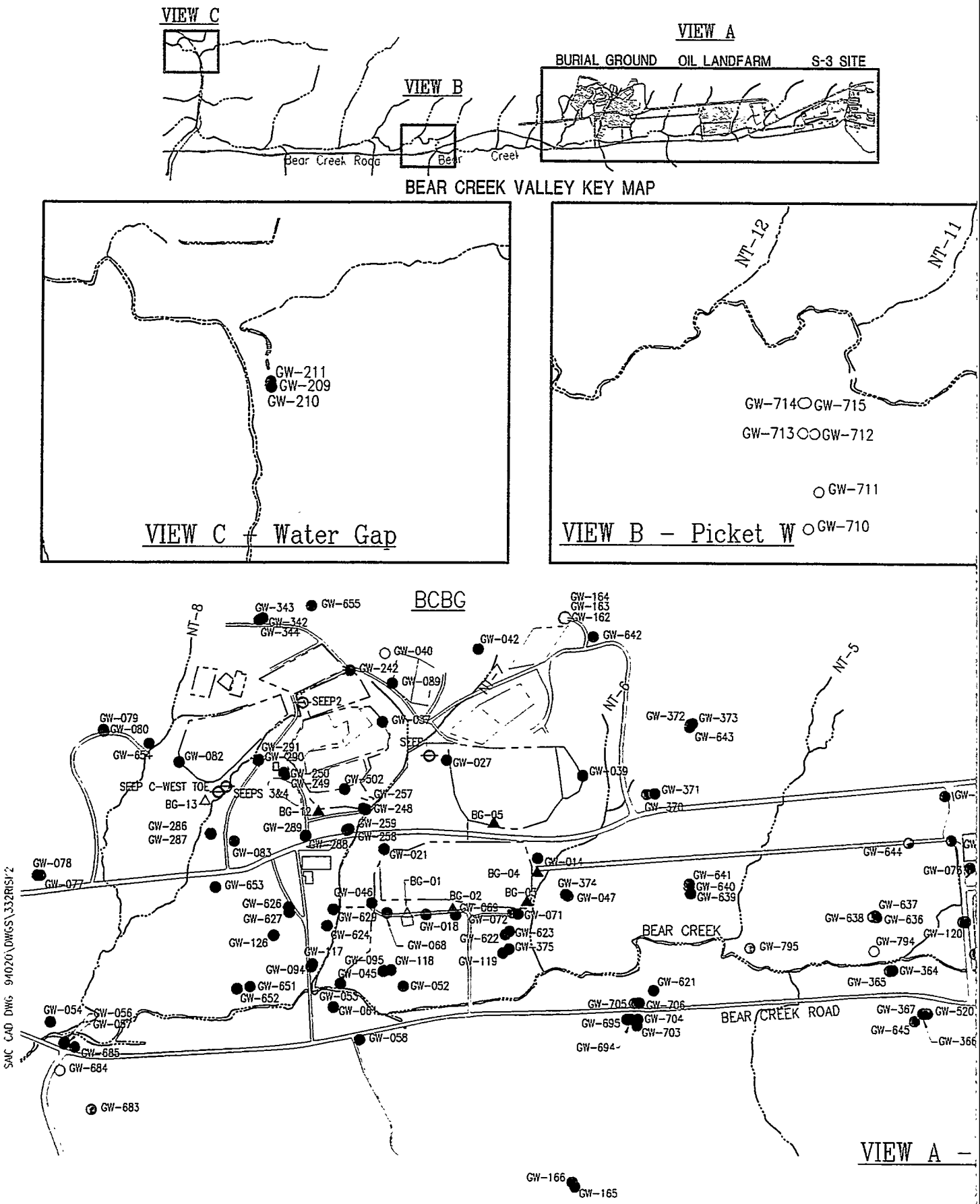
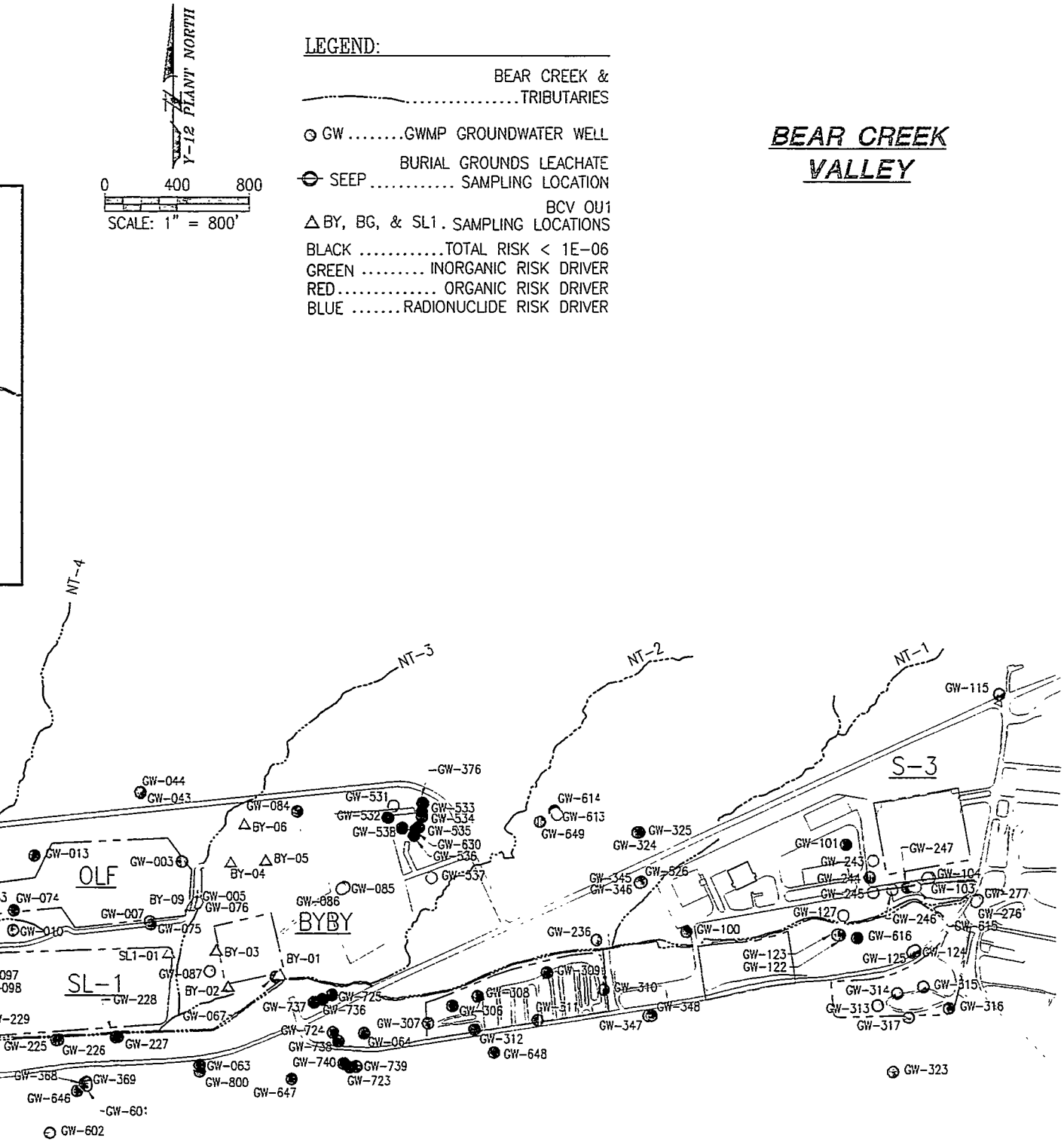


Fig. F.2. Groundwater locations with total (residential) human health risks greater than 1E-06.



Upper Bear Creek Valley

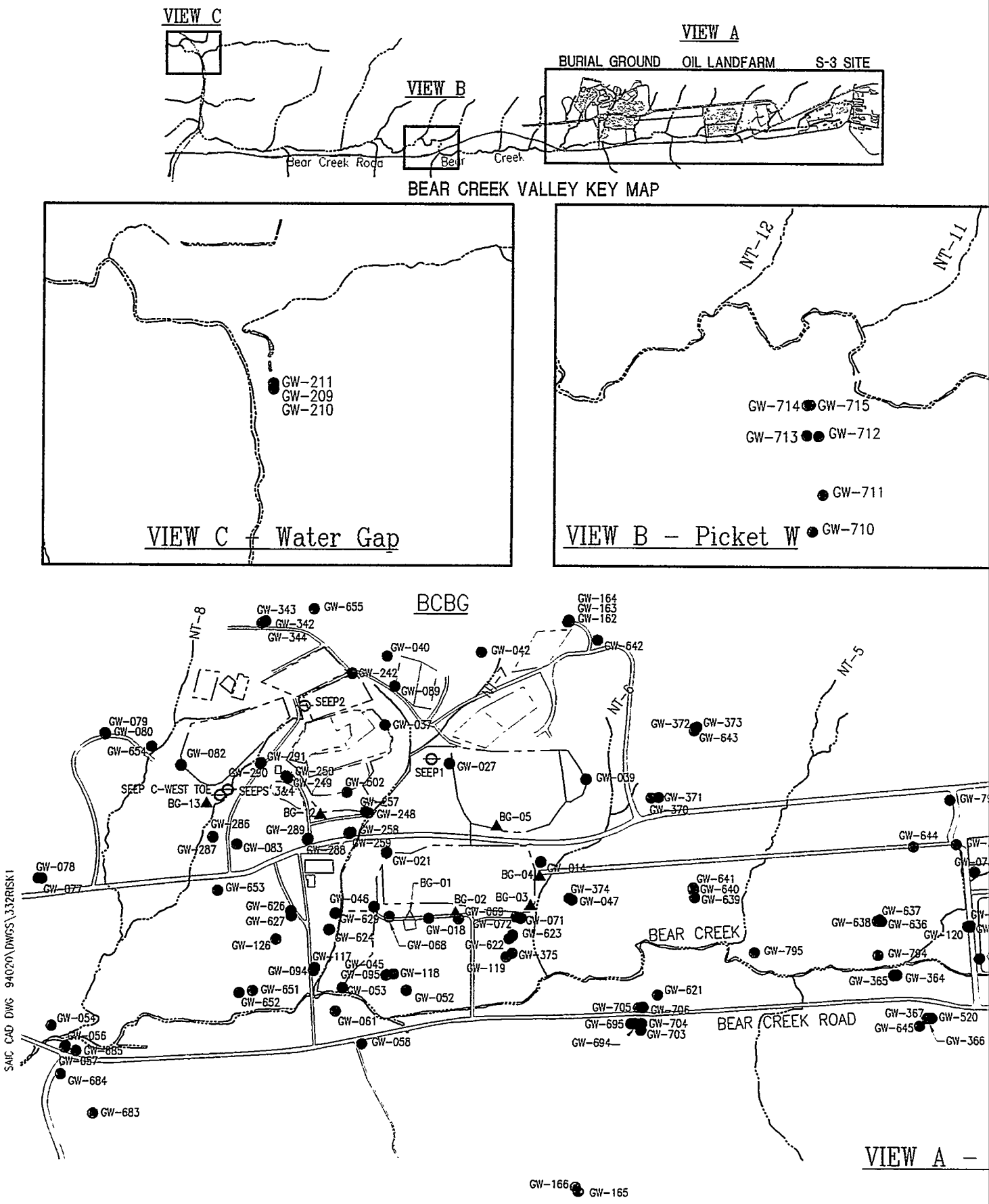


Fig. F.3. Groundwater locations with total (residential) human health risks greater than 1E-04.

Y-12 PLANT NORTH

0 400 800

SCALE: 1" = 800'

LEGEND:

BEAR CREEK & TRIBUTARIES

GW ..... GWMP GROUNDWATER WELL

BURIAL GROUNDS LEACHATE SEEP ..... SAMPLING LOCATION

BCV OU1 BY, BG, & SL1. SAMPLING LOCATIONS

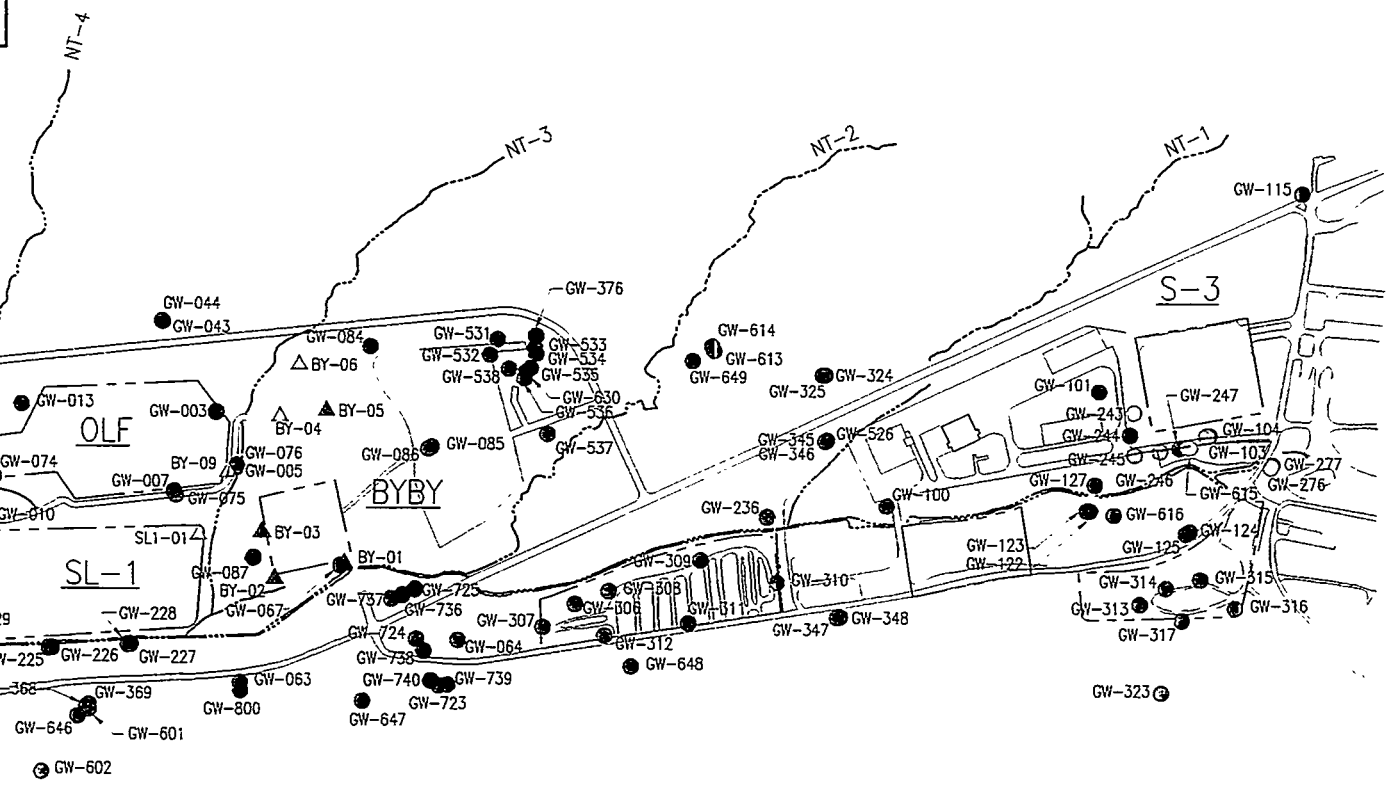
BLACK ..... TOTAL RISK < 1E-04

GREEN ..... INORGANIC RISK DRIVER

RED ..... ORGANIC RISK DRIVER

BLUE ..... RADIONUCLIDE RISK DRIVER

BEAR CREEK VALLEY



pper Bear Creek Valley

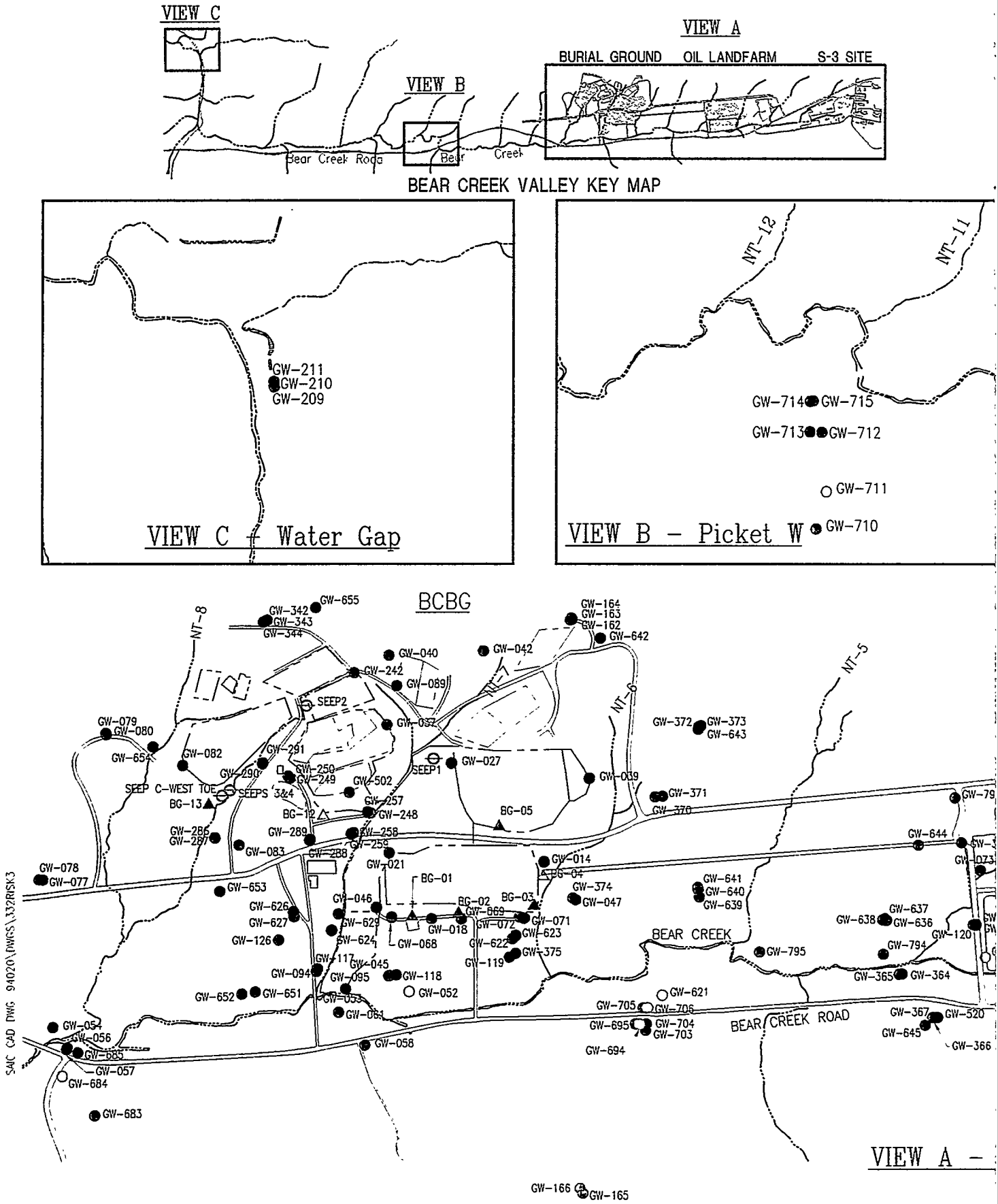


Fig. F.4. Groundwater locations with total (residential) human health hazard indexes greater than 1.

Y-12 PLANT NORTH

0 400 800

SCALE: 1" = 800'

LEGEND:

BEAR CREEK & TRIBUTARIES

GW .....GWMP GROUNDWATER WELL

BURIAL GROUNDS LEACHATE SEEP ..... SAMPLING LOCATION

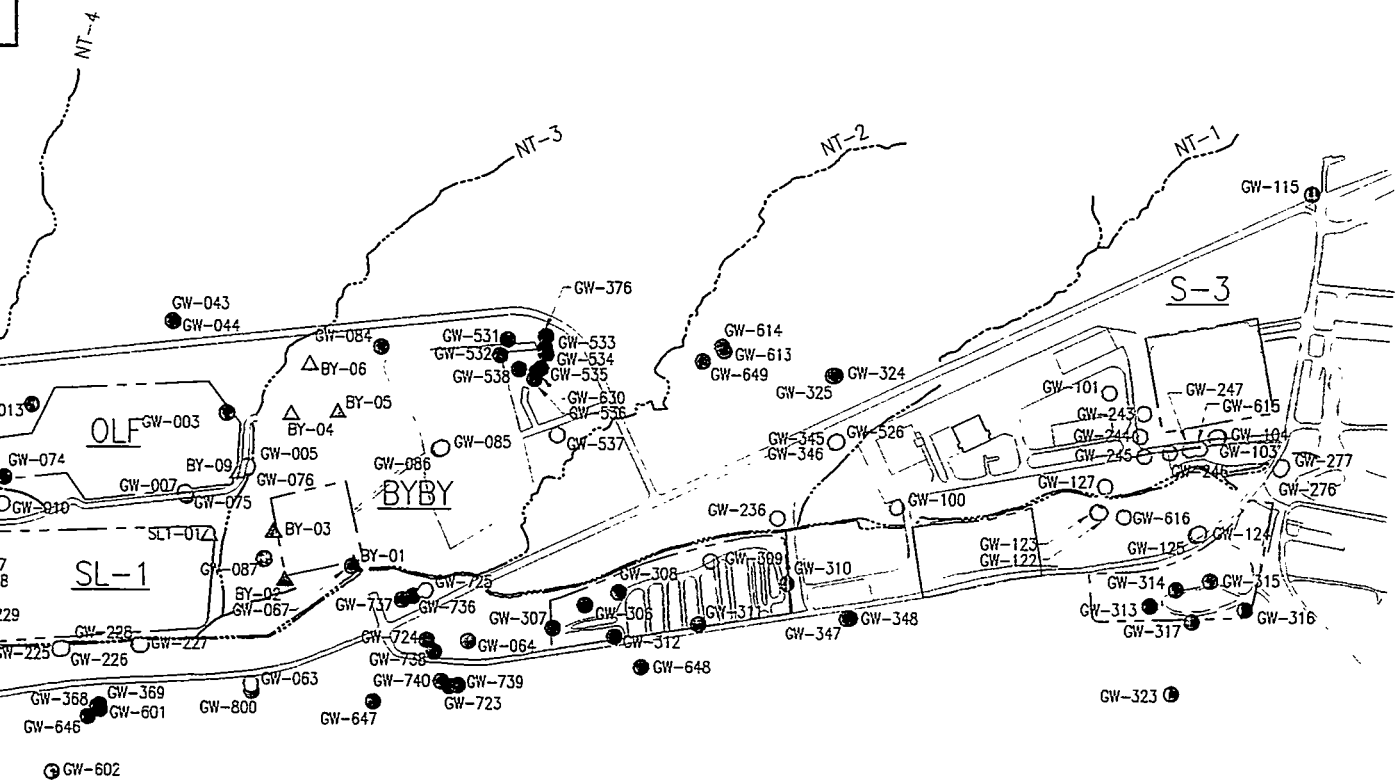
BCV OU1 BY, BG, & SL1 . SAMPLING LOCATIONS

BLACK ..... TOTAL HI < 1

GREEN ..... INORGANIC HI DRIVER

RED..... ORGANIC HI DRIVER

BEAR CREEK VALLEY



pper Bear Creek Valley

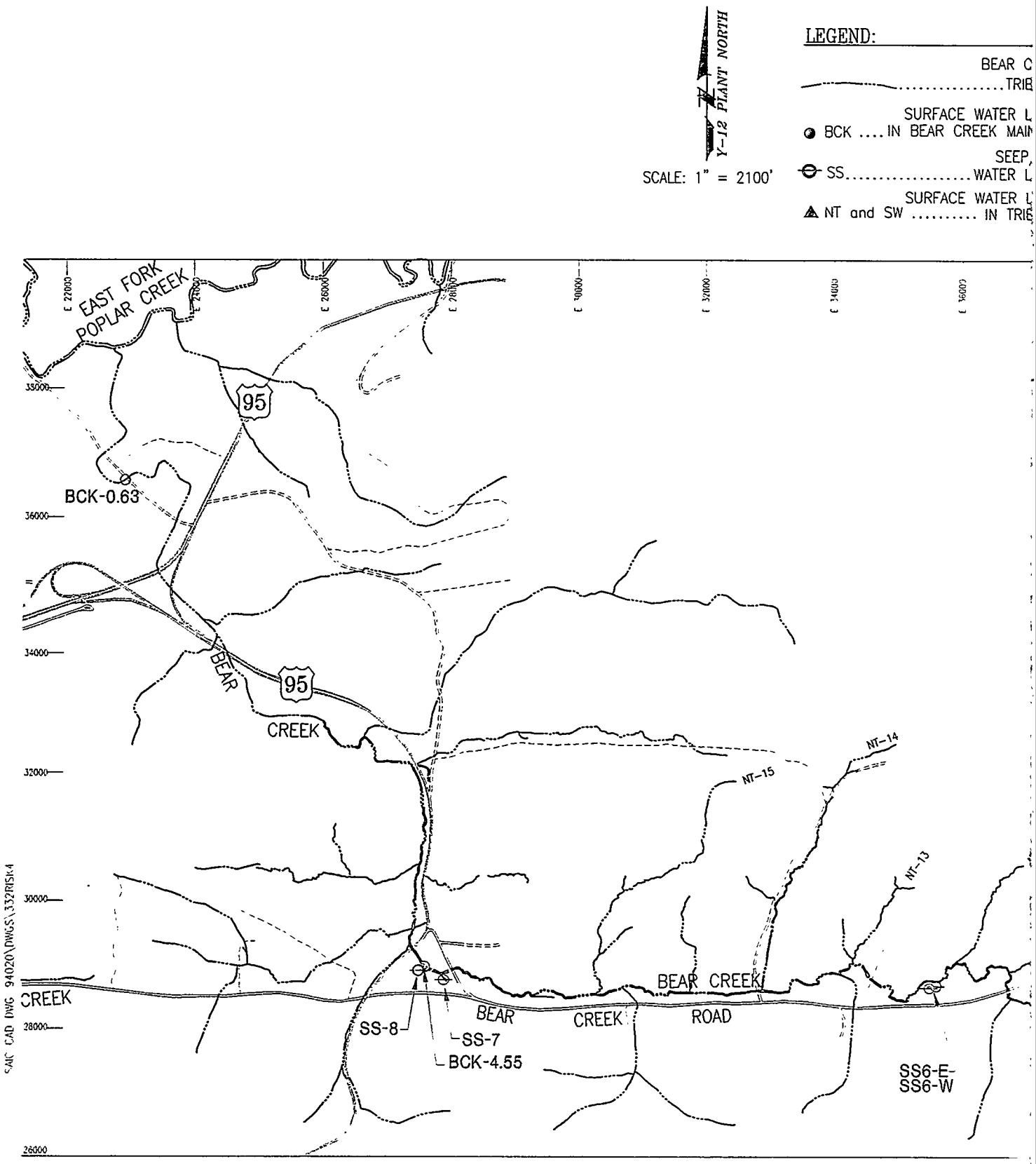


Fig. F.5. Surface water locations with total (residential) human health risks greater than 1E-06.

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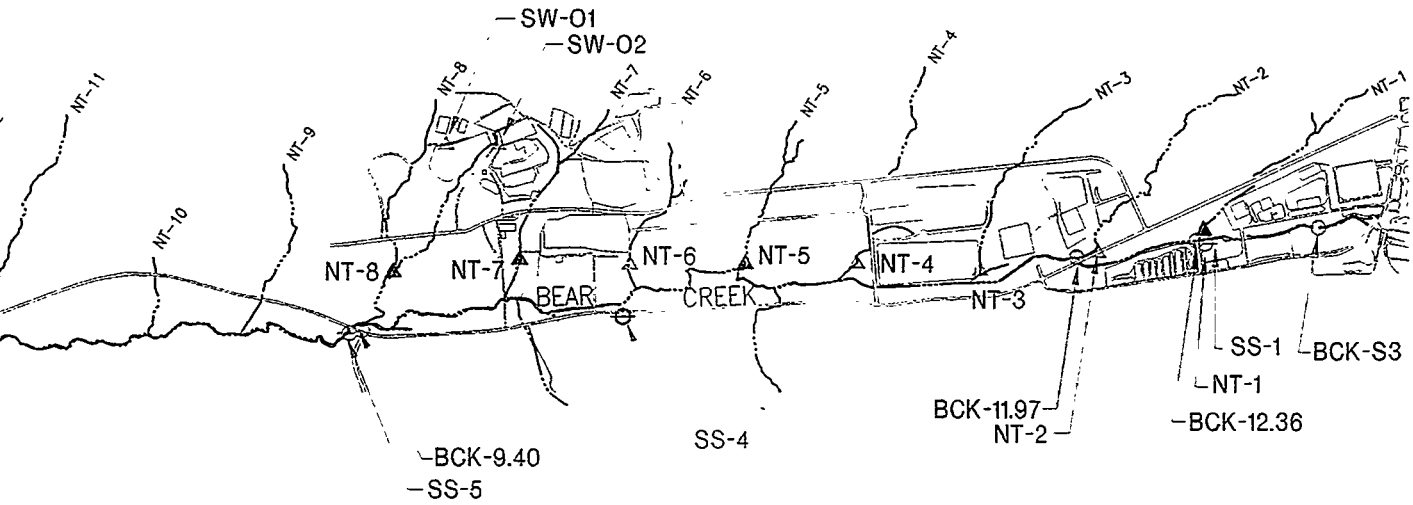
BLACK .....TOTAL RISK < 1E-06
GREEN ..... INORGANIC RISK DRIVER
RED .....ORGANIC RISK DRIVER
BLUE ..... RADIONUCLIDE RISK DRIVER

BEAR CREEK VALLEY



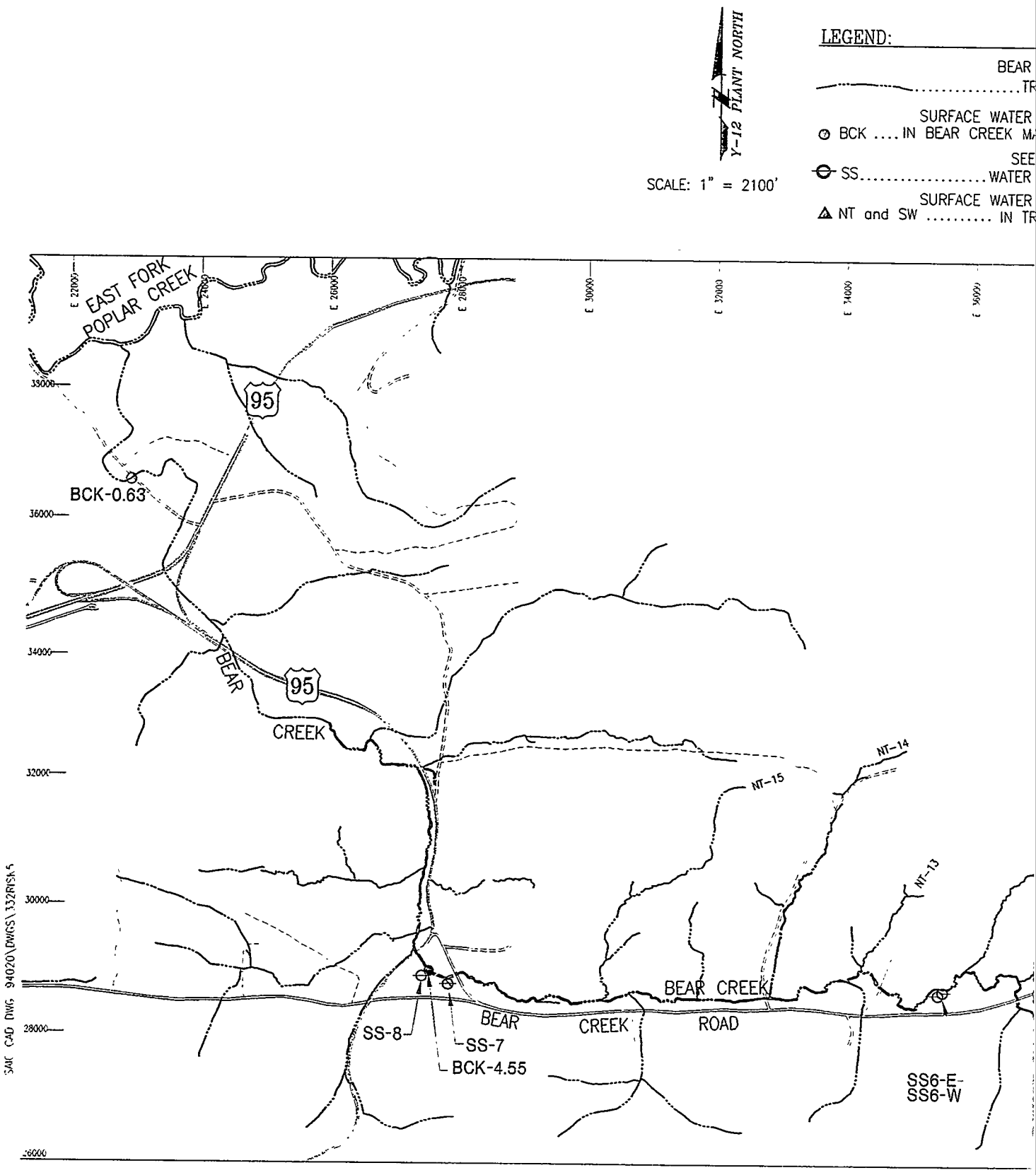


Fig. F.6. Surface water locations with total (residential) human health risks greater than 1E-04.

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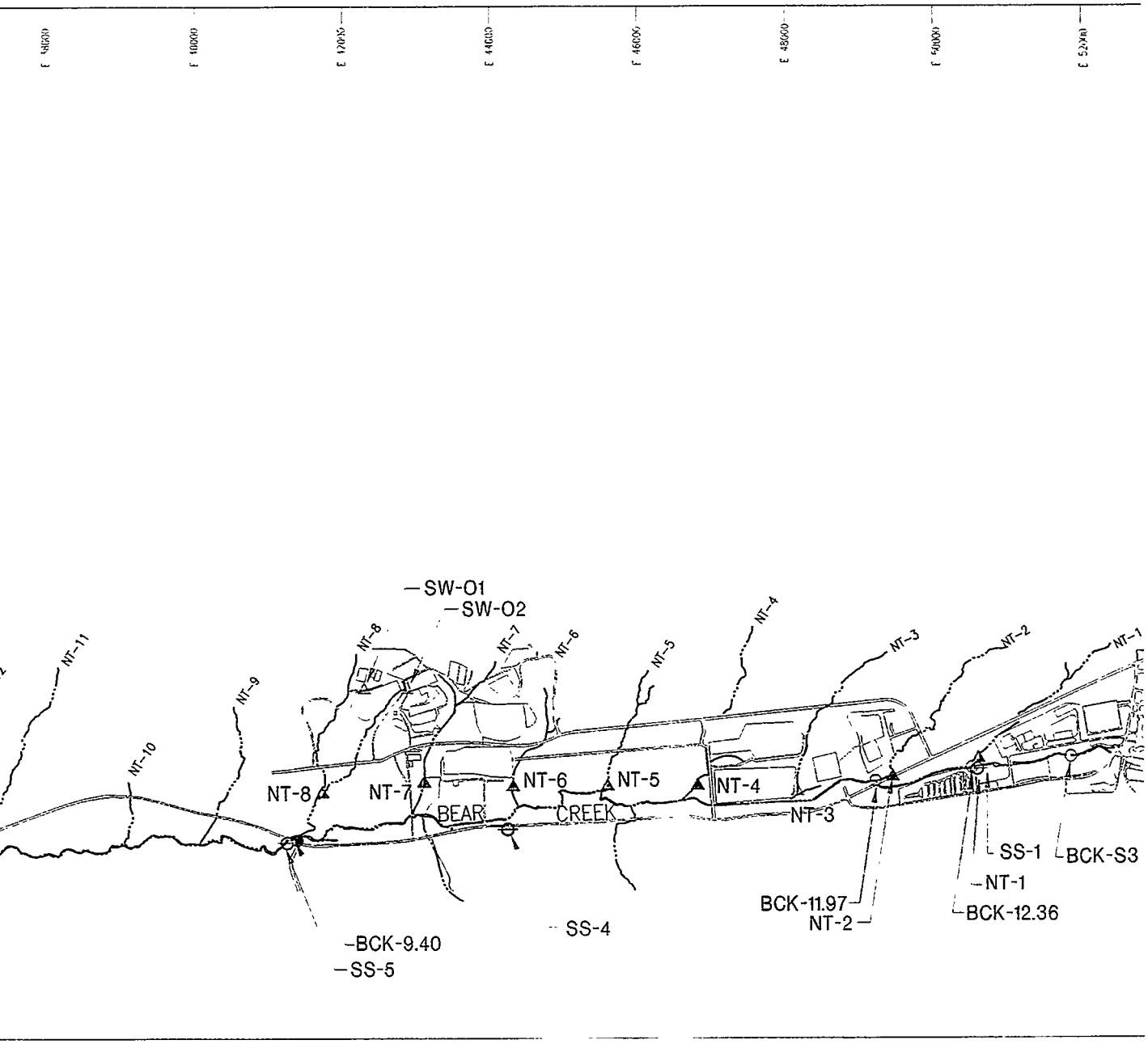
BLACK .....TOTAL RISK < 1E-04
GREEN ..... INORGANIC RISK DRIVER
RED .....ORGANIC RISK DRIVER
BLUE ..... RADIONUCLIDE RISK DRIVER

BEAR CREEK VALLEY



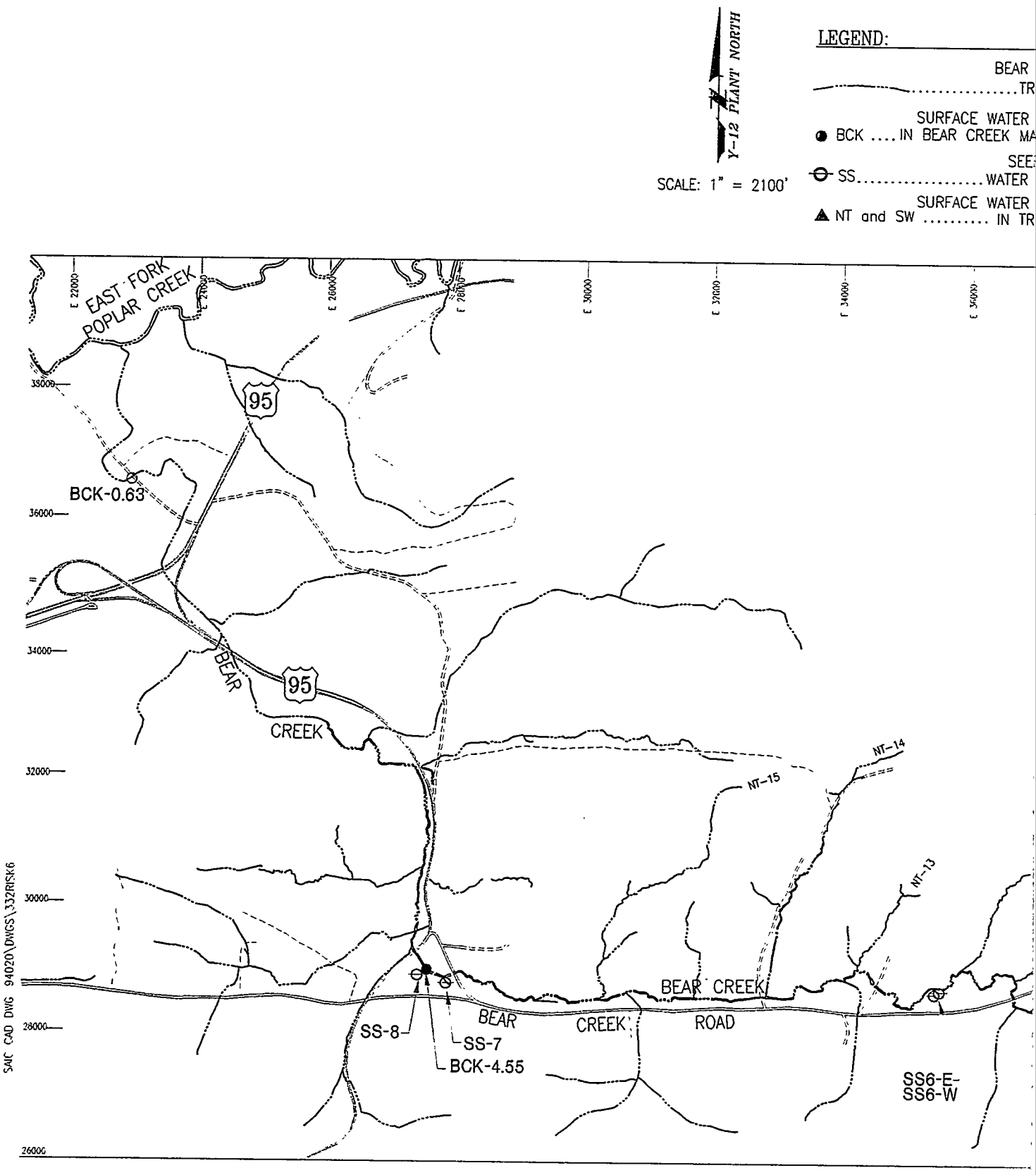


Fig. F.7. Surface water locations with total (residential) human health hazard indexes greater than 1.

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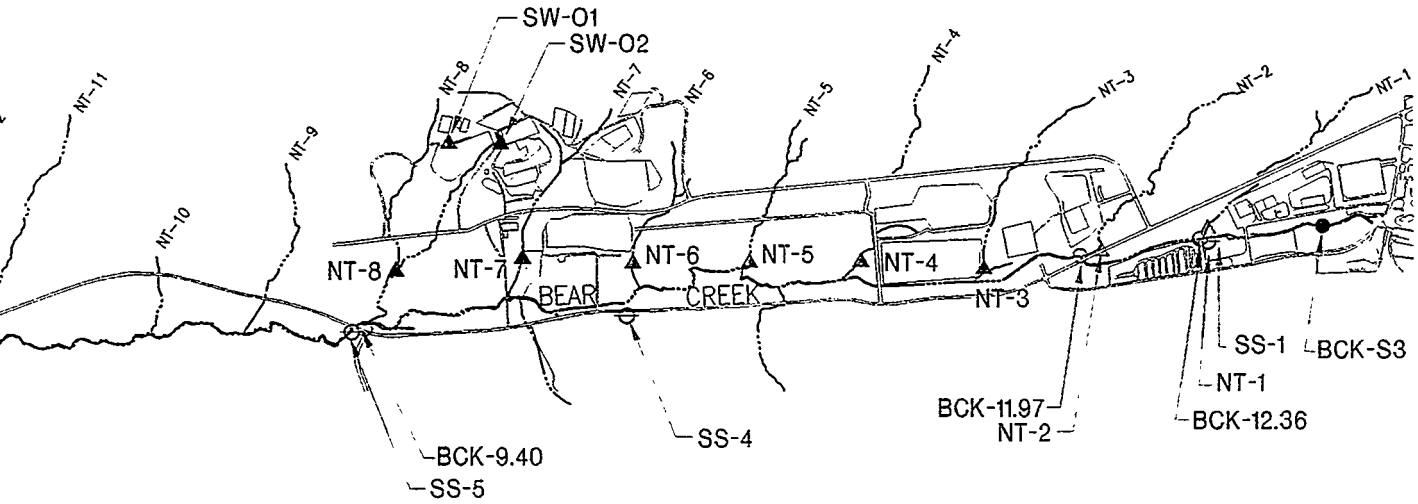
BLACK .....TOTAL HI <1
GREEN .....INORGANIC HI DRIVER
RED ..... ORGANIC HI DRIVER

BEAR CREEK VALLEY

E 38000 E 40000 E 42000 E 44000 E 46000 E 48000 E 50000 E 52000



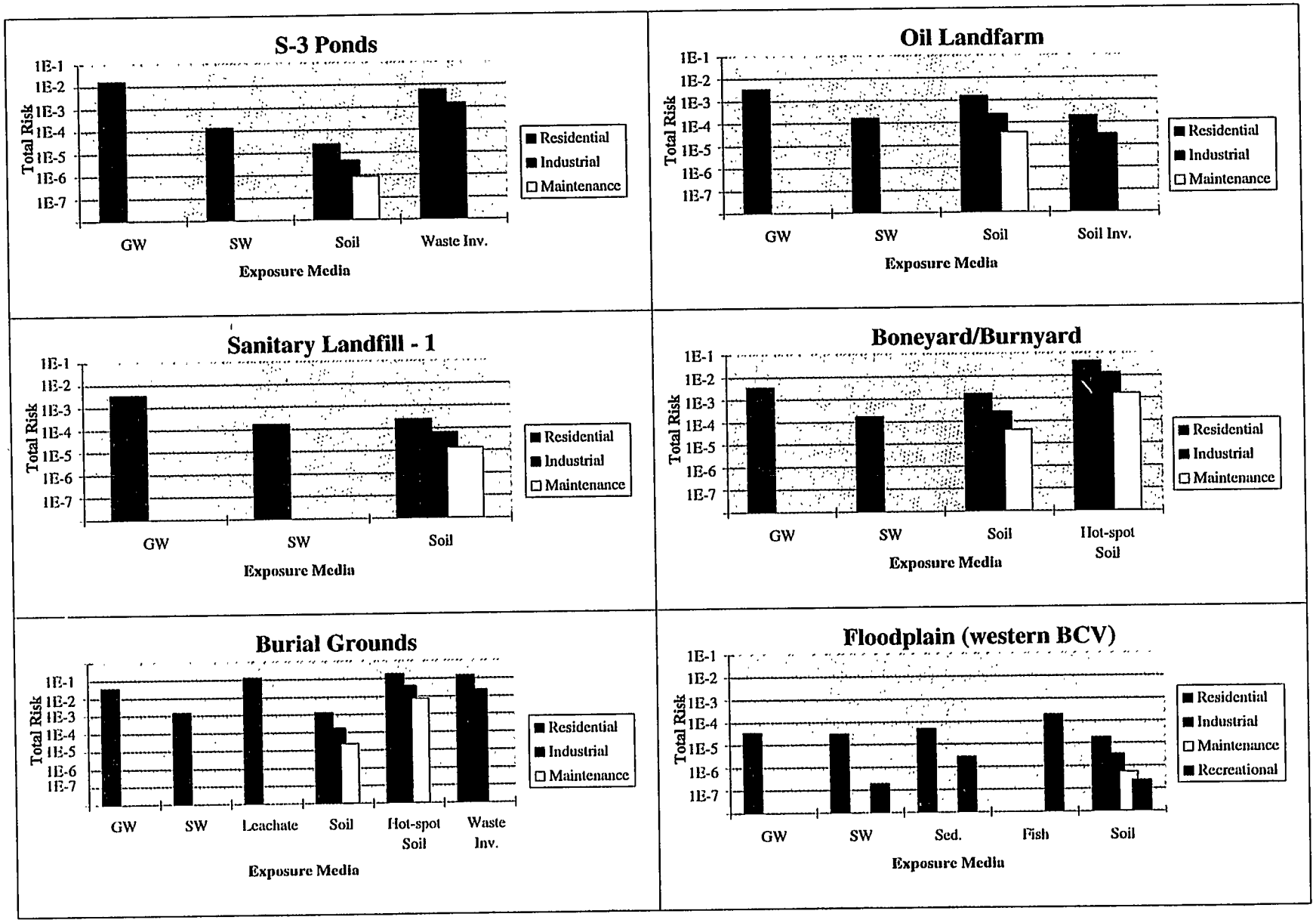


Fig. F.8. Bear Creek Valley source area/functional area risk summary.

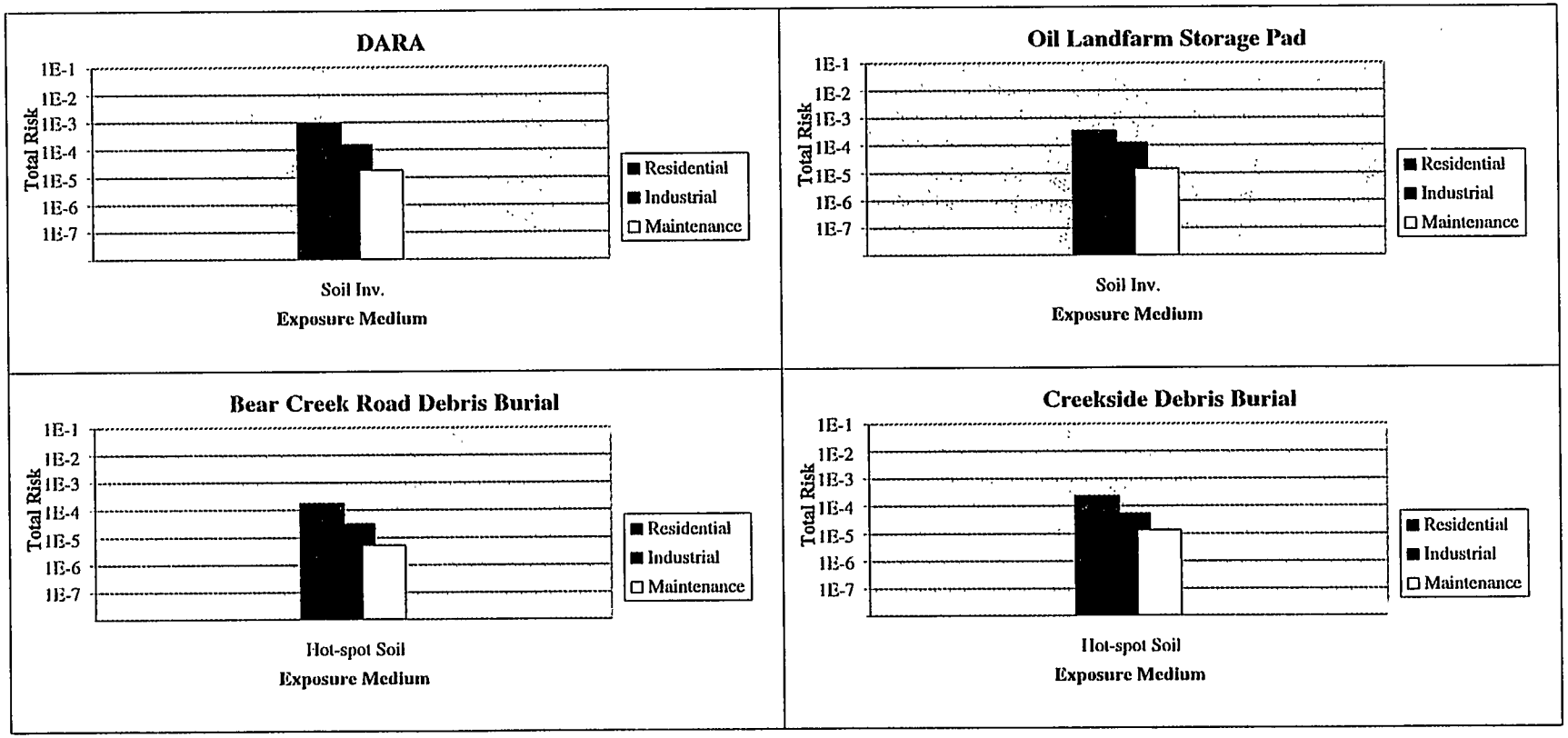


Fig. F.8. (continued).

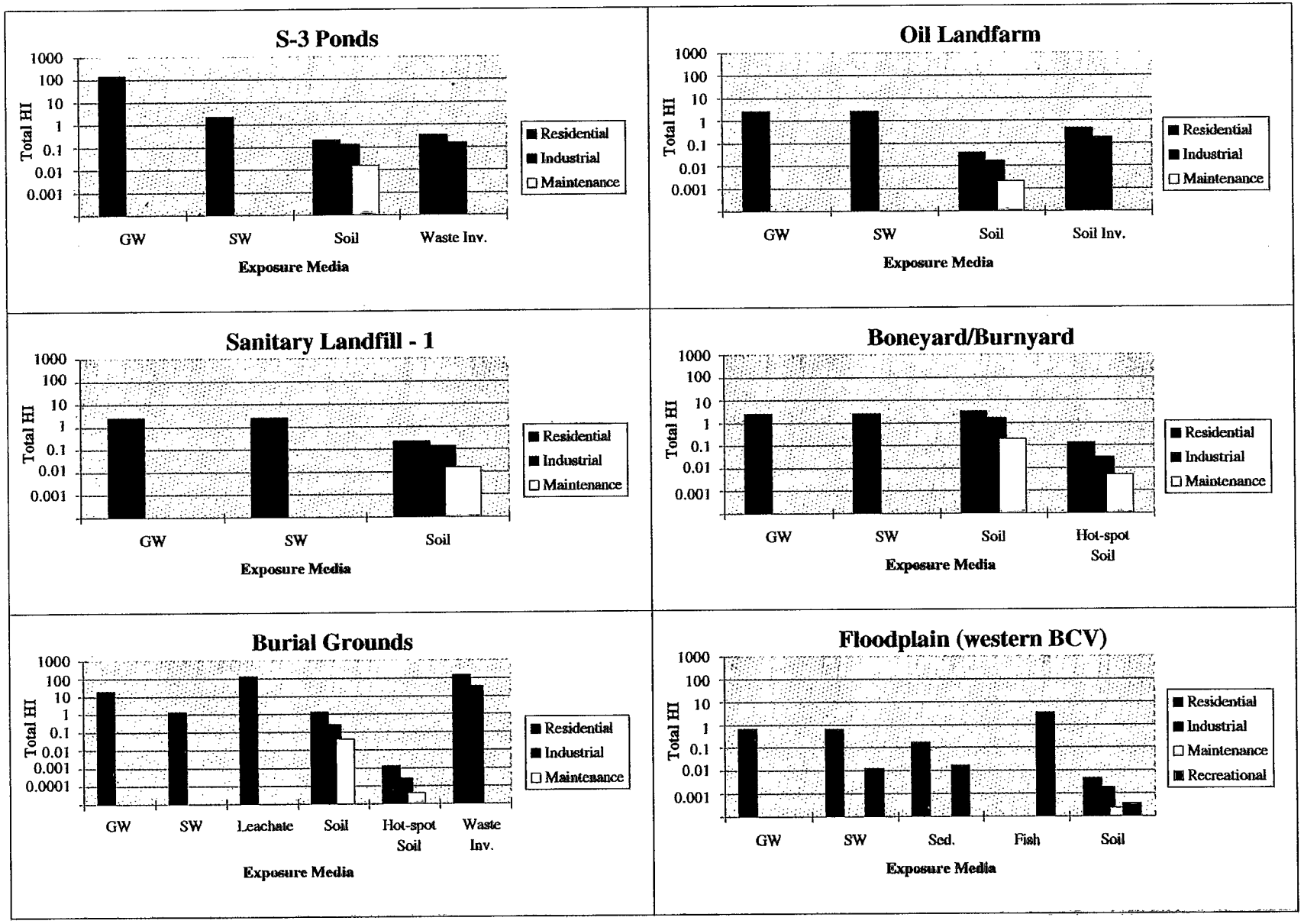


Fig. F.9. Bear Creek Valley source area/functional area hazard index summary.

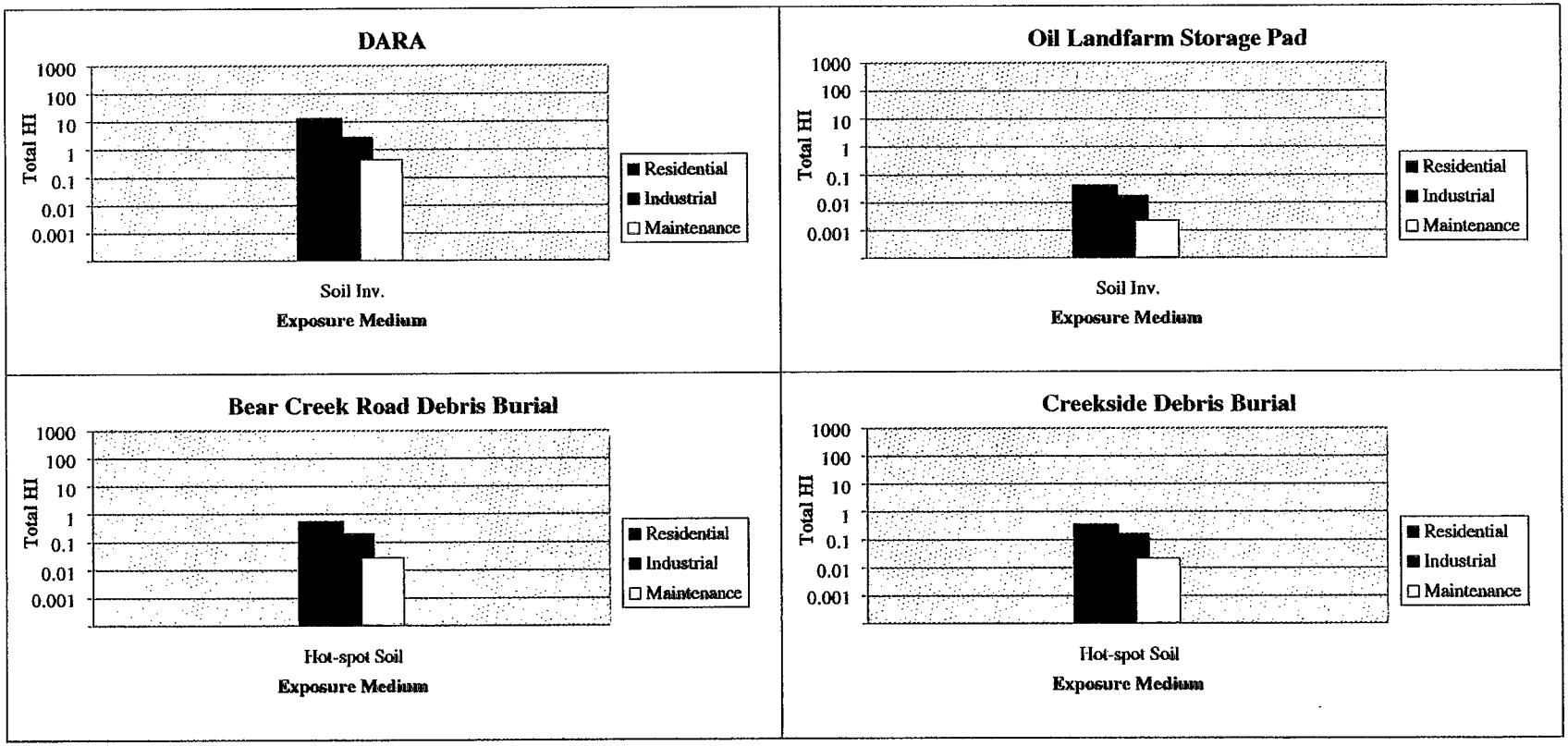


Fig. F.9. (continued).

F.9 TABLES

Table F.1. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: S-3 PONDS

Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	70/81	86.4	2.40E-02	8.00E+02			mg/L	
AMMONIA NITROGEN	5/11	45.5	1.82E+00	5.79E+00			mg/L	
ANTIMONY	1/63	1.6	1.30E-01	1.30E-01		1.3E-03	mg/L	YES
BARIUM	104/104	100.0	3.50E-02	3.80E+02		2.5E-01	mg/L	YES
BERYLLIUM	18/66	27.3	4.00E-04	1.10E-01	1.6E-05	1.5E-02	mg/L	YES
BORON	87/91	95.6	8.00E-03	4.40E+00		3.3E-01	mg/L	YES
CADMIUM	93/154	60.4	2.00E-03	4.00E+00		1.5E-03	mg/L	YES
CHLORIDE	136/137	99.3	5.50E+00	1.34E+03			mg/L	
CHROMIUM	23/157	14.6	1.00E-02	3.10E-01		1.6E-02	mg/L	YES
COBALT	25/74	33.8	6.10E-03	2.30E+00			mg/L	
COPPER	50/75	66.7	4.10E-03	3.10E+00			mg/L	
FLUORIDE	84/152	55.3	1.00E-01	1.10E+02		2.2E-01	mg/L	YES
KJELDAHL NITROGEN	6/11	54.5	2.00E-01	1.80E+00			mg/L	
LEAD	61/167	36.5	4.00E-03	6.60E-01		1.5E-02	mg/L	YES
LITHIUM	15/15	100.0	5.00E-03	3.50E+00			mg/L	
MANGANESE	93/95	97.9	2.60E-03	2.20E+02		4.8E-01	mg/L	YES
MERCURY	47/167	28.1	2.00E-04	1.10E-01		1.1E-03	mg/L	YES
NICKEL	28/74	37.8	1.20E-02	2.00E+01		7.2E-02	mg/L	YES
NIOBIUM	7/12	58.3	7.50E-03	1.00E-01			mg/L	
NITRATE (AS N)	155/155	100.0	4.30E-01	1.34E+04		5.8E+00	mg/L	YES
NITRITE (AS N)	1/9	11.1	6.70E+00	6.70E+00		3.6E-01	mg/L	YES
SILICON	53/53	100.0	1.60E+00	3.90E+01			mg/L	
STRONTIUM	80/80	100.0	1.50E-01	3.40E+02		2.2E+00	mg/L	YES
SULFATE	89/92	96.7	2.00E+00	2.20E+03			mg/L	
THALLIUM	1/20	5.0	1.00E-02	1.00E-02			mg/L	
THORIUM	1/63	1.6	2.80E-01	2.80E-01			mg/L	
TITANIUM	12/15	80.0	9.70E-03	8.50E-01			mg/L	
TOTAL URANIUM	129/163	79.1	1.00E-03	4.40E+01		1.1E-02	mg/L	YES
VANADIUM	2/63	3.2	5.20E-03	2.30E-02		2.1E-02	mg/L	YES
ZINC	82/88	93.2	2.70E-03	2.00E+01		1.1E+00	mg/L	YES
1,1,1-TRICHLOROETHANE	43/197	21.8	4.00E-04	4.30E-02		1.3E-01	mg/L	NO
1,1,2-TRICHLOROETHANE	1/195	0.5	1.00E-03	1.00E-03	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	5/195	2.6	2.00E-03	8.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	12/195	6.2	1.00E-03	5.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	1/195	0.5	4.00E-03	4.00E-03	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	38/139	27.3	1.00E-03	1.00E-01		3.3E-02	mg/L	YES
2,4-DINITROPHENOL	2/11	18.2	1.10E-02	7.70E-02		7.2E-03	mg/L	YES
2-BUTANONE	22/195	11.3	2.00E-03	3.20E-02		1.9E-01	mg/L	NO
2-CHLOROETHYLVINYL ETHER	1/61	1.6	4.00E-03	4.00E-03			mg/L	
2-HEXANONE	5/195	2.6	1.00E-03	4.00E-03			mg/L	
2-NITROPHENOL	5/11	45.5	1.80E-02	7.10E-02			mg/L	
4-METHYL-2-PENTANONE	1/196	0.5	9.70E-02	9.70E-02		1.6E-02	mg/L	YES
4-NITROPHENOL	5/11	45.5	2.20E-02	1.20E-01			mg/L	
ACETONE	55/201	27.4	2.00E-03	6.00E+00		3.6E-01	mg/L	YES
BENZENE	10/195	5.1	6.00E-04	3.00E-03	4.9E-04		mg/L	YES
BENZENEMETHANOL	2/11	18.2	2.00E-03	2.00E-03		1.1E+00	mg/L	NO
BENZOIC ACID	2/11	18.2	6.00E-03	5.80E-02		1.4E+01	mg/L	NO

Table F.1. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: S-3 PONDS

Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BIS(2-ETHYLHEXYL)PHTHALATE	6/11	54.5	1.00E-03	3.20E-02	4.7E-03	5.6E-02	mg/L	YES
BROMODICHLOROMETHANE	1/195	0.5	3.00E-03	3.00E-03	1.4E-03	7.2E-02	mg/L	YES
BROMOFORM	1/195	0.5	2.00E-03	2.00E-03	1.1E-02	7.2E-02	mg/L	NO
BUTYLBENZYLPHTHALATE	2/11	18.2	1.00E-03	1.00E-03		5.7E-01	mg/L	NO
CARBON DISULFIDE	7/195	3.6	7.00E-04	2.00E-03		1.0E-01	mg/L	NO
CARBON TETRACHLORIDE	1/195	0.5	7.00E-04	7.00E-04	2.1E-04	2.4E-03	mg/L	YES
CHLOROBENZENE	1/195	0.5	3.00E-03	3.00E-03		3.9E-03	mg/L	NO
CHLOROFORM	87/199	43.7	4.00E-04	6.90E-02	2.1E-04	3.3E-02	mg/L	YES
CHLOROMETHANE	1/195	0.5	1.00E-02	1.00E-02	1.9E-03		mg/L	YES
DI-N-BUTYLPHTHALATE	1/11	9.1	2.00E-03	2.00E-03		2.9E-01	mg/L	NO
DI-N-OCTYLPHTHALATE	2/11	18.2	2.00E-03	3.00E-03		9.9E-04	mg/L	YES
DIBROMOCHLOROMETHANE	1/195	0.5	1.00E-03	1.00E-03	1.0E-03	7.2E-02	mg/L	YES
DIMETHYLBENZENE	14/195	7.2	1.00E-03	1.60E-02		5.8E+00	mg/L	NO
ETHYLBENZENE	7/195	3.6	6.00E-04	4.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	82/203	40.4	6.00E-04	5.60E-01	5.4E-03	1.6E-01	mg/L	YES
NAPHTHALENE	4/11	36.4	1.00E-03	1.00E-03		1.1E-01	mg/L	NO
PHENOLS	3/20	15.0	1.00E-03	4.00E-03			mg/L	
TETRACHLOROETHENE	108/203	53.2	5.00E-04	9.00E+00	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	39/197	19.8	3.00E-04	3.50E-02		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	2/63	3.2	2.00E-03	2.00E-03		7.3E-02	mg/L	NO
TRICHLOROETHENE	51/196	26.0	8.00E-04	4.10E-02	1.9E-03		mg/L	YES
VINYL ACETATE	2/195	1.0	1.00E-03	2.00E-03		4.1E-02	mg/L	NO
VINYL CHLORIDE	10/195	5.1	2.00E-03	1.10E-02	2.5E-05		mg/L	YES
AMERICIUM-241	5/8	62.5	2.70E+01	3.80E+01	1.5E-01		pCi/L	YES
CESIUM-137	1/3	33.3	6.00E+00	6.00E+00	1.5E+00		pCi/L	YES
NEPTUNIUM-237	7/10	70.0	4.00E+01	1.09E+03	1.6E-01		pCi/L	YES
RADIUM (TOTAL ALPHA)	2/2	100.0	1.20E+00	3.51E+01	1.6E-01		pCi/L	YES
STRONTIUM-90	8/9	88.9	3.60E+00	2.54E+02	8.5E-01		pCi/L	YES
TECHNETIUM-99	10/10	100.0	5.00E+01	8.04E+04	3.4E+01		pCi/L	YES
THORIUM-228	1/3	33.3	3.20E+00	3.20E+00	2.1E-01		pCi/L	YES
THORIUM-230	2/3	66.7	4.10E-01	5.90E-01	1.3E+00		pCi/L	NO
TRITIUM	9/11	81.8	6.20E+02	5.41E+03	5.8E+02		pCi/L	YES
URANIUM-234	10/10	100.0	1.50E+00	4.65E+03	1.1E+00		pCi/L	YES
URANIUM-235	8/10	80.0	3.60E+00	5.47E+02	1.0E+00		pCi/L	YES
URANIUM-238	10/10	100.0	5.20E-01	1.36E+04	7.7E-01		pCi/L	YES

Medium=SOIL (1-9)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ARSENIC	18/18	100.0	8.20E-01	2.05E+01	4.3E-01	2.3E+00	mg/kg	YES
BARIUM	18/18	100.0	1.32E+01	2.77E+02		5.5E+02	mg/kg	NO
CADMIUM	1/18	5.6	2.00E+00	2.00E+00	6.0E+03	7.8E+00	mg/kg	NO

Table F.1. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: S-3 PONDS

Medium=SOIL (1-9) (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
COPPER	17/18	94.4	5.30E+00	5.08E+01			mg/kg	
CYANIDE	2/18	11.1	1.20E+00	1.40E+00		1.6E+02	mg/kg	NO
LEAD	18/18	100.0	5.50E+00	8.23E+01		4.0E+02	mg/kg	NO
MERCURY	15/18	83.3	7.60E-02	8.29E+01		2.3E+00	mg/kg	YES
NICKEL	18/18	100.0	5.70E+00	1.28E+02		1.6E+02	mg/kg	NO
SILVER	12/18	66.7	8.50E-01	4.30E+00		3.9E+01	mg/kg	NO
TIN	3/18	16.7	5.60E+00	7.70E+00		4.7E+03	mg/kg	NO
VANADIUM	18/18	100.0	3.90E+00	9.19E+01		5.5E+01	mg/kg	YES
ZINC	18/18	100.0	1.83E+01	1.63E+02		2.3E+03	mg/kg	NO
2-BUTANONE	1/17	5.9	1.00E-02	1.00E-02		2.4E+03	mg/kg	NO
4-METHYL-2-PENTANONE	1/18	5.6	2.80E-02	2.80E-02		4.7E+02	mg/kg	NO
ACETONE	11/17	64.7	1.40E-02	4.20E+00		7.8E+02	mg/kg	NO
METHOXYCHLOR	1/4	25.0	5.90E-03	5.90E-03		3.9E+01	mg/kg	NO
METHYLENE CHLORIDE	1/16	6.3	1.80E-01	1.80E-01	3.6E+01	4.7E+02	mg/kg	NO
PCB-1248	1/18	5.6	2.00E-02	2.00E-02	8.3E-02		mg/kg	NO
PCB-1254	10/18	55.6	1.20E-02	3.70E-01		1.6E-01	mg/kg	YES
PCB-1260	3/18	16.7	1.60E-02	1.70E-01	8.3E-02		mg/kg	YES
TETRACHLOROETHENE	3/18	16.7	2.00E-03	2.40E-02	1.2E+01	7.8E+01	mg/kg	NO
TOLUENE	10/17	58.8	1.00E-03	2.20E-02		2.5E+02	mg/kg	NO
NEPTUNIUM-237	5/18	27.8	2.60E-02	1.30E-01	9.1E-02		pCi/g	YES
TECHNETIUM-99	2/18	11.1	4.60E+00	6.80E+00	5.7E+02		pCi/g	NO
THORIUM-230	13/18	72.2	2.10E-01	2.70E+00	2.1E+01		pCi/g	NO
URANIUM-234	18/18	100.0	1.00E-01	7.70E+00	1.8E+01		pCi/g	NO
URANIUM-235	9/18	50.0	4.90E-02	5.40E-01	1.6E-01		pCi/g	YES
URANIUM-238	18/18	100.0	1.50E-01	1.80E+01	7.8E-01		pCi/g	YES

Medium=SOIL (10)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
MERCURY	2/2	100.0	5.80E+00	1.07E+01		2.3E+00	mg/kg	YES
PCB-1248	2/2	100.0	6.50E-02	1.40E-01	8.3E-02		mg/kg	YES
PCB-1254	2/2	100.0	6.90E-02	1.90E-01		1.6E-01	mg/kg	YES
PCB-1260	2/2	100.0	7.30E-02	2.10E-01	8.3E-02		mg/kg	YES
TETRACHLOROETHENE	1/2	50.0	2.00E-03	2.00E-03	1.2E+01	7.8E+01	mg/kg	NO
TOLUENE	2/2	100.0	1.20E-02	1.90E-02		2.5E+02	mg/kg	NO
URANIUM-238	2/2	100.0	2.00E+00	2.90E+00	7.8E-01		pCi/g	YES

Table F.1. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: S-3 PONDS

Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	43/55	78.2	3.61E-02	1.78E+01			mg/L	
BARIUM	55/55	100.0	5.37E-02	1.10E+00		2.5E-01	mg/L	YES
BERYLLIUM	5/55	9.1	3.10E-04	9.90E-04	1.6E-05	1.5E-02	mg/L	YES
BORON	20/20	100.0	3.10E-02	1.20E-01		3.3E-01	mg/L	NO
CADMIUM	4/16	25.0	1.70E-02	2.40E-02		1.5E-03	mg/L	YES
CHLORIDE	54/55	98.2	9.90E+00	1.22E+03			mg/L	
CYANIDE	1/35	2.9	2.12E-02	2.12E-02		6.6E-02	mg/L	NO
FLUORIDE	55/55	100.0	1.00E-01	1.80E+00		2.2E-01	mg/L	YES
LEAD	2/16	12.5	7.30E-03	2.60E-02		1.5E-02	mg/L	YES
MANGANESE	54/55	98.2	1.06E-02	5.90E+00		4.8E-01	mg/L	YES
MERCURY	11/50	22.0	1.10E-04	5.50E-04		1.1E-03	mg/L	NO
NICKEL	26/55	47.3	1.24E-02	1.20E-01		7.2E-02	mg/L	YES
NITRATE (AS N)	55/55	100.0	2.20E+00	2.86E+02		5.8E+00	mg/L	YES
SILVER	1/55	1.8	6.90E-03	6.90E-03		1.8E-02	mg/L	NO
STRONTIUM	20/20	100.0	3.30E-01	1.00E+00		2.2E+00	mg/L	NO
SULFATE	54/55	98.2	1.35E+01	9.90E+01			mg/L	
THALLIUM	1/33	3.0	4.10E-03	4.10E-03			mg/L	
TOTAL URANIUM	20/20	100.0	1.20E-02	1.85E-01		1.1E-02	mg/L	YES
VANADIUM	6/55	10.9	5.60E-03	3.19E-02		2.1E-02	mg/L	YES
ZINC	36/55	65.5	2.80E-03	1.36E-01		1.1E+00	mg/L	NO
1,2-DICHLOROETHENE	3/55	5.5	7.00E-04	2.00E-03		3.3E-02	mg/L	NO
2-BUTANONE	1/55	1.8	9.00E-03	9.00E-03		1.9E-01	mg/L	NO
2-HEXANONE	2/55	3.6	3.00E-03	8.00E-03			mg/L	
4-METHYL-2-PENTANONE	3/55	5.5	3.00E-03	7.00E-03		1.6E-02	mg/L	NO
ACETONE	6/47	12.8	3.00E-03	1.40E-02		3.6E-01	mg/L	NO
CARBON DISULFIDE	3/55	5.5	1.00E-03	2.00E-03		1.0E-01	mg/L	NO
CHLOROFORM	1/55	1.8	7.00E-04	7.00E-04	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	2/55	3.6	2.00E-03	5.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	37/55	67.3	1.00E-03	6.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	1/55	1.8	1.00E-03	1.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	7/55	12.7	6.00E-04	3.00E-03	1.9E-03		mg/L	YES
STRONTIUM-90	7/11	63.6	1.05E+00	2.15E+00	8.5E-01		pCi/L	YES
TECHNETIUM-99	8/9	88.9	1.39E+02	4.77E+02	3.4E+01		pCi/L	YES
THORIUM-228	5/13	38.5	1.03E-01	2.50E-01	2.1E-01		pCi/L	YES
THORIUM-230	3/13	23.1	1.36E-01	2.30E-01	1.3E+00		pCi/L	NO
THORIUM-232	3/13	23.1	1.26E-01	1.32E-01	1.5E+00		pCi/L	NO
URANIUM-233/234	34/35	97.1	5.13E+00	5.40E+01	1.1E+00		pCi/L	YES
URANIUM-235	16/35	45.7	1.04E+00	4.66E+00	1.0E+00		pCi/L	YES
URANIUM-238	34/35	97.1	5.83E+00	1.35E+02	7.7E-01		pCi/L	YES

Table F.1. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: S-3 PONDS

Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM				2.21E+04			mg/kg	
ARSENIC				1.12E+00	4.3E-01	2.3E+00	mg/kg	YES
BARIUM				1.34E+02		5.5E+02	mg/kg	NO
BERYLLIUM				2.74E+00	6.3E-02	3.9E+01	mg/kg	YES
BORON				3.76E+01		7.0E+02	mg/kg	NO
CADMIUM				4.90E+00	6.0E+03	7.8E+00	mg/kg	NO
CALCIUM				4.22E+04			mg/kg	
CERIUM				8.18E+00			mg/kg	
CHROMIUM (III)				1.33E+02		6.3E+03	mg/kg	NO
CHROMIUM (VI)				1.90E-01	8.9E+02	3.9E+01	mg/kg	NO
COBALT				3.47E+00			mg/kg	
COPPER				9.25E+01			mg/kg	
CYANIDE				5.95E+00		1.6E+02	mg/kg	NO
GALLIUM				6.15E+00			mg/kg	
IRON				3.65E+03			mg/kg	
KJELDAHL NITROGEN				4.60E+02			mg/kg	
LANTHANUM				2.59E+00			mg/kg	
LEAD				3.58E+01		4.0E+02	mg/kg	NO
LITHIUM				7.57E+01			mg/kg	
MAGNESIUM				1.94E+03			mg/kg	
MANGANESE				9.97E+01		1.1E+03	mg/kg	NO
MERCURY				2.28E+00		2.3E+00	mg/kg	NO
MOLYBDENUM				1.52E+01		3.9E+01	mg/kg	NO
NICKEL				5.50E+02		1.6E+02	mg/kg	YES
NIOBIUM				2.09E+01			mg/kg	
NITRATE (AS N)				1.13E+03		1.3E+04	mg/kg	NO
PHOSPHORIC ACID				7.73E-01		1.0E+06	mg/kg	NO
PHOSPHORUS				9.53E+02			mg/kg	
POTASSIUM				1.63E+03			mg/kg	
SCANDIUM				1.20E+00			mg/kg	
SELENIUM				7.70E-01		3.9E+01	mg/kg	NO
SILVER				1.87E+00		3.9E+01	mg/kg	NO
SODIUM				2.72E+03			mg/kg	
STRONTIUM				3.55E+01		4.7E+03	mg/kg	NO
SULFATE				2.20E+03			mg/kg	
THALLIUM				3.30E-01			mg/kg	
THORIUM				1.95E+02			mg/kg	
TIN				1.57E+00		4.7E+03	mg/kg	NO
TITANIUM				3.99E+02			mg/kg	
TOTAL URANIUM				9.92E+02		2.3E+01	mg/kg	YES

Table F.1. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: S-3 PONDS

Medium=WASTE INVENTORY (soil)
(continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
VANADIUM				7.08E+00		5.5E+01	mg/kg	NO
YTTRIUM				4.47E+00			mg/kg	
ZINC				5.83E+01		2.3E+03	mg/kg	NO
ZIRCONIUM				4.78E+02			mg/kg	
1,1,2,2-TETRACHLOROETHANE				3.84E-01	2.2E+00		mg/kg	NO
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE				4.35E-03		2.1E+02	mg/kg	NO
1,1,2-TRICHLOROETHANE				7.54E-02	4.1E+00	3.1E+01	mg/kg	NO
1-(2-BUTOXYETHOXY)-ETHANOL				1.05E+00			mg/kg	
2-(2-BUTOXYETHOXY)-ETHANOL				1.91E+00		1.0E+06	mg/kg	NO
2-BUTOXYETHANOL				2.29E+00		1.0E+06	mg/kg	NO
2-HEXANOL				2.96E-01			mg/kg	
3-(1,1-DIMETHYLETHYL)PHENOL				6.04E+00			mg/kg	
ACETONE				2.30E-02		7.8E+02	mg/kg	NO
DIETHYLPHTHALATE				5.23E-01		6.3E+03	mg/kg	NO
METHYLENE CHLORIDE				4.90E-04	3.6E+01	4.7E+02	mg/kg	NO
PCB-1248				5.67E+00	8.3E-02		mg/kg	YES
PHENOL				7.35E+00		4.7E+03	mg/kg	NO
TETRACHLOROETHENE				7.93E-01	1.2E+01	7.8E+01	mg/kg	NO
TOLUENE				2.70E-04		2.5E+02	mg/kg	NO
TRICHLOROETHENE				2.80E-04	1.5E+01		mg/kg	NO
TRICHLOROFLUOROMETHANE				3.80E-04		4.0E+02	mg/kg	NO
AMERICIUM-241				1.00E-02	2.2E+00		pCi/g	NO
CESIUM-137				4.77E+00	2.1E-02		pCi/g	YES
NEPTUNIUM-237				9.85E+00	9.1E-02		pCi/g	YES
PLUTONIUM-238				2.53E+01	2.7E+00		pCi/g	YES
PLUTONIUM-239/240				2.54E+00	2.5E+00		pCi/g	YES
RUTHENIUM-106				3.33E+01	5.7E-02		pCi/g	YES
STRONTIUM-90				1.29E+01	1.4E+01		pCi/g	NO
TECHNETIUM-99				7.52E+03	5.7E+02		pCi/g	YES
THORIUM-228				2.67E+02	4.3E-02		pCi/g	YES
THORIUM-230				5.44E+02	2.1E+01		pCi/g	YES
THORIUM-232				8.75E+01	2.4E+01		pCi/g	YES
TRITIUM				6.90E-01	1.1E+04		pCi/g	NO
URANIUM-234				1.24E+02	1.8E+01		pCi/g	YES
URANIUM-235				8.06E+00	1.6E-01		pCi/g	YES
URANIUM-236				7.68E+00	1.9E+01		pCi/g	NO
URANIUM-238				3.32E+02	7.8E-01		pCi/g	YES

Table F.2. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: OIL LANDFARM

Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	57/66	86.4	2.30E-02	4.30E+01			mg/L	
AMMONIA NITROGEN	1/3	33.3	3.53E+00	3.53E+00			mg/L	
BARIUM	71/71	100.0	5.60E-02	1.20E+00		2.5E-01	mg/L	YES
BERYLLIUM	17/71	23.9	3.00E-04	3.10E-03	1.6E-05	1.5E-02	mg/L	YES
BORON	65/65	100.0	3.00E-02	3.00E+00		3.3E-01	mg/L	YES
CADMIUM	9/73	12.3	2.00E-03	3.00E-02		1.5E-03	mg/L	YES
CHLORIDE	101/101	100.0	1.80E+00	2.12E+02			mg/L	
CHROMIUM	33/95	34.7	1.00E-02	4.10E-01		1.6E-02	mg/L	YES
COBALT	22/71	31.0	4.90E-03	1.40E-01			mg/L	
COPPER	32/71	45.1	4.20E-03	1.21E-01			mg/L	
FLUORIDE	26/82	31.7	1.00E-01	4.00E+00		2.2E-01	mg/L	YES
KJELDAHL NITROGEN	3/3	100.0	2.66E+00	4.90E+00			mg/L	
LEAD	53/99	53.5	1.20E-03	6.40E-01		1.5E-02	mg/L	YES
MANGANESE	72/74	97.3	2.40E-03	1.60E+01		4.8E-01	mg/L	YES
MERCURY	9/71	12.7	3.00E-04	7.84E-02		1.1E-03	mg/L	YES
NICKEL	46/71	64.8	6.20E-03	1.90E-01		7.2E-02	mg/L	YES
NIOBIUM	2/7	28.6	2.60E-02	2.90E-02			mg/L	
NITRATE (AS N)	65/102	63.7	1.10E-01	1.05E+02		5.8E+00	mg/L	YES
SILICON	32/32	100.0	8.10E-01	2.40E+01			mg/L	
SULFATE	102/102	100.0	1.00E+00	3.00E+02			mg/L	
TITANIUM	3/7	42.9	4.80E-02	2.90E-01			mg/L	
TOTAL URANIUM	82/101	81.2	1.00E-03	5.22E-01		1.1E-02	mg/L	YES
VANADIUM	18/71	25.4	2.70E-03	4.90E-02		2.1E-02	mg/L	YES
ZINC	59/71	83.1	1.30E-03	1.20E+00		1.1E+00	mg/L	YES
1,1,1-TRICHLOROETHANE	69/117	59.0	6.00E-04	5.10E-01		1.3E-01	mg/L	YES
1,1,2,2-TETRACHLOROETHANE	1/116	0.9	4.10E-02	4.10E-02	7.1E-05		mg/L	YES
1,1,2-TRICHLOROETHANE	5/116	4.3	3.00E-03	1.00E-02	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	82/116	70.7	2.00E-03	2.00E+00		8.1E-02	mg/L	YES
1,1-DICHLOROETHENE	77/117	65.8	1.00E-03	6.20E-01	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	13/116	11.2	5.00E-04	2.70E-02	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	56/85	65.9	7.00E-04	1.10E+00		3.3E-02	mg/L	YES
2-BUTANONE	13/117	11.1	5.00E-03	9.10E-02		1.9E-01	mg/L	NO
2-HEXANONE	3/117	2.6	1.00E-03	2.00E-03			mg/L	
4-METHYL-2-PENTANONE	2/117	1.7	2.00E-03	2.00E-03		1.6E-02	mg/L	NO
ACETONE	20/117	17.1	3.00E-03	8.60E-02		3.6E-01	mg/L	NO
BENZENE	35/116	30.2	4.00E-04	5.30E-02	4.9E-04		mg/L	YES
BIS(2-ETHYLHEXYL)PHTHALATE	1/5	20.0	2.00E-03	2.00E-03	4.7E-03	5.6E-02	mg/L	NO
CARBON DISULFIDE	3/116	2.6	1.00E-03	1.00E-03		1.0E-01	mg/L	NO
CARBON TETRACHLORIDE	11/117	9.4	2.00E-03	9.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROBENZENE	18/116	15.5	3.00E-04	8.00E-03		3.9E-03	mg/L	YES
CHLOROETHANE	10/117	8.5	1.00E-03	2.00E-02		2.1E+00	mg/L	NO
CHLOROFORM	25/116	21.6	6.00E-04	1.40E-01	2.1E-04	3.3E-02	mg/L	YES
DI-N-BUTYLPHTHALATE	2/5	40.0	1.00E-03	1.00E-03		2.9E-01	mg/L	NO
DIMETHYLBENZENE	7/116	6.0	1.00E-03	6.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	5/116	4.3	9.00E-04	2.00E-03		1.2E-01	mg/L	NO
FLUORANTHENE	3/5	60.0	1.00E-03	2.00E-03		3.8E-02	mg/L	NO
METHYLENE CHLORIDE	24/115	20.9	1.00E-03	3.40E+00	5.4E-03	1.6E-01	mg/L	YES

Table F.2. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: OIL LANDFARM

Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
PCB-1254	1/5	20.0	4.50E-04	4.50E-04		3.8E-05	mg/L	YES
PHENANTHRENE	2/5	40.0	1.00E-03	1.00E-03			mg/L	
PHENOLS	4/10	40.0	2.00E-03	6.00E-03			mg/L	
PYRENE	3/5	60.0	1.00E-03	2.00E-03		3.1E-02	mg/L	NO
TETRACHLOROETHENE	55/117	47.0	3.00E-04	1.60E+00	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	20/117	17.1	4.00E-04	4.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	28/31	90.3	6.00E-04	2.70E-01		7.3E-02	mg/L	YES
TRICHLOROETHENE	84/117	71.8	2.00E-03	2.00E+00	1.9E-03		mg/L	YES
VINYL ACETATE	3/111	2.7	2.00E-03	3.00E-03		4.1E-02	mg/L	NO
VINYL CHLORIDE	30/117	25.6	2.00E-03	7.30E-02	2.5E-05		mg/L	YES
CESIUM-137	1/9	11.1	4.60E+00	4.60E+00	1.5E+00		pCi/L	YES
LEAD-212	1/6	16.7	1.60E+01	1.60E+01	2.6E+00		pCi/L	YES
NEPTUNIUM-237	1/3	33.3	2.40E-01	2.40E-01	1.6E-01		pCi/L	YES
POTASSIUM-40	1/6	16.7	1.70E+02	1.70E+02	3.8E+00		pCi/L	YES
TECHNETIUM-99	1/9	11.1	3.60E+01	3.60E+01	3.4E+01		pCi/L	YES
THORIUM-228	4/9	44.4	1.20E+00	1.90E+00	2.1E-01		pCi/L	YES
THORIUM-230	6/9	66.7	2.90E-01	2.60E+00	1.3E+00		pCi/L	YES
THORIUM-232	1/9	11.1	1.00E+00	1.00E+00	1.5E+00		pCi/L	NO
URANIUM-234	9/9	100.0	2.60E-01	1.30E+03	1.1E+00		pCi/L	YES
URANIUM-235	5/9	55.6	4.60E+00	5.30E+01	1.0E+00		pCi/L	YES
URANIUM-238	8/9	88.9	3.50E+00	1.80E+03	7.7E-01		pCi/L	YES

Medium=SOIL

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ARSENIC	8/8	100.0	1.10E+00	3.18E+01	4.3E-01	2.3E+00	mg/kg	YES
BARIUM	8/8	100.0	3.12E+01	2.28E+02		5.5E+02	mg/kg	NO
COPPER	8/8	100.0	7.10E+00	1.20E+02			mg/kg	
LEAD	8/8	100.0	5.90E+00	7.42E+01		4.0E+02	mg/kg	NO
MERCURY	3/8	37.5	1.30E-01	2.20E+00		2.3E+00	mg/kg	NO
SILVER	7/8	87.5	5.70E-01	4.30E+00		3.9E+01	mg/kg	NO
ZINC	8/8	100.0	2.65E+01	1.62E+02		2.3E+03	mg/kg	NO
ACETONE	7/8	87.5	7.00E-03	5.90E-01		7.8E+02	mg/kg	NO
METHYLENE CHLORIDE	2/8	25.0	3.00E-03	4.00E-03	3.6E+01	4.7E+02	mg/kg	NO
PCB-1260	3/8	37.5	3.60E-02	2.20E-01	8.3E-02		mg/kg	YES
TOLUENE	7/8	87.5	1.00E-03	2.40E-02		2.5E+02	mg/kg	NO
COBALT-60	4/8	50.0	7.00E-01	1.70E+00	4.5E-03		pCi/g	YES
LEAD-212	1/8	12.5	6.20E+00	6.20E+00	1.4E-01		pCi/g	YES
THALLIUM-208	1/8	12.5	4.60E+00	4.60E+00	3.0E-03		pCi/g	YES
URANIUM-234	8/8	100.0	6.70E-02	1.00E+01	1.8E+01		pCi/g	NO
URANIUM-235	2/8	25.0	2.10E-02	3.60E-01	1.6E-01		pCi/g	YES
URANIUM-238	8/8	100.0	6.60E-02	5.90E+00	7.8E-01		pCi/g	YES

Table F.2. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: OIL LANDFARM

Medium=SOIL INVENTORY

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TOTAL URANIUM	140/149	94.0	1.00E+01	2.74E+02		2.3E+01	mg/kg	YES
PCB-1254	70/93	75.3	7.00E-01	2.35E+01		1.6E-01	mg/kg	YES
PCB-1260	57/57	100.0	6.40E-01	1.80E+01	8.3E-02		mg/kg	YES
POLYCHLORINATED BIPHENYL	183/186	98.4	1.00E-01	2.40E+01	8.3E-02		mg/kg	YES
URANIUM-234 (calc.)	140/149	94.0	3.43E+00	9.40E+01	1.8E+01		pCi/g	YES
URANIUM-235 (calc.)	140/149	94.0	1.56E-01	4.27E+00	1.6E-01		pCi/g	YES
URANIUM-238 (calc.)	140/149	94.0	3.34E+00	9.14E+01	7.8E-01		pCi/g	YES

Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	46/52	88.5	3.40E-02	7.75E+00			mg/L	
ARSENIC	5/43	11.6	1.80E-03	5.60E-02	5.6E-05	1.1E-03	mg/L	YES
BARIUM	52/52	100.0	3.25E-02	6.82E-01		2.5E-01	mg/L	YES
BORON	10/10	100.0	3.60E-02	1.20E-01		3.3E-01	mg/L	NO
CADMIUM	5/8	62.5	2.10E-03	8.60E-03		1.5E-03	mg/L	YES
CHLORIDE	52/52	100.0	1.00E+00	8.10E+01			mg/L	
COPPER	5/52	9.6	3.00E-03	1.20E-02			mg/L	
CYANIDE	2/42	4.8	1.01E-02	1.48E-02		6.6E-02	mg/L	NO
FLUORIDE	39/52	75.0	1.00E-01	2.60E+00		2.2E-01	mg/L	YES
LITHIUM	14/14	100.0	3.70E-03	1.75E-01			mg/L	
MERCURY	10/49	20.4	2.20E-04	5.30E-04		1.1E-03	mg/L	NO
NICKEL	16/52	30.8	4.20E-03	5.10E-02		7.2E-02	mg/L	NO
NITRATE (AS N)	38/52	73.1	1.20E-01	2.39E+02		5.8E+00	mg/L	YES
SELENIUM	1/43	2.3	7.10E-02	7.10E-02		1.8E-02	mg/L	YES
SILVER	2/52	3.8	6.10E-03	6.80E-03		1.8E-02	mg/L	NO
STRONTIUM	10/10	100.0	1.90E-01	9.70E-01		2.2E+00	mg/L	NO
SULFATE	41/52	78.8	5.40E+00	1.14E+02			mg/L	
TOTAL URANIUM	10/10	100.0	8.50E-02	3.24E-01		1.1E-02	mg/L	YES
1,1,1-TRICHLOROETHANE	1/51	2.0	4.00E-04	4.00E-04		1.3E-01	mg/L	NO
2-BUTANONE	2/51	3.9	8.00E-03	1.00E-02		1.9E-01	mg/L	NO
2-HEXANONE	1/51	2.0	6.00E-03	6.00E-03			mg/L	
4-METHYL-2-PENTANONE	2/51	3.9	3.00E-03	6.00E-03		1.6E-02	mg/L	NO
ACETONE	3/37	8.1	2.00E-03	4.00E-03		3.6E-01	mg/L	NO
CARBON DISULFIDE	1/51	2.0	2.00E-03	2.00E-03		1.0E-01	mg/L	NO
CHLOROMETHANE	1/37	2.7	7.00E-03	7.00E-03	1.9E-03		mg/L	YES
METHYLENE CHLORIDE	1/51	2.0	1.00E-03	1.00E-03	5.4E-03	1.6E-01	mg/L	NO
TOLUENE	2/51	3.9	1.00E-03	2.00E-03		7.4E-02	mg/L	NO
STRONTIUM-90	3/13	23.1	1.01E+00	1.94E+00	8.5E-01		pCi/L	YES
TECHNETIUM-99	2/12	16.7	1.21E+02	2.90E+02	3.4E+01		pCi/L	YES
THORIUM-228	4/12	33.3	1.04E-01	3.10E-01	2.1E-01		pCi/L	YES
THORIUM-230	6/12	50.0	1.36E-01	1.95E+01	1.3E+00		pCi/L	YES
THORIUM-232	7/12	58.3	1.03E-01	1.79E+00	1.5E+00		pCi/L	YES

Table F.2. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: OIL LANDFARM

Medium=SURFACE WATER
(continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
URANIUM-233/234	21/42	50.0	2.47E+01	4.55E+02	1.1E+00		pCi/L	YES
URANIUM-235	19/42	45.2	1.27E+00	2.74E+01	1.0E+00		pCi/L	YES
URANIUM-238	21/42	50.0	4.95E+01	9.96E+02	7.7E-01		pCi/L	YES

Table F.3. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: SANITARY LANDFILL 1

Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	57/66	86.4	2.30E-02	4.30E+01			mg/L	
AMMONIA NITROGEN	1/3	33.3	3.53E+00	3.53E+00			mg/L	
BARIUM	71/71	100.0	5.60E-02	1.20E+00		2.5E-01	mg/L	YES
BERYLLIUM	17/71	23.9	3.00E-04	3.10E-03	1.6E-05	1.5E-02	mg/L	YES
BORON	65/65	100.0	3.00E-02	3.00E+00		3.3E-01	mg/L	YES
CADMIUM	9/73	12.3	2.00E-03	3.00E-02		1.5E-03	mg/L	YES
CHLORIDE	101/101	100.0	1.80E+00	2.12E+02			mg/L	
CHROMIUM	33/95	34.7	1.00E-02	4.10E-01		1.6E-02	mg/L	YES
COBALT	22/71	31.0	4.90E-03	1.40E-01			mg/L	
COPPER	32/71	45.1	4.20E-03	1.21E-01			mg/L	
FLUORIDE	26/82	31.7	1.00E-01	4.00E+00		2.2E-01	mg/L	YES
KJELDAHL NITROGEN	3/3	100.0	2.66E+00	4.90E+00			mg/L	
LEAD	53/99	53.5	1.20E-03	6.40E-01		1.5E-02	mg/L	YES
MANGANESE	72/74	97.3	2.40E-03	1.60E+01		4.8E-01	mg/L	YES
MERCURY	9/71	12.7	3.00E-04	7.84E-02		1.1E-03	mg/L	YES
NICKEL	46/71	64.8	6.20E-03	1.90E-01		7.2E-02	mg/L	YES
NIOBIUM	2/7	28.6	2.60E-02	2.90E-02			mg/L	
NITRATE (AS N)	65/102	63.7	1.10E-01	1.05E+02		5.8E+00	mg/L	YES
SILICON	32/32	100.0	8.10E-01	2.40E+01			mg/L	
SULFATE	102/102	100.0	1.00E+00	3.00E+02			mg/L	
TITANIUM	3/7	42.9	4.80E-02	2.90E-01			mg/L	
TOTAL URANIUM	82/101	81.2	1.00E-03	5.22E-01		1.1E-02	mg/L	YES
VANADIUM	18/71	25.4	2.70E-03	4.90E-02		2.1E-02	mg/L	YES
ZINC	59/71	83.1	1.30E-03	1.20E+00		1.1E+00	mg/L	YES
1,1,1-TRICHLOROETHANE	69/117	59.0	6.00E-04	5.10E-01		1.3E-01	mg/L	YES
1,1,2,2-TETRACHLOROETHANE	1/116	0.9	4.10E-02	4.10E-02	7.1E-05		mg/L	YES
1,1,2-TRICHLOROETHANE	5/116	4.3	3.00E-03	1.00E-02	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	82/116	70.7	2.00E-03	2.00E+00		8.1E-02	mg/L	YES
1,1-DICHLOROETHENE	77/117	65.8	1.00E-03	6.20E-01	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	13/116	11.2	5.00E-04	2.70E-02	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	56/85	65.9	7.00E-04	1.10E+00		3.3E-02	mg/L	YES
2-BUTANONE	13/117	11.1	5.00E-03	9.10E-02		1.9E-01	mg/L	NO
2-HEXANONE	3/117	2.6	1.00E-03	2.00E-03			mg/L	
4-METHYL-2-PENTANONE	2/117	1.7	2.00E-03	2.00E-03		1.6E-02	mg/L	NO
ACETONE	20/117	17.1	3.00E-03	8.60E-02		3.6E-01	mg/L	NO
BENZENE	35/116	30.2	4.00E-04	5.30E-02	4.9E-04		mg/L	YES
BIS(2-ETHYLHEXYL)PHTHALATE	1/5	20.0	2.00E-03	2.00E-03	4.7E-03	5.6E-02	mg/L	NO
CARBON DISULFIDE	3/116	2.6	1.00E-03	1.00E-03		1.0E-01	mg/L	NO
CARBON TETRACHLORIDE	11/117	9.4	2.00E-03	9.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROBENZENE	18/116	15.5	3.00E-04	8.00E-03		3.9E-03	mg/L	YES
CHLOROETHANE	10/117	8.5	1.00E-03	2.00E-02		2.1E+00	mg/L	NO
CHLOROFORM	25/116	21.6	6.00E-04	1.40E-01	2.1E-04	3.3E-02	mg/L	YES
DI-N-BUTYLPHTHALATE	2/5	40.0	1.00E-03	1.00E-03		2.9E-01	mg/L	NO
DIMETHYLBENZENE	7/116	6.0	1.00E-03	6.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	5/116	4.3	9.00E-04	2.00E-03		1.2E-01	mg/L	NO
FLUORANTHENE	3/5	60.0	1.00E-03	2.00E-03		3.8E-02	mg/L	NO
METHYLENE CHLORIDE	24/115	20.9	1.00E-03	3.40E+00	5.4E-03	1.6E-01	mg/L	YES

Table F.3. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: SANITARY LANDFILL 1

Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
PCB-1254	1/5	20.0	4.50E-04	4.50E-04		3.8E-05	mg/L	YES
PHENANTHRENE	2/5	40.0	1.00E-03	1.00E-03			mg/L	
PHENOLS	4/10	40.0	2.00E-03	6.00E-03			mg/L	
PYRENE	3/5	60.0	1.00E-03	2.00E-03		3.1E-02	mg/L	NO
TETRACHLOROETHENE	55/117	47.0	3.00E-04	1.60E+00	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	20/117	17.1	4.00E-04	4.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	28/31	90.3	6.00E-04	2.70E-01		7.3E-02	mg/L	YES
TRICHLOROETHENE	84/117	71.8	2.00E-03	2.00E+00	1.9E-03		mg/L	YES
VINYL ACETATE	3/111	2.7	2.00E-03	3.00E-03		4.1E-02	mg/L	NO
VINYL CHLORIDE	30/117	25.6	2.00E-03	7.30E-02	2.5E-05		mg/L	YES
CESIUM-137	1/9	11.1	4.60E+00	4.60E+00	1.5E+00		pCi/L	YES
LEAD-212	1/6	16.7	1.60E+01	1.60E+01	2.6E+00		pCi/L	YES
NEPTUNIUM-237	1/3	33.3	2.40E-01	2.40E-01	1.6E-01		pCi/L	YES
POTASSIUM-40	1/6	16.7	1.70E+02	1.70E+02	3.8E+00		pCi/L	YES
TECHNETIUM-99	1/9	11.1	3.60E+01	3.60E+01	3.4E+01		pCi/L	YES
THORIUM-228	4/9	44.4	1.20E+00	1.90E+00	2.1E-01		pCi/L	YES
THORIUM-230	6/9	66.7	2.90E-01	2.60E+00	1.3E+00		pCi/L	YES
THORIUM-232	1/9	11.1	1.00E+00	1.00E+00	1.5E+00		pCi/L	NO
URANIUM-234	9/9	100.0	2.60E-01	1.30E+03	1.1E+00		pCi/L	YES
URANIUM-235	5/9	55.6	4.60E+00	5.30E+01	1.0E+00		pCi/L	YES
URANIUM-238	8/9	88.9	3.50E+00	1.80E+03	7.7E-01		pCi/L	YES

Medium=SOIL

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BARIUM	5/5	100.0	6.93E+01	3.80E+02		5.5E+02	mg/kg	NO
CADMIUM	1/5	20.0	3.20E+00	3.20E+00	6.0E+03	7.8E+00	mg/kg	NO
COPPER	4/4	100.0	2.37E+01	2.52E+02			mg/kg	
LEAD	5/5	100.0	1.30E+01	2.01E+02		4.0E+02	mg/kg	NO
MERCURY	5/5	100.0	9.00E-02	4.15E+01		2.3E+00	mg/kg	YES
NICKEL	5/5	100.0	1.72E+01	6.18E+01		1.6E+02	mg/kg	NO
SILVER	3/5	60.0	4.00E+00	7.60E+00		3.9E+01	mg/kg	NO
TIN	3/5	60.0	2.60E+00	4.80E+00		4.7E+03	mg/kg	NO
ZINC	5/5	100.0	3.62E+01	4.70E+02		2.3E+03	mg/kg	NO
ACENAPHTHENE	1/5	20.0	3.20E-01	3.20E-01		4.7E+02	mg/kg	NO
ACENAPHTHYLENE	1/5	20.0	4.90E-02	4.90E-02			mg/kg	
ACETONE	4/5	80.0	1.80E-02	2.30E-01		7.8E+02	mg/kg	NO
ANTHRACENE	3/5	60.0	4.90E-02	1.10E+00		2.3E+03	mg/kg	NO
BENZO(A)ANTHRACENE	3/5	60.0	1.30E-01	5.70E+00	8.6E-01		mg/kg	YES
BENZO(A)PYRENE	3/5	60.0	1.10E-01	4.20E+00	8.6E-02		mg/kg	YES
BENZO(B)FLUORANTHENE	3/5	60.0	1.10E-01	5.80E+00	8.6E-01		mg/kg	YES
BENZO(GHI)PERYLENE	3/5	60.0	5.40E-02	1.70E+00			mg/kg	

Table F.3. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: SANITARY LANDFILL 1

Medium=SOIL (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BENZO(K)FLUORANTHENE	3/5	60.0	1.40E-01	3.90E+00	8.6E+00		mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	3/5	60.0	5.10E-02	3.20E+00	3.2E+01	1.6E+02	mg/kg	NO
CARBAZOLE	2/5	40.0	7.10E-02	3.10E-01	3.2E+01		mg/kg	NO
CHLOROFORM	1/5	20.0	1.00E-03	1.00E-03	1.8E+00	7.8E+01	mg/kg	NO
CHRYSENE	4/5	80.0	4.40E-02	5.30E+00	8.6E+01		mg/kg	NO
DI-N-BUTYLPHTHALATE	2/5	40.0	1.00E-01	1.10E-01		7.8E+02	mg/kg	NO
DIBENZO(A,H)ANTHRACENE	1/5	20.0	1.00E+00	1.00E+00	8.6E-02		mg/kg	YES
DIBENZOFURAN	1/5	20.0	1.30E-01	1.30E-01			mg/kg	
FLUORANTHENE	4/5	80.0	1.00E-01	1.10E+01		3.1E+02	mg/kg	NO
FLUORENE	2/5	40.0	8.30E-02	4.10E-01		3.1E+02	mg/kg	NO
INDENO(1,2,3-CD)PYRENE	3/5	60.0	6.70E-02	1.50E+00	8.6E-01		mg/kg	YES
PCB-1232	1/5	20.0	1.30E+00	1.30E+00	8.3E-02		mg/kg	YES
PCB-1254	2/5	40.0	7.50E-01	1.70E+00		1.6E-01	mg/kg	YES
PCB-1260	1/4	25.0	9.80E-02	9.80E-02	8.3E-02		mg/kg	YES
PHENANTHRENE	4/5	80.0	5.20E-02	4.90E+00			mg/kg	
PHENOL	1/5	20.0	5.00E-02	5.00E-02		4.7E+03	mg/kg	NO
PYRENE	4/5	80.0	7.70E-02	9.00E+00		2.3E+02	mg/kg	NO
TOLUENE	3/5	60.0	1.00E-03	1.10E-01		2.5E+02	mg/kg	NO
COBALT-60	1/5	20.0	1.30E+00	1.30E+00	4.5E-03		pCi/g	YES
URANIUM-234	5/5	100.0	1.10E+00	1.40E+01	1.8E+01		pCi/g	NO
URANIUM-235	4/5	80.0	5.30E-02	7.00E-01	1.6E-01		pCi/g	YES
URANIUM-238	5/5	100.0	1.10E+00	2.20E+01	7.8E-01		pCi/g	YES

Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	46/52	88.5	3.40E-02	7.75E+00			mg/L	
ARSENIC	5/43	11.6	1.80E-03	5.60E-02	5.6E-05	1.1E-03	mg/L	YES
BARIUM	52/52	100.0	3.25E-02	6.82E-01		2.5E-01	mg/L	YES
BORON	10/10	100.0	3.60E-02	1.20E-01		3.3E-01	mg/L	NO
CADMIUM	5/8	62.5	2.10E-03	8.60E-03		1.5E-03	mg/L	YES
CHLORIDE	52/52	100.0	1.00E+00	8.10E+01			mg/L	
COPPER	5/52	9.6	3.00E-03	1.20E-02			mg/L	
CYANIDE	2/42	4.8	1.01E-02	1.48E-02		6.6E-02	mg/L	NO
FLUORIDE	39/52	75.0	1.00E-01	2.60E+00		2.2E-01	mg/L	YES
LITHIUM	14/14	100.0	3.70E-03	1.75E-01			mg/L	
MERCURY	10/49	20.4	2.20E-04	5.30E-04		1.1E-03	mg/L	NO
NICKEL	16/52	30.8	4.20E-03	5.10E-02		7.2E-02	mg/L	NO
NITRATE (AS N)	38/52	73.1	1.20E-01	2.39E+02		5.8E+00	mg/L	YES
SELENIUM	1/43	2.3	7.10E-02	7.10E-02		1.8E-02	mg/L	YES
SILVER	2/52	3.8	6.10E-03	6.80E-03		1.8E-02	mg/L	NO
STRONTIUM	10/10	100.0	1.90E-01	9.70E-01		2.2E+00	mg/L	NO

Table F.3. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: SANITARY LANDFILL 1

Medium=SURFACE WATER
(continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
SULFATE	41/52	78.8	5.40E+00	1.14E+02			mg/L	
TOTAL URANIUM	10/10	100.0	8.50E-02	3.24E-01		1.1E-02	mg/L	YES
1,1,1-TRICHLOROETHANE	1/51	2.0	4.00E-04	4.00E-04		1.3E-01	mg/L	NO
2-BUTANONE	2/51	3.9	8.00E-03	1.00E-02		1.9E-01	mg/L	NO
2-HEXANONE	1/51	2.0	6.00E-03	6.00E-03			mg/L	
4-METHYL-2-PENTANONE	2/51	3.9	3.00E-03	6.00E-03		1.6E-02	mg/L	NO
ACETONE	3/37	8.1	2.00E-03	4.00E-03		3.6E-01	mg/L	NO
CARBON DISULFIDE	1/51	2.0	2.00E-03	2.00E-03		1.0E-01	mg/L	NO
CHLOROMETHANE	1/37	2.7	7.00E-03	7.00E-03	1.9E-03		mg/L	YES
METHYLENE CHLORIDE	1/51	2.0	1.00E-03	1.00E-03	5.4E-03	1.6E-01	mg/L	NO
TOLUENE	2/51	3.9	1.00E-03	2.00E-03		7.4E-02	mg/L	NO
STRONTIUM-90	3/13	23.1	1.01E+00	1.94E+00	8.5E-01		pCi/L	YES
TECHNETIUM-99	2/12	16.7	1.21E+02	2.90E+02	3.4E+01		pCi/L	YES
THORIUM-228	4/12	33.3	1.04E-01	3.10E-01	2.1E-01		pCi/L	YES
THORIUM-230	6/12	50.0	1.36E-01	1.95E+01	1.3E+00		pCi/L	YES
THORIUM-232	7/12	58.3	1.03E-01	1.79E+00	1.5E+00		pCi/L	YES
URANIUM-233/234	21/42	50.0	2.47E+01	4.55E+02	1.1E+00		pCi/L	YES
URANIUM-235	19/42	45.2	1.27E+00	2.74E+01	1.0E+00		pCi/L	YES
URANIUM-238	21/42	50.0	4.95E+01	9.96E+02	7.7E-01		pCi/L	YES

Table F.4. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BONEYARD/BURNYARD

Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	57/66	86.4	2.30E-02	4.30E+01			mg/L	
AMMONIA NITROGEN	1/3	33.3	3.53E+00	3.53E+00			mg/L	
BARIUM	71/71	100.0	5.60E-02	1.20E+00		2.5E-01	mg/L	YES
BERYLLIUM	17/71	23.9	3.00E-04	3.10E-03	1.6E-05	1.5E-02	mg/L	YES
BORON	65/65	100.0	3.00E-02	3.00E+00		3.3E-01	mg/L	YES
CADMIUM	9/73	12.3	2.00E-03	3.00E-02		1.5E-03	mg/L	YES
CHLORIDE	101/101	100.0	1.80E+00	2.12E+02			mg/L	
CHROMIUM	33/95	34.7	1.00E-02	4.10E-01		1.6E-02	mg/L	YES
COBALT	22/71	31.0	4.90E-03	1.40E-01			mg/L	
COPPER	32/71	45.1	4.20E-03	1.21E-01			mg/L	
FLUORIDE	26/82	31.7	1.00E-01	4.00E+00		2.2E-01	mg/L	YES
KJELDAHL NITROGEN	3/3	100.0	2.66E+00	4.90E+00			mg/L	
LEAD	53/99	53.5	1.20E-03	6.40E-01		1.5E-02	mg/L	YES
MANGANESE	72/74	97.3	2.40E-03	1.60E+01		4.8E-01	mg/L	YES
MERCURY	9/71	12.7	3.00E-04	7.84E-02		1.1E-03	mg/L	YES
NICKEL	46/71	64.8	6.20E-03	1.90E-01		7.2E-02	mg/L	YES
NIOBIUM	2/7	28.6	2.60E-02	2.90E-02			mg/L	
NITRATE (AS N)	65/102	63.7	1.10E-01	1.05E+02		5.8E+00	mg/L	YES
SILICON	32/32	100.0	8.10E-01	2.40E+01			mg/L	
SULFATE	102/102	100.0	1.00E+00	3.00E+02			mg/L	
TITANIUM	3/7	42.9	4.80E-02	2.90E-01			mg/L	
TOTAL URANIUM	82/101	81.2	1.00E-03	5.22E-01		1.1E-02	mg/L	YES
VANADIUM	18/71	25.4	2.70E-03	4.90E-02		2.1E-02	mg/L	YES
ZINC	59/71	83.1	1.30E-03	1.20E+00		1.1E+00	mg/L	YES
1,1,1-TRICHLOROETHANE	69/117	59.0	6.00E-04	5.10E-01		1.3E-01	mg/L	YES
1,1,2,2-TETRACHLOROETHANE	1/116	0.9	4.10E-02	4.10E-02	7.1E-05		mg/L	YES
1,1,2-TRICHLOROETHANE	5/116	4.3	3.00E-03	1.00E-02	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	82/116	70.7	2.00E-03	2.00E+00		8.1E-02	mg/L	YES
1,1-DICHLOROETHENE	77/117	65.8	1.00E-03	6.20E-01	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	13/116	11.2	5.00E-04	2.70E-02	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	56/85	65.9	7.00E-04	1.10E+00		3.3E-02	mg/L	YES
2-BUTANONE	13/117	11.1	5.00E-03	9.10E-02		1.9E-01	mg/L	NO
2-HEXANONE	3/117	2.6	1.00E-03	2.00E-03			mg/L	
4-METHYL-2-PENTANONE	2/117	1.7	2.00E-03	2.00E-03		1.6E-02	mg/L	NO
ACETONE	20/117	17.1	3.00E-03	8.60E-02		3.6E-01	mg/L	NO
BENZENE	35/116	30.2	4.00E-04	5.30E-02	4.9E-04		mg/L	YES
BIS(2-ETHYLHEXYL)PHTHALATE	1/5	20.0	2.00E-03	2.00E-03	4.7E-03	5.6E-02	mg/L	NO
CARBON DISULFIDE	3/116	2.6	1.00E-03	1.00E-03		1.0E-01	mg/L	NO
CARBON TETRACHLORIDE	11/117	9.4	2.00E-03	9.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROBENZENE	18/116	15.5	3.00E-04	8.00E-03		3.9E-03	mg/L	YES
CHLOROETHANE	10/117	8.5	1.00E-03	2.00E-02		2.1E+00	mg/L	NO
CHLOROFORM	25/116	21.6	6.00E-04	1.40E-01	2.1E-04	3.3E-02	mg/L	YES
DI-N-BUTYLPHTHALATE	2/5	40.0	1.00E-03	1.00E-03		2.9E-01	mg/L	NO
DIMETHYLBENZENE	7/116	6.0	1.00E-03	6.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	5/116	4.3	9.00E-04	2.00E-03		1.2E-01	mg/L	NO
FLUORANTHENE	3/5	60.0	1.00E-03	2.00E-03		3.8E-02	mg/L	NO
METHYLENE CHLORIDE	24/115	20.9	1.00E-03	3.40E+00	5.4E-03	1.6E-01	mg/L	YES

Table F.4. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BONEYARD/BURNYARD

Medium=GROUNDWATER
(continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
PCB-1254	1/5	20.0	4.50E-04	4.50E-04		3.8E-05	mg/L	YES
PHENANTHRENE	2/5	40.0	1.00E-03	1.00E-03			mg/L	
PHENOLS	4/10	40.0	2.00E-03	6.00E-03			mg/L	
PYRENE	3/5	60.0	1.00E-03	2.00E-03		3.1E-02	mg/L	NO
TETRACHLOROETHENE	55/117	47.0	3.00E-04	1.60E+00	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	20/117	17.1	4.00E-04	4.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	28/31	90.3	6.00E-04	2.70E-01		7.3E-02	mg/L	YES
TRICHLOROETHENE	84/117	71.8	2.00E-03	2.00E+00	1.9E-03		mg/L	YES
VINYL ACETATE	3/111	2.7	2.00E-03	3.00E-03		4.1E-02	mg/L	NO
VINYL CHLORIDE	30/117	25.6	2.00E-03	7.30E-02	2.5E-05		mg/L	YES
CESIUM-137	1/9	11.1	4.60E+00	4.60E+00	1.5E+00		pCi/L	YES
LEAD-212	1/6	16.7	1.60E+01	1.60E+01	2.6E+00		pCi/L	YES
NEPTUNIUM-237	1/3	33.3	2.40E-01	2.40E-01	1.6E-01		pCi/L	YES
POTASSIUM-40	1/6	16.7	1.70E+02	1.70E+02	3.8E+00		pCi/L	YES
TECHNETIUM-99	1/9	11.1	3.60E+01	3.60E+01	3.4E+01		pCi/L	YES
THORIUM-228	4/9	44.4	1.20E+00	1.90E+00	2.1E-01		pCi/L	YES
THORIUM-230	6/9	66.7	2.90E-01	2.60E+00	1.3E+00		pCi/L	YES
THORIUM-232	1/9	11.1	1.00E+00	1.00E+00	1.5E+00		pCi/L	NO
URANIUM-234	9/9	100.0	2.60E-01	1.30E+03	1.1E+00		pCi/L	YES
URANIUM-235	5/9	55.6	4.60E+00	5.30E+01	1.0E+00		pCi/L	YES
URANIUM-238	8/9	88.9	3.50E+00	1.80E+03	7.7E-01		pCi/L	YES

Medium=SOIL

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ANTIMONY	12/12	100.0	2.70E-01	1.65E+03		3.1E+00	mg/kg	YES
ARSENIC	15/15	100.0	2.10E+00	3.25E+01	4.3E-01	2.3E+00	mg/kg	YES
BARIUM	15/15	100.0	5.45E+01	1.10E+03		5.5E+02	mg/kg	YES
BERYLLIUM	14/15	93.3	6.00E-01	3.30E+00	6.3E-02	3.9E+01	mg/kg	YES
CADMIUM	11/15	73.3	8.70E-01	3.23E+01	6.0E+03	7.8E+00	mg/kg	YES
CHROMIUM	15/15	100.0	2.07E+01	1.40E+02	8.9E+02	3.9E+01	mg/kg	YES
COBALT	15/15	100.0	1.04E+01	1.31E+02			mg/kg	
COPPER	15/15	100.0	1.82E+01	6.22E+03			mg/kg	
CYANIDE	1/14	7.1	6.90E-01	6.90E-01		1.6E+02	mg/kg	NO
LEAD	15/15	100.0	1.62E+01	1.87E+03		4.0E+02	mg/kg	YES
MANGANESE	15/15	100.0	4.16E+02	2.68E+03		1.1E+03	mg/kg	YES
MERCURY	15/15	100.0	2.40E+00	7.77E+01		2.3E+00	mg/kg	YES
MOLYBDENUM	3/11	27.3	3.60E+01	5.03E+01		3.9E+01	mg/kg	YES
NICKEL	15/15	100.0	6.90E+00	1.06E+04		1.6E+02	mg/kg	YES
SELENIUM	4/13	30.8	7.60E-01	1.32E+02		3.9E+01	mg/kg	YES
SILVER	14/15	93.3	6.20E-01	6.15E+01		3.9E+01	mg/kg	YES
THALLIUM	1/15	6.7	8.70E-01	8.70E-01			mg/kg	

Table F.4. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BONEYARD/BURNYARD

Medium=SOIL
(continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TIN	10/14	71.4	3.30E+00	1.02E+02		4.7E+03	mg/kg	NO
ZINC	15/15	100.0	4.68E+01	4.38E+03		2.3E+03	mg/kg	YES
2,3,7,8-TCDD	2/3	66.7	9.10E-07	7.72E-06	4.3E-06		mg/kg	YES
2,4-DIMETHYLPHENOL	1/13	7.7	1.10E-01	1.10E-01		1.6E+02	mg/kg	NO
2-METHYLNAPHTHALENE	10/14	71.4	5.30E-02	2.60E+00			mg/kg	
4-METHYLPHENOL	1/13	7.7	1.40E-01	1.40E-01		3.9E+01	mg/kg	NO
ACENAPHTHENE	13/14	92.9	1.10E-01	6.70E+00		4.7E+02	mg/kg	NO
ACENAPHTHYLENE	8/12	66.7	5.30E-02	4.90E-01			mg/kg	
ACETONE	7/15	46.7	2.30E-02	1.10E-01		7.8E+02	mg/kg	NO
ANTHRACENE	13/14	92.9	2.20E-01	5.30E+01		2.3E+03	mg/kg	NO
BENZO(A)ANTHRACENE	14/14	100.0	9.20E-02	1.20E+02	8.6E-01		mg/kg	YES
BENZO(A)PYRENE	14/14	100.0	1.00E-01	7.60E+01	8.6E-02		mg/kg	YES
BENZO(B)FLUORANTHENE	14/14	100.0	1.20E-01	8.60E+01	8.6E-01		mg/kg	YES
BENZO(GHI)PERYLENE	14/14	100.0	5.80E-02	3.00E+01			mg/kg	
BENZO(K)FLUORANTHENE	14/14	100.0	1.20E-01	8.00E+01	8.6E+00		mg/kg	YES
BIS(2-ETHYLHEXYL)PHTHALATE	11/12	91.7	7.10E-02	6.00E-01	3.2E+01	1.6E+02	mg/kg	NO
BUTYLBENZYLPHTHALATE	2/10	20.0	4.30E-02	8.70E-02		1.6E+03	mg/kg	NO
CARBAZOLE	13/14	92.9	1.20E-01	2.50E+01	3.2E+01		mg/kg	NO
CHRYSENE	14/14	100.0	9.60E-02	1.20E+02	8.6E+01		mg/kg	YES
DI-N-BUTYLPHTHALATE	1/12	8.3	2.50E+00	2.50E+00		7.8E+02	mg/kg	NO
DIBENZO(A,H)ANTHRACENE	13/14	92.9	5.40E-02	1.20E+01	8.6E-02		mg/kg	YES
DIBENZOFURAN	13/14	92.9	6.80E-02	1.00E+01			mg/kg	
DIETHYLPHTHALATE	1/12	8.3	6.50E-02	6.50E-02		6.3E+03	mg/kg	NO
FLUORANTHENE	14/14	100.0	2.30E-01	2.70E+02		3.1E+02	mg/kg	NO
FLUORENE	13/14	92.9	1.80E-01	1.70E+01		3.1E+02	mg/kg	NO
INDENO(1,2,3-CD)PYRENE	14/14	100.0	6.30E-02	3.10E+01	8.6E-01		mg/kg	YES
NAPHTHALENE	13/14	92.9	5.70E-02	5.00E+00		2.8E+02	mg/kg	NO
PCB-1254	11/11	100.0	1.90E-01	5.80E+00		1.6E-01	mg/kg	YES
PCB-1260	3/10	30.0	3.60E-01	1.60E+00	8.3E-02		mg/kg	YES
PHENANTHRENE	14/14	100.0	1.20E-01	1.80E+02			mg/kg	
PHENOL	9/12	75.0	4.10E-02	2.80E-01		4.7E+03	mg/kg	NO
PYRENE	14/14	100.0	2.00E-01	2.10E+02		2.3E+02	mg/kg	NO
TETRACHLOROETHENE	1/16	6.3	5.00E-03	5.00E-03	1.2E+01	7.8E+01	mg/kg	NO
TOLUENE	12/16	75.0	2.00E-03	5.90E-01		2.5E+02	mg/kg	NO
STRONTIUM-90	3/14	21.4	5.80E-01	1.90E+00	1.4E+01		pCi/g	NO
TECHNETIUM-99	6/14	42.9	1.00E+01	7.70E+01	5.7E+02		pCi/g	NO
THORIUM-230	16/16	100.0	1.30E-01	7.10E+00	2.1E+01		pCi/g	NO
URANIUM-234	17/17	100.0	1.40E+00	2.60E+02	1.8E+01		pCi/g	YES
URANIUM-235	15/17	88.2	8.50E-02	1.70E+01	1.6E-01		pCi/g	YES
URANIUM-238	17/17	100.0	1.80E+00	8.80E+02	7.8E-01		pCi/g	YES

Table F.4. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BONEYARD/BURNYARD

Medium=SOIL (hot spot)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	1.98E+04	1.98E+04			mg/kg	
BARIUM	1/1	100.0	4.91E+02	4.91E+02		5.5E+02	mg/kg	NO
CALCIUM	1/1	100.0	2.90E+04	2.90E+04			mg/kg	
CHROMIUM	1/1	100.0	8.35E+01	8.35E+01	8.9E+02	3.9E+01	mg/kg	YES
COPPER	1/1	100.0	7.05E+02	7.05E+02			mg/kg	
IRON	1/1	100.0	4.68E+04	4.68E+04			mg/kg	
LEAD	1/1	100.0	7.05E+02	7.05E+02		4.0E+02	mg/kg	YES
MAGNESIUM	1/1	100.0	7.24E+03	7.24E+03			mg/kg	
MANGANESE	1/1	100.0	9.48E+02	9.48E+02		1.1E+03	mg/kg	NO
POTASSIUM	1/1	100.0	7.48E+03	7.48E+03			mg/kg	
SILVER	1/1	100.0	1.08E+02	1.08E+02		3.9E+01	mg/kg	YES
SODIUM	1/1	100.0	1.94E+03	1.94E+03			mg/kg	
ZINC	1/1	100.0	1.07E+03	1.07E+03		2.3E+03	mg/kg	NO
URANIUM-235	1/1	100.0	7.36E+02	7.36E+02	1.6E-01		pCi/g	YES
URANIUM-238	1/1	100.0	4.76E+04	4.76E+04	7.8E-01		pCi/g	YES

Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	46/52	88.5	3.40E-02	7.75E+00			mg/L	
ARSENIC	5/43	11.6	1.80E-03	5.60E-02	5.6E-05	1.1E-03	mg/L	YES
BARIUM	52/52	100.0	3.25E-02	6.82E-01		2.5E-01	mg/L	YES
BORON	10/10	100.0	3.60E-02	1.20E-01		3.3E-01	mg/L	NO
CADMIUM	5/8	62.5	2.10E-03	8.60E-03		1.5E-03	mg/L	YES
CHLORIDE	52/52	100.0	1.00E+00	8.10E+01			mg/L	
COPPER	5/52	9.6	3.00E-03	1.20E-02			mg/L	
CYANIDE	2/42	4.8	1.01E-02	1.48E-02		6.6E-02	mg/L	NO
FLUORIDE	39/52	75.0	1.00E-01	2.60E+00		2.2E-01	mg/L	YES
LITHIUM	14/14	100.0	3.70E-03	1.75E-01			mg/L	
MERCURY	10/49	20.4	2.20E-04	5.30E-04		1.1E-03	mg/L	NO
NICKEL	16/52	30.8	4.20E-03	5.10E-02		7.2E-02	mg/L	NO
NITRATE (AS N)	38/52	73.1	1.20E-01	2.39E+02		5.8E+00	mg/L	YES
SELENIUM	1/43	2.3	7.10E-02	7.10E-02		1.8E-02	mg/L	YES
SILVER	2/52	3.8	6.10E-03	6.80E-03		1.8E-02	mg/L	NO
STRONTIUM	10/10	100.0	1.90E-01	9.70E-01		2.2E+00	mg/L	NO
SULFATE	41/52	78.8	5.40E+00	1.14E+02			mg/L	
TOTAL URANIUM	10/10	100.0	8.50E-02	3.24E-01		1.1E-02	mg/L	YES
1,1,1-TRICHLOROETHANE	1/51	2.0	4.00E-04	4.00E-04		1.3E-01	mg/L	NO
2-BUTANONE	2/51	3.9	8.00E-03	1.00E-02		1.9E-01	mg/L	NO
2-HEXANONE	1/51	2.0	6.00E-03	6.00E-03			mg/L	
4-METHYL-2-PENTANONE	2/51	3.9	3.00E-03	6.00E-03		1.6E-02	mg/L	NO
ACETONE	3/37	8.1	2.00E-03	4.00E-03		3.6E-01	mg/L	NO
CARBON DISULFIDE	1/51	2.0	2.00E-03	2.00E-03		1.0E-01	mg/L	NO

Table F.4. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BONEYARD/BURNYARD

Medium=SURFACE WATER
(continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CHLOROMETHANE	1/37	2.7	7.00E-03	7.00E-03	1.9E-03		mg/L	YES
METHYLENE CHLORIDE	1/51	2.0	1.00E-03	1.00E-03	5.4E-03	1.6E-01	mg/L	NO
TOLUENE	2/51	3.9	1.00E-03	2.00E-03		7.4E-02	mg/L	NO
STRONTIUM-90	3/13	23.1	1.01E+00	1.94E+00	8.5E-01		pCi/L	YES
TECHNETIUM-99	2/12	16.7	1.21E+02	2.90E+02	3.4E+01		pCi/L	YES
THORIUM-228	4/12	33.3	1.04E-01	3.10E-01	2.1E-01		pCi/L	YES
THORIUM-230	6/12	50.0	1.36E-01	1.95E+01	1.3E+00		pCi/L	YES
THORIUM-232	7/12	58.3	1.03E-01	1.79E+00	1.5E+00		pCi/L	YES
URANIUM-233/234	21/42	50.0	2.47E+01	4.55E+02	1.1E+00		pCi/L	YES
URANIUM-235	19/42	45.2	1.27E+00	2.74E+01	1.0E+00		pCi/L	YES
URANIUM-238	21/42	50.0	4.95E+01	9.96E+02	7.7E-01		pCi/L	YES

Table F.5. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BURIAL GROUNDS

Location=13 - ALL BG AREAS (water) Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	72/84	85.7	2.00E-02	3.06E+01			mg/L	
ANTIMONY	1/97	1.0	1.10E-01	1.10E-01		1.3E-03	mg/L	YES
BARIUM	97/97	100.0	1.40E-02	1.20E+00		2.5E-01	mg/L	YES
BERYLLIUM	14/96	14.6	3.60E-04	2.70E-03	1.6E-05	1.5E-02	mg/L	YES
BORON	69/78	88.5	4.00E-03	3.10E+01		3.3E-01	mg/L	YES
CADMIUM	24/126	19.0	2.00E-03	5.20E-02		1.5E-03	mg/L	YES
CHLORIDE	134/136	98.5	1.00E+00	3.17E+02			mg/L	
CHROMIUM	48/127	37.8	1.00E-02	4.40E-01		1.6E-02	mg/L	YES
COBALT	18/97	18.6	3.40E-03	7.80E-02			mg/L	
COPPER	53/96	55.2	4.40E-03	6.60E+00			mg/L	
CYANIDE	1/6	16.7	2.20E-02	2.20E-02		6.6E-02	mg/L	NO
FLUORIDE	67/103	65.0	5.00E-02	7.60E+00		2.2E-01	mg/L	YES
LEAD	84/138	60.9	3.60E-03	7.00E-01		1.5E-02	mg/L	YES
LITHIUM	12/13	92.3	1.90E-03	9.90E-01			mg/L	
MANGANESE	97/103	94.2	1.20E-03	1.90E+01		4.8E-01	mg/L	YES
MERCURY	9/105	8.6	2.00E-04	1.00E-03		1.1E-03	mg/L	NO
NICKEL	41/97	42.3	9.80E-03	4.60E-01		7.2E-02	mg/L	YES
NIOBIUM	4/13	30.8	7.70E-03	1.40E-02			mg/L	
SILICON	45/45	100.0	1.90E+00	1.40E+01			mg/L	
VANADIUM	22/97	22.7	3.90E-03	4.46E-02		2.1E-02	mg/L	YES
ZINC	85/94	90.4	3.10E-03	4.30E-01		1.1E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	82/146	56.2	4.00E-04	1.30E+01		1.3E-01	mg/L	YES
1,1,2,2-TETRACHLOROETHANE	2/134	1.5	5.00E-03	2.40E-02	7.1E-05		mg/L	YES
1,1,2-TRICHLOROETHANE	15/135	11.1	2.00E-03	3.00E-01	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	97/146	66.4	7.00E-04	7.80E+00		8.1E-02	mg/L	YES
1,1-DICHLOROETHENE	71/145	49.0	8.00E-04	1.30E+01	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	51/136	37.5	8.00E-04	3.00E-01	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	74/105	70.5	5.00E-03	5.40E+00		3.3E-02	mg/L	YES
1,2-DICHLOROPROPANE	1/133	0.8	1.00E-03	1.00E-03	1.2E-03	8.3E-04	mg/L	YES
2-BUTANONE	20/136	14.7	3.00E-03	3.60E+00		1.9E-01	mg/L	YES
2-HEXANONE	10/136	7.4	1.00E-03	2.20E-01			mg/L	
4-METHYL-2-PENTANONE	13/138	9.4	1.00E-03	3.20E-01		1.6E-02	mg/L	YES
ACETONE	27/135	20.0	1.00E-03	8.50E-01		3.6E-01	mg/L	YES
BENZENE	57/137	41.6	6.00E-04	1.00E+00	4.9E-04		mg/L	YES
BROMODICHLOROMETHANE	1/133	0.8	2.00E-03	2.00E-03	1.4E-03	7.2E-02	mg/L	YES
BROMOFORM	6/134	4.5	2.00E-03	2.00E-02	1.1E-02	7.2E-02	mg/L	YES
CARBON DISULFIDE	6/134	4.5	1.00E-03	3.60E-02		1.0E-01	mg/L	NO
CARBON TETRACHLORIDE	6/134	4.5	8.00E-03	1.90E-01	2.1E-04	2.4E-03	mg/L	YES
CHLOROBENZENE	1/133	0.8	1.00E-03	1.00E-03		3.9E-03	mg/L	NO
CHLOROETHANE	30/135	22.2	1.00E-03	1.80E-01		2.1E+00	mg/L	NO
CHLOROFORM	41/138	29.7	8.00E-04	1.70E+00	2.1E-04	3.3E-02	mg/L	YES
CHLOROMETHANE	1/134	0.7	2.00E-03	2.00E-03	1.9E-03		mg/L	YES
CIS-1,3-DICHLOROPROPENE	2/133	1.5	1.00E-03	4.00E-03			mg/L	
DIMETHYLBENZENE	29/136	21.3	8.00E-04	1.30E-01		5.8E+00	mg/L	NO
ETHYLBENZENE	11/134	8.2	1.00E-03	3.30E-02		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	52/136	38.2	7.00E-04	4.90E-01	5.4E-03	1.6E-01	mg/L	YES
PHENOLS	12/32	37.5	1.00E-03	9.40E-02			mg/L	

Table F.5. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BURIAL GROUNDS

Location=13 - ALL BG AREAS (water) Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
STYRENE	1/134	0.7	1.20E-02	1.20E-02		1.1E-01	mg/L	NO
TETRACHLOROETHENE	102/147	69.4	7.00E-04	6.30E+01	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	36/136	26.5	3.00E-04	6.70E-01		7.4E-02	mg/L	YES
TRANS-1,2-DICHLOROETHENE	36/38	94.7	7.00E-03	5.00E+01		7.3E-02	mg/L	YES
TRANS-1,3-DICHLOROPROPENE	1/133	0.8	1.50E-02	1.50E-02			mg/L	
TRICHLOROETHENE	109/147	74.1	1.00E-03	2.40E+01	1.9E-03		mg/L	YES
TRICHLOROFLUOROMETHANE	2/6	33.3	1.20E-01	1.60E+00		1.3E-01	mg/L	YES
VINYL CHLORIDE	83/143	58.0	1.00E-03	3.40E+00	2.5E-05		mg/L	YES
CESIUM-137	2/12	16.7	8.70E+00	1.10E+01	1.5E+00		pCi/L	YES
POTASSIUM-40	1/6	16.7	1.60E+02	1.60E+02	3.8E+00		pCi/L	YES
TECHNETIUM-99	1/12	8.3	2.00E+01	2.00E+01	3.4E+01		pCi/L	NO
THORIUM-228	7/12	58.3	3.80E-01	2.00E+00	2.1E-01		pCi/L	YES
THORIUM-230	5/12	41.7	4.40E-01	1.20E+00	1.3E+00		pCi/L	NO
THORIUM-232	5/12	41.7	2.70E-01	1.40E+00	1.5E+00		pCi/L	NO
TRITIUM	1/6	16.7	6.20E+02	6.20E+02	5.8E+02		pCi/L	YES
URANIUM-234	7/12	58.3	1.50E-01	1.70E+00	1.1E+00		pCi/L	YES
URANIUM-235	1/12	8.3	1.50E-01	1.50E-01	1.0E+00		pCi/L	NO
URANIUM-238	6/12	50.0	4.60E-01	1.60E+00	7.7E-01		pCi/L	YES

Location=13 - ALL BG AREAS (water) Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	19/35	54.3	4.09E-02	3.01E+01			mg/L	
BERYLLIUM	6/35	17.1	3.80E-04	8.60E-03	1.6E-05	1.5E-02	mg/L	YES
CHLORIDE	35/35	100.0	1.70E+00	3.63E+01			mg/L	
COPPER	1/35	2.9	3.06E-02	3.06E-02			mg/L	
CYANIDE	2/35	5.7	1.39E-02	2.15E-02		6.6E-02	mg/L	NO
FLUORIDE	27/35	77.1	1.00E-01	8.70E-01		2.2E-01	mg/L	YES
LITHIUM	14/14	100.0	2.83E-02	1.88E-01			mg/L	
MERCURY	6/35	17.1	1.10E-04	4.50E-04		1.1E-03	mg/L	NO
NICKEL	6/35	17.1	3.10E-03	2.20E-02		7.2E-02	mg/L	NO
NITRATE (AS N)	30/35	85.7	1.10E-01	1.91E+01		5.8E+00	mg/L	YES
SULFATE	29/35	82.9	5.30E+00	7.88E+01			mg/L	
VANADIUM	10/35	28.6	4.00E-03	6.98E-02		2.1E-02	mg/L	YES
ZINC	10/35	28.6	6.90E-03	1.32E-01		1.1E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	33/34	97.1	2.00E-03	3.50E-02		1.3E-01	mg/L	NO
1,1,2-TRICHLOROETHANE	5/34	14.7	1.00E-03	2.00E-03	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	33/34	97.1	3.00E-03	2.70E-02		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	31/34	91.2	2.00E-03	1.60E-02	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	13/27	48.1	1.00E-03	4.00E-03	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	33/34	97.1	4.00E-03	4.10E-01		3.3E-02	mg/L	YES
ACETONE	2/27	7.4	7.00E-03	9.00E-03		3.6E-01	mg/L	NO

Table F.5. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BURIAL GROUNDS

Location=13 - ALL BG AREAS (water) Medium=SURFACE WATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BENZENE	7/34	20.6	1.00E-03	3.00E-03	4.9E-04		mg/L	YES
CARBON DISULFIDE	1/34	2.9	6.00E-03	6.00E-03		1.0E-01	mg/L	NO
CHLOROETHANE	1/34	2.9	9.30E-02	9.30E-02		2.1E+00	mg/L	NO
CHLOROFORM	31/34	91.2	1.00E-03	8.00E-03	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	8/34	23.5	1.00E-03	4.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	32/34	94.1	1.60E-02	1.20E-01	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	1/34	2.9	1.00E-03	1.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	32/34	94.1	8.00E-03	8.20E-02	1.9E-03		mg/L	YES
TRICHLOROFLUOROMETHANE	4/34	11.8	1.00E-03	4.00E-03		1.3E-01	mg/L	NO
VINYL CHLORIDE	32/34	94.1	3.00E-03	3.30E-02	2.5E-05		mg/L	YES
PLUTONIUM-238	1/6	16.7	2.23E-01	2.23E-01	1.6E-01		pCi/L	YES
POTASSIUM-40	1/2	50.0	1.30E+02	1.30E+02	3.8E+00		pCi/L	YES
THALLIUM-208	1/2	50.0	2.10E+01	2.10E+01	2.7E+03		pCi/L	NO
THORIUM-228	3/8	37.5	1.57E-01	4.80E-01	2.1E-01		pCi/L	YES
THORIUM-230	6/8	75.0	1.48E-01	5.70E-01	1.3E+00		pCi/L	NO
THORIUM-232	3/8	37.5	1.73E-01	3.80E-01	1.5E+00		pCi/L	NO
URANIUM-233/234	35/35	100.0	2.22E+00	5.60E+01	1.1E+00		pCi/L	YES
URANIUM-235	7/35	20.0	1.07E+00	6.20E+00	1.0E+00		pCi/L	YES
URANIUM-238	35/35	100.0	3.62E+00	4.40E+02	7.7E-01		pCi/L	YES

Location=A-16 Medium=SOIL

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BARIUM	2/2	100.0	1.66E+02	2.24E+02		5.5E+02	mg/kg	NO
SELENIUM	1/2	50.0	2.10E+00	2.10E+00		3.9E+01	mg/kg	NO
2-BUTANONE	1/2	50.0	4.20E-02	4.20E-02		2.4E+03	mg/kg	NO
ACETONE	1/1	100.0	3.00E-02	3.00E-02		7.8E+02	mg/kg	NO
BENZO(A)ANTHRACENE	1/1	100.0	8.70E-02	8.70E-02	8.6E-01		mg/kg	NO
BENZO(B)FLUORANTHENE	1/1	100.0	9.00E-02	9.00E-02	8.6E-01		mg/kg	NO
BENZO(K)FLUORANTHENE	1/1	100.0	9.40E-02	9.40E-02	8.6E+00		mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	9.10E-02	9.10E-02	3.2E+01	1.6E+02	mg/kg	NO
CHRYSENE	1/1	100.0	9.30E-02	9.30E-02	8.6E+01		mg/kg	NO
FLUORANTHENE	1/1	100.0	2.30E-01	2.30E-01		3.1E+02	mg/kg	NO
PCB-1248	1/2	50.0	4.00E-01	4.00E-01	8.3E-02		mg/kg	YES
PCB-1254	2/2	100.0	4.30E-02	3.70E-01		1.6E-01	mg/kg	YES
PHENANTHRENE	1/1	100.0	1.50E-01	1.50E-01			mg/kg	
PYRENE	1/1	100.0	2.20E-01	2.20E-01		2.3E+02	mg/kg	NO
TOLUENE	2/2	100.0	2.00E-03	6.30E-02		2.5E+02	mg/kg	NO
THALLIUM-208	1/2	50.0	3.70E+00	3.70E+00	3.0E-03		pCi/g	YES

Table F.5. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BURIAL GROUNDS

Location=A-16 Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TOTAL URANIUM				6.10E+02		2.3E+01	mg/kg	YES
URANIUM-234 (calc.)				2.07E+02	1.8E+01		pCi/g	YES
URANIUM-235 (calc.)				9.40E+00	1.6E-01		pCi/g	YES
URANIUM-238 (calc.)				2.02E+02	7.8E-01		pCi/g	YES

Location=A-17 Medium=SOIL

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BARIUM	2/2	100.0	1.66E+02	2.24E+02		5.5E+02	mg/kg	NO
SELENIUM	1/2	50.0	2.10E+00	2.10E+00		3.9E+01	mg/kg	NO
2-BUTANONE	1/2	50.0	4.20E-02	4.20E-02		2.4E+03	mg/kg	NO
ACETONE	1/1	100.0	3.00E-02	3.00E-02		7.8E+02	mg/kg	NO
BENZO(A)ANTHRACENE	1/1	100.0	8.70E-02	8.70E-02	8.6E-01		mg/kg	NO
BENZO(B)FLUORANTHENE	1/1	100.0	9.00E-02	9.00E-02	8.6E-01		mg/kg	NO
BENZO(K)FLUORANTHENE	1/1	100.0	9.40E-02	9.40E-02	8.6E+00		mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	9.10E-02	9.10E-02	3.2E+01	1.6E+02	mg/kg	NO
CHRYSENE	1/1	100.0	9.30E-02	9.30E-02	8.6E+01		mg/kg	NO
FLUORANTHENE	1/1	100.0	2.30E-01	2.30E-01		3.1E+02	mg/kg	NO
PCB-1248	1/2	50.0	4.00E-01	4.00E-01	8.3E-02		mg/kg	YES
PCB-1254	2/2	100.0	4.30E-02	3.70E-01		1.6E-01	mg/kg	YES
PHENANTHRENE	1/1	100.0	1.50E-01	1.50E-01			mg/kg	
PYRENE	1/1	100.0	2.20E-01	2.20E-01		2.3E+02	mg/kg	NO
TOLUENE	2/2	100.0	2.00E-03	6.30E-02		2.5E+02	mg/kg	NO
THALLIUM-208	1/2	50.0	3.70E+00	3.70E+00	3.0E-03		pCi/g	YES

Location=A-17 Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TOTAL URANIUM				6.10E+02		2.3E+01	mg/kg	YES
URANIUM-234 (calc.)				2.07E+02	1.8E+01		pCi/g	YES
URANIUM-235 (calc.)				9.40E+00	1.6E-01		pCi/g	YES
URANIUM-238 (calc.)				2.02E+02	7.8E-01		pCi/g	YES

Table F.5. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BURIAL GROUNDS

Location=A-18 Medium=SOIL

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BARIUM	2/2	100.0	1.66E+02	2.24E+02		5.5E+02	mg/kg	NO
SELENIUM	1/2	50.0	2.10E+00	2.10E+00		3.9E+01	mg/kg	NO
2-BUTANONE	1/2	50.0	4.20E-02	4.20E-02		2.4E+03	mg/kg	NO
ACETONE	1/1	100.0	3.00E-02	3.00E-02		7.8E+02	mg/kg	NO
BENZO(A)ANTHRACENE	1/1	100.0	8.70E-02	8.70E-02	8.6E-01		mg/kg	NO
BENZO(B)FLUORANTHENE	1/1	100.0	9.00E-02	9.00E-02	8.6E-01		mg/kg	NO
BENZO(K)FLUORANTHENE	1/1	100.0	9.40E-02	9.40E-02	8.6E+00		mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	9.10E-02	9.10E-02	3.2E+01	1.6E+02	mg/kg	NO
CHRYSENE	1/1	100.0	9.30E-02	9.30E-02	8.6E+01		mg/kg	NO
FLUORANTHENE	1/1	100.0	2.30E-01	2.30E-01		3.1E+02	mg/kg	NO
PCB-1248	1/2	50.0	4.00E-01	4.00E-01	8.3E-02		mg/kg	YES
PCB-1254	2/2	100.0	4.30E-02	3.70E-01		1.6E-01	mg/kg	YES
PHENANTHRENE	1/1	100.0	1.50E-01	1.50E-01			mg/kg	
PYRENE	1/1	100.0	2.20E-01	2.20E-01		2.3E+02	mg/kg	NO
TOLUENE	2/2	100.0	2.00E-03	6.30E-02		2.5E+02	mg/kg	NO
THALLIUM-208	1/2	50.0	3.70E+00	3.70E+00	3.0E-03		pCi/g	YES

Location=A-18 Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TOTAL URANIUM				6.10E+02		2.3E+01	mg/kg	YES
URANIUM-234 (calc.)				2.07E+02	1.8E+01		pCi/g	YES
URANIUM-235 (calc.)				9.40E+00	1.6E-01		pCi/g	YES
URANIUM-238 (calc.)				2.02E+02	7.8E-01		pCi/g	YES

Location=A-NORTH Medium=SOIL

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
SILVER	4/9	44.4	2.20E+00	3.80E+00		3.9E+01	mg/kg	NO
TIN	1/9	11.1	6.40E+00	6.40E+00		4.7E+03	mg/kg	NO
1,1,1-TRICHLOROETHANE	2/9	22.2	3.00E-03	1.90E-02		7.0E+02	mg/kg	NO
1,1-DICHLOROETHANE	2/9	22.2	2.00E-03	7.20E-02		5.6E-01	mg/kg	NO
1,1-DICHLOROETHENE	1/9	11.1	5.00E-03	5.00E-03	4.4E-02	7.0E+01	mg/kg	NO
1,2-DICHLOROETHANE	1/9	11.1	3.00E-03	3.00E-03	1.7E+00		mg/kg	NO
1,2-DICHLOROETHENE	1/9	11.1	7.00E-03	7.00E-03		7.0E+01	mg/kg	NO
4,4'-DDE	1/9	11.1	9.20E-04	9.20E-04	1.9E+00		mg/kg	NO
4,4'-DDT	1/9	11.1	1.00E-03	1.00E-03	1.9E+00	3.9E+00	mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/3	33.3	6.60E-02	6.60E-02	3.2E+01	1.6E+02	mg/kg	NO
CHLOROETHANE	1/9	11.1	1.70E-01	1.70E-01		1.5E+02	mg/kg	NO

Table F.5. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BURIAL GROUNDS

Location=A-NORTH Medium=SOIL (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
PCB-1254	4/9	44.4	2.00E-02	8.90E-02		1.6E-01	mg/kg	NO
PCB-1260	2/9	22.2	3.10E-02	3.70E-02	8.3E-02		mg/kg	NO
TOLUENE	4/9	44.4	1.00E-02	2.00E-01		2.5E+02	mg/kg	NO
VINYL CHLORIDE	1/9	11.1	6.00E-03	6.00E-03	2.4E-04		mg/kg	YES

Location=A-NORTH Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BERYLLIUM				3.00E-01	6.3E-02	3.9E+01	mg/kg	YES
LITHIUM				6.00E-01			mg/kg	
TECHNETIUM				1.40E-03			mg/kg	
THORIUM				3.10E+00			mg/kg	
TOTAL URANIUM				1.10E+04		2.3E+01	mg/kg	YES
ASBESTOS				7.30E+04			mg/kg	
MOP WATERS								
POLYCHLORINATED BIPHENYL				1.30E+03	8.3E-02		mg/kg	YES
WASTE OILS AND COOLANTS								
TECHNETIUM-99 (calc.)				2.39E+01	5.7E+02		pCi/g	NO
THORIUM-232 (calc.)				3.38E-01	2.4E+01		pCi/g	NO
URANIUM-234 (calc.)				3.73E+03	1.8E+01		pCi/g	YES
URANIUM-235 (calc.)				1.70E+02	1.6E-01		pCi/g	YES
URANIUM-238 (calc.)				3.64E+03	7.8E-01		pCi/g	YES

Location=A-SOUTH Medium=SOIL

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
MERCURY	3/7	42.9	9.40E-02	4.00E-01		2.3E+00	mg/kg	NO
SILVER	5/7	71.4	1.10E+00	4.00E+00		3.9E+01	mg/kg	NO
TIN	1/7	14.3	9.40E+00	9.40E+00		4.7E+03	mg/kg	NO
ACETONE	4/7	57.1	1.80E-02	1.10E-01		7.8E+02	mg/kg	NO
TETRACHLOROETHENE	2/7	28.6	2.00E-03	8.20E-02	1.2E+01	7.8E+01	mg/kg	NO
TOLUENE	2/7	28.6	2.00E-03	2.00E-03		2.5E+02	mg/kg	NO
TRICHLOROETHENE	1/7	14.3	6.00E-03	6.00E-03	1.5E+01		mg/kg	NO
TECHNETIUM-99	1/7	14.3	5.90E+00	5.90E+00	5.7E+02		pCi/g	NO
URANIUM-238	7/7	100.0	7.50E-02	3.90E+00	7.8E-01		pCi/g	YES

Table F.5. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BURIAL GROUNDS

Location=A-SOUTH Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BERYLLIUM				1.20E+00	6.3E-02	3.9E+01	mg/kg	YES
LITHIUM				1.10E+00			mg/kg	
TOTAL URANIUM				1.50E+04		2.3E+01	mg/kg	YES
1,1,1-TRICHLOROETHANE				9.60E+02		7.0E+02	mg/kg	YES
2-BUTANONE				6.20E+01		2.4E+03	mg/kg	NO
ASBESTOS								
BENZENE				1.40E+02	4.8E+00		mg/kg	YES
FREON				4.80E+02		2.1E+02	mg/kg	YES
FUEL-WATER								
METHANOL				3.80E+02		3.9E+03	mg/kg	NO
MOP WATERS								
POLYCHLORINATED BIPHENYL				2.10E+01	8.3E-02		mg/kg	YES
TETRACHLOROETHENE				8.90E+02	1.2E+01	7.8E+01	mg/kg	YES
TRICHLOROETHENE				8.50E+01	1.5E+01		mg/kg	YES
VARSOL				9.40E+02			mg/kg	
WASTE OILS AND COOLANTS								
URANIUM-234 (calc.)				5.09E+03	1.8E+01		pCi/g	YES
URANIUM-235 (calc.)				2.31E+02	1.6E-01		pCi/g	YES
URANIUM-238 (calc.)				4.96E+03	7.8E-01		pCi/g	YES

Location=B Medium=SOIL

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ARSENIC	4/4	100.0	1.10E+00	3.23E+01	4.3E-01	2.3E+00	mg/kg	YES
CYANIDE	2/4	50.0	1.70E+00	1.42E+02		1.6E+02	mg/kg	NO
SILVER	4/4	100.0	7.90E-01	3.10E+00		3.9E+01	mg/kg	NO
TIN	1/4	25.0	5.70E+00	5.70E+00		4.7E+03	mg/kg	NO
ZINC	4/4	100.0	3.05E+01	1.39E+02		2.3E+03	mg/kg	NO
1,4-DICHLOROBENZENE	1/2	50.0	9.20E-02	9.20E-02	2.7E+01	3.2E+01	mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/2	50.0	1.70E+00	1.70E+00	3.2E+01	1.6E+02	mg/kg	NO
DI-N-OCTYLPHTHALATE	1/2	50.0	6.30E-02	6.30E-02		1.6E+02	mg/kg	NO
PCB-1254	2/4	50.0	5.20E-02	1.00E+01		1.6E-01	mg/kg	YES
PCB-1260	1/4	25.0	3.60E+01	3.60E+01	8.3E-02		mg/kg	YES
PHENANTHRENE	1/2	50.0	9.90E-02	9.90E-02			mg/kg	
PYRENE	1/2	50.0	2.40E-01	2.40E-01		2.3E+02	mg/kg	NO
TOLUENE	3/4	75.0	1.00E-03	2.50E-01		2.5E+02	mg/kg	NO
TECHNETIUM-99	1/4	25.0	4.00E+01	4.00E+01	5.7E+02		pCi/g	NO
URANIUM-234	4/4	100.0	1.70E-01	5.80E+00	1.8E+01		pCi/g	NO
URANIUM-238	4/4	100.0	1.30E-01	1.10E+01	7.8E-01		pCi/g	YES

Table F.5. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BURIAL GROUNDS

Location=B Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
THORIUM				4.10E+02			mg/kg	
TOTAL URANIUM				3.00E+05		2.3E+01	mg/kg	YES
POLYCHLORINATED BIPHENYL					8.3E-02			
THORIUM-232 (calc.)				4.47E+01	2.4E+01		pCi/g	YES
URANIUM-234 (calc.)				1.02E+05	1.8E+01		pCi/g	YES
URANIUM-235 (calc.)				4.63E+03	1.6E-01		pCi/g	YES
URANIUM-238 (calc.)				9.92E+04	7.8E-01		pCi/g	YES

Location=C-EAST Medium=SOIL

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ARSENIC	2/2	100.0	5.30E+00	3.94E+01	4.3E-01	2.3E+00	mg/kg	YES
BERYLLIUM	2/2	100.0	7.30E-01	4.80E+00	6.3E-02	3.9E+01	mg/kg	YES
SELENIUM	2/2	100.0	1.30E+00	2.80E+00		3.9E+01	mg/kg	NO
VANADIUM	2/2	100.0	2.12E+01	6.88E+01		5.5E+01	mg/kg	YES
BIS(2-ETHYLHEXYL)PHTHALATE	1/2	50.0	8.60E-01	8.60E-01	3.2E+01	1.6E+02	mg/kg	NO
CHLOROETHANE	1/2	50.0	2.60E-02	2.60E-02		1.5E+02	mg/kg	NO
PCB-1254	2/2	100.0	2.20E-02	9.30E-02		1.6E-01	mg/kg	NO
TOLUENE	1/2	50.0	1.10E-01	1.10E-01		2.5E+02	mg/kg	NO
TECHNETIUM-99	2/2	100.0	1.10E+01	1.30E+02	5.7E+02		pCi/g	NO
URANIUM-234	2/2	100.0	2.20E+00	4.70E+00	1.8E+01		pCi/g	NO
URANIUM-238	2/2	100.0	8.00E+00	3.60E+01	7.8E-01		pCi/g	YES

Location=C-EAST Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BERYLLIUM				1.10E+03	6.3E-02	3.9E+01	mg/kg	YES
LITHIUM				2.80E+02			mg/kg	
THORIUM				5.30E+03			mg/kg	
TOTAL URANIUM				2.10E+04		2.3E+01	mg/kg	YES
ASBESTOS								
THORIUM-232 (calc.)				5.78E+02	2.4E+01		pCi/g	YES
URANIUM-234 (calc.)				7.13E+03	1.8E+01		pCi/g	YES
URANIUM-235 (calc.)				3.24E+02	1.6E-01		pCi/g	YES
URANIUM-238 (calc.)				6.94E+03	7.8E-01		pCi/g	YES

Table F.5. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BURIAL GROUNDS

Location=C-WEST Medium=SOIL

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ARSENIC	10/10	100.0	6.40E-01	4.23E+01	4.3E-01	2.3E+00	mg/kg	YES
COPPER	7/10	70.0	1.50E+01	4.50E+01			mg/kg	
MERCURY	4/10	40.0	1.20E-01	4.70E-01		2.3E+00	mg/kg	NO
NICKEL	10/10	100.0	5.20E+00	2.06E+02		1.6E+02	mg/kg	YES
TIN	3/10	30.0	3.60E+00	4.20E+00		4.7E+03	mg/kg	NO
ZINC	9/10	90.0	2.71E+01	1.99E+02		2.3E+03	mg/kg	NO
4-METHYL-2-PENTANONE	3/10	30.0	2.00E-03	5.00E-03		4.7E+02	mg/kg	NO
ACETONE	1/10	10.0	6.50E-02	6.50E-02		7.8E+02	mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/4	25.0	8.00E-02	8.00E-02	3.2E+01	1.6E+02	mg/kg	NO
PCB-1254	1/9	11.1	6.70E-01	6.70E-01		1.6E-01	mg/kg	YES
PCB-1260	1/9	11.1	2.30E+00	2.30E+00	8.3E-02		mg/kg	YES
PYRENE	1/4	25.0	6.90E-02	6.90E-02		2.3E+02	mg/kg	NO
TOLUENE	5/10	50.0	2.00E-03	3.60E-01		2.5E+02	mg/kg	NO
COBALT-60	1/10	10.0	1.20E+00	1.20E+00	4.5E-03		pCi/g	YES
TECHNETIUM-99	2/7	28.6	1.30E+01	4.40E+01	5.7E+02		pCi/g	NO
URANIUM-234	10/10	100.0	1.00E-01	5.20E+00	1.8E+01		pCi/g	NO
URANIUM-238	10/10	100.0	8.40E-02	2.30E+01	7.8E-01		pCi/g	YES

Location=C-WEST Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BERYLLIUM				1.10E+03	6.3E-02	3.9E+01	mg/kg	YES
LITHIUM				2.80E+02			mg/kg	
TECHNETIUM				1.60E-02			mg/kg	
THORIUM				3.10E+03			mg/kg	
TOTAL URANIUM				2.20E+04		2.3E+01	mg/kg	YES
ASBESTOS								
TECHNETIUM-99 (calc.)				2.73E+02	5.7E+02		pCi/g	NO
THORIUM-232 (calc.)				3.38E+02	2.4E+01		pCi/g	YES
URANIUM-234 (calc.)				7.47E+03	1.8E+01		pCi/g	YES
URANIUM-235 (calc.)				3.39E+02	1.6E-01		pCi/g	YES
URANIUM-238 (calc.)				7.27E+03	7.8E-01		pCi/g	YES

Location=D-EAST Medium=SOIL

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ARSENIC	2/2	100.0	5.30E+00	3.94E+01	4.3E-01	2.3E+00	mg/kg	YES
BERYLLIUM	2/2	100.0	7.30E-01	4.80E+00	6.3E-02	3.9E+01	mg/kg	YES
SELENIUM	2/2	100.0	1.30E+00	2.80E+00		3.9E+01	mg/kg	NO

Table F.5. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BURIAL GROUNDS

Location=D-EAST Medium=SOIL (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
VANADIUM	2/2	100.0	2.12E+01	6.88E+01		5.5E+01	mg/kg	YES
BIS(2-ETHYLHEXYL)PHTHALATE	1/2	50.0	8.60E-01	8.60E-01	3.2E+01	1.6E+02	mg/kg	NO
CHLOROETHANE	1/2	50.0	2.60E-02	2.60E-02		1.5E+02	mg/kg	NO
PCB-1254	2/2	100.0	2.20E-02	9.30E-02		1.6E-01	mg/kg	NO
TOLUENE	1/2	50.0	1.10E-01	1.10E-01		2.5E+02	mg/kg	NO
TECHNETIUM-99	2/2	100.0	1.10E+01	1.30E+02	5.7E+02		pCi/g	NO
URANIUM-234	2/2	100.0	2.20E+00	4.70E+00	1.8E+01		pCi/g	NO
URANIUM-238	2/2	100.0	8.00E+00	3.60E+01	7.8E-01		pCi/g	YES

Location=D-EAST Medium=SOIL (hot spot)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	1.39E+04	1.39E+04			mg/kg	
BARIUM	1/1	100.0	8.17E+01	8.17E+01		5.5E+02	mg/kg	NO
BERYLLIUM	1/1	100.0	5.90E-01	5.90E-01	6.3E-02	3.9E+01	mg/kg	YES
CALCIUM	1/1	100.0	5.14E+03	5.14E+03			mg/kg	
CHROMIUM	1/1	100.0	1.42E+01	1.42E+01	8.9E+02	3.9E+01	mg/kg	NO
COPPER	1/1	100.0	2.40E+01	2.40E+01			mg/kg	
IRON	1/1	100.0	7.44E+03	7.44E+03			mg/kg	
MAGNESIUM	1/1	100.0	1.35E+03	1.35E+03			mg/kg	
MANGANESE	1/1	100.0	9.89E+01	9.89E+01		1.1E+03	mg/kg	NO
NICKEL	1/1	100.0	2.25E+01	2.25E+01		1.6E+02	mg/kg	NO
POTASSIUM	1/1	100.0	4.17E+03	4.17E+03			mg/kg	
SILVER	1/1	100.0	5.30E+00	5.30E+00		3.9E+01	mg/kg	NO
SODIUM	1/1	100.0	2.21E+02	2.21E+02			mg/kg	
VANADIUM	1/1	100.0	1.05E+01	1.05E+01		5.5E+01	mg/kg	NO
ZINC	1/1	100.0	3.67E+01	3.67E+01		2.3E+03	mg/kg	NO
URANIUM-234	1/1	100.0	1.54E+05	1.54E+05	1.8E+01		pCi/g	YES
URANIUM-235	1/1	100.0	2.56E+03	2.56E+03	1.6E-01		pCi/g	YES
URANIUM-238	1/1	100.0	2.09E+05	2.09E+05	7.8E-01		pCi/g	YES

Location=D-EAST Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TOTAL URANIUM				2.40E+05		2.3E+01	mg/kg	YES
URANIUM-234 (calc.)				8.14E+04	1.8E+01		pCi/g	YES
URANIUM-235 (calc.)				3.70E+03	1.6E-01		pCi/g	YES
URANIUM-238 (calc.)				7.93E+04	7.8E-01		pCi/g	YES

Table F.5. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BURIAL GROUNDS

Location=D-SOUTH Medium=SOIL

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ARSENIC	4/4	100.0	1.10E+00	3.23E+01	4.3E-01	2.3E+00	mg/kg	YES
CYANIDE	2/4	50.0	1.70E+00	1.42E+02		1.6E+02	mg/kg	NO
SILVER	4/4	100.0	7.90E-01	3.10E+00		3.9E+01	mg/kg	NO
TIN	1/4	25.0	5.70E+00	5.70E+00		4.7E+03	mg/kg	NO
ZINC	4/4	100.0	3.05E+01	1.39E+02		2.3E+03	mg/kg	NO
1,4-DICHLOROBENZENE	1/2	50.0	9.20E-02	9.20E-02	2.7E+01	3.2E+01	mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/2	50.0	1.70E+00	1.70E+00	3.2E+01	1.6E+02	mg/kg	NO
DI-N-OCTYLPHTHALATE	1/2	50.0	6.30E-02	6.30E-02		1.6E+02	mg/kg	NO
PCB-1254	2/4	50.0	5.20E-02	1.00E+01		1.6E-01	mg/kg	YES
PCB-1260	1/4	25.0	3.60E+01	3.60E+01	8.3E-02		mg/kg	YES
PHENANTHRENE	1/2	50.0	9.90E-02	9.90E-02			mg/kg	
PYRENE	1/2	50.0	2.40E-01	2.40E-01		2.3E+02	mg/kg	NO
TOLUENE	3/4	75.0	1.00E-03	2.50E-01		2.5E+02	mg/kg	NO
TECHNETIUM-99	1/4	25.0	4.00E+01	4.00E+01	5.7E+02		pCi/g	NO
URANIUM-234	4/4	100.0	1.70E-01	5.80E+00	1.8E+01		pCi/g	NO
URANIUM-238	4/4	100.0	1.30E-01	1.10E+01	7.8E-01		pCi/g	YES

Location=D-SOUTH Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TOTAL URANIUM				2.40E+05		2.3E+01	mg/kg	YES
URANIUM-234 (calc.)				8.14E+04	1.8E+01		pCi/g	YES
URANIUM-235 (calc.)				3.70E+03	1.6E-01		pCi/g	YES
URANIUM-238 (calc.)				7.93E+04	7.8E-01		pCi/g	YES

Location=D-WEST,E,J Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TOTAL URANIUM				2.60E+05		2.3E+01	mg/kg	YES
URANIUM-234 (calc.)				8.82E+04	1.8E+01		pCi/g	YES
URANIUM-235 (calc.)				4.01E+03	1.6E-01		pCi/g	YES
URANIUM-238 (calc.)				8.60E+04	7.8E-01		pCi/g	YES

Table F.5. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BURIAL GROUNDS

Location=SEEP C-WEST TOE (Mid. MH) Medium=LEACHATE

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/2	50.0	3.00E-01	3.00E-01			mg/L	
BARIUM	2/2	100.0	3.80E-01	5.24E-01		2.5E-01	mg/L	YES
BERYLLIUM	1/2	50.0	3.00E-03	3.00E-03	1.6E-05	1.5E-02	mg/L	YES
BORON	2/2	100.0	5.60E+01	6.33E+01		3.3E-01	mg/L	YES
CALCIUM	2/2	100.0	1.16E+02	1.20E+02			mg/L	
COBALT	1/2	50.0	2.00E-02	2.00E-02			mg/L	
IRON	2/2	100.0	1.50E+01	8.41E+01			mg/L	
LITHIUM	2/2	100.0	1.28E+01	1.48E+01			mg/L	
MAGNESIUM	2/2	100.0	2.10E+01	2.12E+01			mg/L	
MANGANESE	2/2	100.0	8.83E+00	1.01E+01		4.8E-01	mg/L	YES
MERCURY	1/2	50.0	3.00E-04	3.00E-04		1.1E-03	mg/L	NO
MOLYBDENUM	1/2	50.0	3.00E-02	3.00E-02		1.8E-02	mg/L	YES
PHOSPHORUS	1/2	50.0	1.10E+00	1.10E+00			mg/L	
POTASSIUM	1/2	50.0	1.00E+01	1.00E+01			mg/L	
SODIUM	2/2	100.0	1.90E+01	2.14E+01			mg/L	
STRONTIUM	2/2	100.0	3.60E-01	3.62E-01		2.2E+00	mg/L	NO
TOTAL URANIUM	2/2	100.0	3.40E-02	4.40E-02		1.1E-02	mg/L	YES
1,1,1-TRICHLOROETHANE	2/2	100.0	3.00E-03	2.00E-02		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	2/2	100.0	6.80E-02	1.30E-01		8.1E-02	mg/L	YES
1,1-DICHLOROETHENE	1/2	50.0	8.00E-03	8.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2,4-TRICHLOROBENZENE	1/1	100.0	5.00E-03	5.00E-03		1.7E-02	mg/L	NO
1,2-DICHLORO-1,1,2-TRIFLUOROETHANE	1/1	100.0	2.70E-02	2.70E-02			mg/L	
1,2-DICHLOROETHANE	2/2	100.0	2.00E-03	7.00E-03	1.6E-04		mg/L	YES
1,3,5-CYCLOHEPTATRIENE	1/1	100.0	4.00E-03	4.00E-03			mg/L	
1,3-DICHLOROBENZENE	1/2	50.0	4.00E-03	4.00E-03			mg/L	
1,4-DICHLOROBENZENE	2/2	100.0	1.10E-02	1.40E-02	3.0E-03	1.7E-01	mg/L	YES
1,4-DIOXANE	1/1	100.0	1.90E-01	1.90E-01	7.7E-03		mg/L	YES
2,4-DIMETHYLPHENOL	1/1	100.0	5.20E-02	5.20E-02		4.8E-02	mg/L	YES
2-METHYL-2,4-PENTANEDIOL	1/1	100.0	2.70E-01	2.70E-01			mg/L	
3,5-DIMETHYLPHENOL	1/1	100.0	7.90E-02	7.90E-02			mg/L	
4-HYDROXY-4-METHYL-2-PENTANONE	1/1	100.0	1.20E-01	1.20E-01			mg/L	
ACETIC ACID, ETHYL ESTER	1/1	100.0	4.10E-02	4.10E-02		3.3E+00	mg/L	NO
ACETONE	1/1	100.0	2.10E-02	2.10E-02		3.6E-01	mg/L	NO
BENZENE	2/2	100.0	3.00E-03	3.90E-02	4.9E-04		mg/L	YES
BIS(2-BUTOXYETHYL)ETHER	1/1	100.0	9.20E-02	9.20E-02			mg/L	
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	7.00E-03	7.00E-03	4.7E-03	5.6E-02	mg/L	YES
CHLOROETHANE	2/2	100.0	5.80E-01	8.90E-01		2.1E+00	mg/L	NO
CIS-1,2-DICHLOROETHENE	2/2	100.0	2.80E-02	1.90E-01		3.6E-02	mg/L	YES
DICHLOROACETIC ACID	1/1	100.0	5.00E-03	5.00E-03			mg/L	
ETHANOL, 2-CHLORO-, PHOSPHATE (3:1)	1/1	100.0	5.60E-02	5.60E-02			mg/L	

Table F.5. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BURIAL GROUNDS

Location=SEEP C-WEST TOE (Mid. MH) Medium=LEACHATE (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
HEXADECANOIC ACID	1/1	100.0	3.10E-02	3.10E-02			mg/L	
METHYLENE CHLORIDE	2/2	100.0	8.00E-03	4.70E-02	5.4E-03	1.6E-01	mg/L	YES
N,N,4-TRIMETHYL-BENZENESULFONAMIDE	1/1	100.0	3.70E-02	3.70E-02			mg/L	
NAPHTHALENE	1/1	100.0	3.00E-03	3.00E-03		1.1E-01	mg/L	NO
POLYCHLORINATED BIPHENYL	2/2	100.0	4.90E-03	1.80E-02	5.7E-06		mg/L	YES
TETRACHLOROETHENE	1/2	50.0	8.00E-03	8.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	2/2	100.0	2.00E-03	5.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	2/2	100.0	1.00E-03	2.00E-03		7.3E-02	mg/L	NO
TRICHLOROETHENE	1/2	50.0	2.30E-02	2.30E-02	1.9E-03		mg/L	YES
VINYL CHLORIDE	2/2	100.0	9.00E-03	5.60E-02	2.5E-05		mg/L	YES
NEPTUNIUM-237	1/1	100.0	5.20E-01	5.20E-01	1.6E-01		pCi/L	YES
RADIUM (TOTAL ALPHA)	1/1	100.0	6.50E-01	6.50E-01	1.6E-01		pCi/L	YES
TECHNETIUM-99	1/1	100.0	1.10E+01	1.10E+01	3.4E+01		pCi/L	NO
TRITIUM	1/1	100.0	2.40E+03	2.40E+03	5.8E+02		pCi/L	YES
URANIUM-234	1/1	100.0	3.90E+00	3.90E+00	1.1E+00		pCi/L	YES
URANIUM-235	1/1	100.0	3.40E-01	3.40E-01	1.0E+00		pCi/L	NO
URANIUM-238	1/1	100.0	6.10E+00	6.10E+00	7.7E-01		pCi/L	YES

Location=SEEP1 Medium=LEACHATE

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,1-TRICHLOROETHANE	1/1	100.0	5.00E-02	5.00E-02		1.3E-01	mg/L	NO
1,1,2-TRICHLOROETHANE	1/1	100.0	3.00E-03	3.00E-03	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	1/1	100.0	4.00E-01	4.00E-01		8.1E-02	mg/L	YES
1,1-DICHLOROETHENE	1/1	100.0	1.30E-02	1.30E-02	1.3E-05	3.2E-02	mg/L	YES
1,2,4-TRICHLOROBENZENE	1/1	100.0	7.00E-03	7.00E-03		1.7E-02	mg/L	NO
1,2-DICHLOROBENZENE	1/1	100.0	1.00E-03	1.00E-03		3.6E-02	mg/L	NO
1,2-DICHLOROETHANE	1/1	100.0	7.00E-03	7.00E-03	1.6E-04		mg/L	YES
2,4-DIMETHYLPHENOL	1/1	100.0	2.10E-01	2.10E-01		4.8E-02	mg/L	YES
2,4-DINITROTOLUENE	1/1	100.0	1.00E-03	1.00E-03	1.2E-04	7.2E-03	mg/L	YES
2,6-DINITROTOLUENE	1/1	100.0	2.00E-03	2.00E-03	1.2E-04	3.6E-03	mg/L	YES
4-BROMOPHENYL PHENYL ETHER	1/1	100.0	1.00E-03	1.00E-03			mg/L	
BENZENE	1/1	100.0	1.90E-02	1.90E-02	4.9E-04		mg/L	YES
BENZIDINE	1/1	100.0	5.00E-03	5.00E-03	3.7E-07	1.1E-02	mg/L	YES
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	3.30E-02	3.30E-02	4.7E-03	5.6E-02	mg/L	YES
CHLOROFORM	1/1	100.0	4.00E-03	4.00E-03	2.1E-04	3.3E-02	mg/L	YES
CIS-1,2-DICHLOROETHENE	1/1	100.0	4.90E+00	4.90E+00		3.6E-02	mg/L	YES
DI-N-BUTYLPHTHALATE	1/1	100.0	2.00E-03	2.00E-03		2.9E-01	mg/L	NO
DI-N-OCTYLPHTHALATE	1/1	100.0	4.00E-03	4.00E-03		9.9E-04	mg/L	YES
DIBROMOCHLOROMETHANE	1/1	100.0	4.00E-03	4.00E-03	1.0E-03	7.2E-02	mg/L	YES
PENTACHLOROPHENOL	1/1	100.0	6.00E-03	6.00E-03	2.8E-04	4.3E-02	mg/L	YES
PHENOL	1/1	100.0	1.00E-03	1.00E-03		2.2E+00	mg/L	NO

Table F.5. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BURIAL GROUNDS

Location=SEEP1 Medium=LEACHATE (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
POLYCHLORINATED BIPHENYL	1/1	100.0	3.20E-01	3.20E-01	5.7E-06		mg/L	YES
TOLUENE	1/1	100.0	8.00E-03	8.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	1/1	100.0	2.20E-02	2.20E-02		7.3E-02	mg/L	NO
TRICHLOROETHENE	1/1	100.0	2.00E-03	2.00E-03	1.9E-03		mg/L	YES
VINYL CHLORIDE	1/1	100.0	9.90E-01	9.90E-01	2.5E-05		mg/L	YES
CESIUM-137	1/1	100.0	6.10E+00	6.10E+00	1.5E+00		pCi/L	YES
NEPTUNIUM-237	1/1	100.0	7.50E-01	7.50E-01	1.6E-01		pCi/L	YES
TECHNETIUM-99	1/1	100.0	2.30E+01	2.30E+01	3.4E+01		pCi/L	NO
THORIUM-230	1/1	100.0	3.20E-01	3.20E-01	1.3E+00		pCi/L	NO
URANIUM-234	1/1	100.0	6.30E+00	6.30E+00	1.1E+00		pCi/L	YES
URANIUM-238	1/1	100.0	4.70E+00	4.70E+00	7.7E-01		pCi/L	YES

Location=SEEP2 (S. Manhole) Medium=LEACHATE

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/2	50.0	1.59E+02	1.59E+02			mg/L	
ARSENIC	1/2	50.0	8.00E-01	8.00E-01	5.6E-05	1.1E-03	mg/L	YES
BARIUM	2/2	100.0	1.10E-01	2.89E+00		2.5E-01	mg/L	YES
BERYLLIUM	1/2	50.0	1.11E+00	1.11E+00	1.6E-05	1.5E-02	mg/L	YES
BORON	2/2	100.0	1.21E+01	1.75E+01		3.3E-01	mg/L	YES
CALCIUM	2/2	100.0	9.20E+01	5.31E+02			mg/L	
CERIUM	1/2	50.0	1.22E+00	1.22E+00			mg/L	
CHROMIUM	1/2	50.0	2.80E-01	2.80E-01		1.6E-02	mg/L	YES
COBALT	1/2	50.0	2.10E-01	2.10E-01			mg/L	
COPPER	1/2	50.0	6.40E-01	6.40E-01			mg/L	
IRON	1/2	50.0	1.29E+03	1.29E+03			mg/L	
LEAD	1/2	50.0	8.00E-01	8.00E-01		1.5E-02	mg/L	YES
LITHIUM	2/2	100.0	9.00E+00	1.19E+01			mg/L	
MAGNESIUM	2/2	100.0	1.50E+01	5.09E+01			mg/L	
MANGANESE	2/2	100.0	2.70E-01	1.87E+01		4.8E-01	mg/L	YES
MOLYBDENUM	1/2	50.0	7.00E-02	7.00E-02		1.8E-02	mg/L	YES
NICKEL	1/2	50.0	3.60E-01	3.60E-01		7.2E-02	mg/L	YES
PHOSPHORUS	1/2	50.0	9.10E+00	9.10E+00			mg/L	
POTASSIUM	1/2	50.0	1.80E+01	1.80E+01			mg/L	
SODIUM	2/2	100.0	4.00E+00	5.10E+00			mg/L	
STRONTIUM	2/2	100.0	4.10E-01	9.54E-01		2.2E+00	mg/L	NO
THORIUM	1/2	50.0	1.10E-01	1.10E-01			mg/L	
TITANIUM	1/2	50.0	1.02E+00	1.02E+00			mg/L	
TOTAL URANIUM	2/2	100.0	1.45E+00	1.49E+00		1.1E-02	mg/L	YES
VANADIUM	1/2	50.0	8.90E-01	8.90E-01		2.1E-02	mg/L	YES
ZINC	1/2	50.0	3.20E+00	3.20E+00		1.1E+00	mg/L	YES
ZIRCONIUM	1/2	50.0	1.60E-01	1.60E-01			mg/L	

Table F.5. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BURIAL GROUNDS

Location=SEEP2 (S. Manhole) Medium=LEACHATE (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,1-TRICHLOROETHANE	2/2	100.0	1.00E-03	5.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	2/2	100.0	3.10E-02	8.10E-02		8.1E-02	mg/L	YES
1,2-DICHLOROETHANE	2/2	100.0	1.00E-03	2.00E-03	1.6E-04		mg/L	YES
1,3,5-CYCLOHEPTATRIENE	1/1	100.0	5.00E-03	5.00E-03			mg/L	
1,4-DIOXANE	1/1	100.0	1.80E-01	1.80E-01	7.7E-03		mg/L	YES
2,4-DIMETHYLPHENOL	1/1	100.0	6.00E-03	6.00E-03		4.8E-02	mg/L	NO
4-HYDROXY-4-METHYL-2-PENTANONE	1/1	100.0	8.00E-02	8.00E-02			mg/L	
ACETONE	2/2	100.0	1.60E-02	1.90E-02		3.6E-01	mg/L	NO
BENZENE	1/2	50.0	4.00E-03	4.00E-03	4.9E-04		mg/L	YES
BIS(2-BUTOXYETHYL)ETHER	1/1	100.0	3.20E-02	3.20E-02			mg/L	
CHLOROETHANE	2/2	100.0	1.60E-01	6.40E-01		2.1E+00	mg/L	NO
CIS-1,2-DICHLOROETHENE	2/2	100.0	2.00E-02	3.10E-02		3.6E-02	mg/L	NO
DICHLOROACETIC ACID	2/2	100.0	4.00E-03	5.00E-03			mg/L	
HEXADECANOIC ACID	1/1	100.0	1.40E-02	1.40E-02			mg/L	
METHYLENE CHLORIDE	2/2	100.0	2.00E-02	5.60E-02	5.4E-03	1.6E-01	mg/L	YES
TOLUENE	2/2	100.0	1.00E-03	7.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	1/2	50.0	2.00E-03	2.00E-03		7.3E-02	mg/L	NO
VINYL CHLORIDE	2/2	100.0	3.00E-03	1.00E-02	2.5E-05		mg/L	YES
NEPTUNIUM-237	1/1	100.0	8.50E-01	8.50E-01	1.6E-01		pCi/L	YES
TECHNETIUM-99	1/1	100.0	1.10E+02	1.10E+02	3.4E+01		pCi/L	YES
TRITIUM	1/1	100.0	4.20E+03	4.20E+03	5.8E+02		pCi/L	YES
URANIUM-234	1/1	100.0	5.80E+01	5.80E+01	1.1E+00		pCi/L	YES
URANIUM-235	1/1	100.0	3.90E+00	3.90E+00	1.0E+00		pCi/L	YES
URANIUM-238	1/1	100.0	3.50E+02	3.50E+02	7.7E-01		pCi/L	YES

Location=SEEPS 3&4 (N. Manhole) Medium=LEACHATE

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	2/2	100.0	6.00E+00	1.70E+01			mg/L	
BARIUM	2/2	100.0	1.28E+00	2.22E+00		2.5E-01	mg/L	YES
BERYLLIUM	2/2	100.0	2.00E-02	3.30E-02	1.6E-05	1.5E-02	mg/L	YES
BORON	2/2	100.0	1.21E+02	1.26E+02		3.3E-01	mg/L	YES
CALCIUM	2/2	100.0	6.70E+01	6.74E+01			mg/L	
CERIUM	1/2	50.0	8.00E-02	8.00E-02			mg/L	
COBALT	1/2	50.0	6.00E-02	6.00E-02			mg/L	
COPPER	1/2	50.0	4.00E-02	4.00E-02			mg/L	
IRON	2/2	100.0	1.07E+02	3.50E+02			mg/L	
LITHIUM	2/2	100.0	3.17E+01	3.24E+01			mg/L	
MAGNESIUM	2/2	100.0	2.30E+01	2.31E+01			mg/L	
MANGANESE	2/2	100.0	1.06E+01	1.35E+01		4.8E-01	mg/L	YES
MOLYBDENUM	1/2	50.0	1.40E-01	1.40E-01		1.8E-02	mg/L	YES
NICKEL	1/2	50.0	5.00E-02	5.00E-02		7.2E-02	mg/L	NO

Table F.5. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BURIAL GROUNDS

Location=SEEPS 3&4 (N. Manhole) Medium=LEACHATE
(continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
PHOSPHORUS	2/2	100.0	4.00E+00	1.09E+01			mg/L	
POTASSIUM	1/2	50.0	1.80E+01	1.80E+01			mg/L	
SODIUM	2/2	100.0	3.40E+01	3.40E+01			mg/L	
STRONTIUM	2/2	100.0	3.40E-01	3.64E-01		2.2E+00	mg/L	NO
TITANIUM	1/2	50.0	1.70E-01	1.70E-01			mg/L	
TOTAL URANIUM	2/2	100.0	1.00E-02	1.00E-02		1.1E-02	mg/L	NO
VANADIUM	1/2	50.0	6.00E-02	6.00E-02		2.1E-02	mg/L	YES
ZINC	1/2	50.0	2.70E-01	2.70E-01		1.1E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	2/2	100.0	6.20E-02	1.20E-01		1.3E-01	mg/L	NO
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	2/2	100.0	5.50E-02	7.90E-02		5.9E+00	mg/L	NO
1,1,2-TRICHLOROETHANE	1/2	50.0	1.00E-03	1.00E-03	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	2/2	100.0	1.70E-01	4.10E-01		8.1E-02	mg/L	YES
1,1-DICHLOROETHENE	2/2	100.0	1.50E-02	3.00E-02	1.3E-05	3.2E-02	mg/L	YES
1,1-THIOBIS ETHANE	1/1	100.0	2.60E-02	2.60E-02			mg/L	
1,2-DICHLORO-1,1,2-TRIFLUOROETHANE	2/2	100.0	3.90E-02	7.30E-02			mg/L	
1,2-DICHLOROETHANE	2/2	100.0	6.00E-03	8.00E-03	1.6E-04		mg/L	YES
1,3-DICHLOROBENZENE	2/2	100.0	6.00E-03	6.00E-03			mg/L	
1,4-DICHLOROBENZENE	2/2	100.0	2.10E-02	2.60E-02	3.0E-03	1.7E-01	mg/L	YES
1,4-DIOXANE	1/1	100.0	2.00E-01	2.00E-01	7.7E-03		mg/L	YES
2,2,3,4-TETRAMETHYL-PENTANE	1/1	100.0	8.40E-02	8.40E-02			mg/L	
2,4,6-TRIMETHYL OCTANE	1/1	100.0	3.80E-02	3.80E-02			mg/L	
2-METHYL-2,4-PENTANEDIOL	1/1	100.0	1.10E-01	1.10E-01			mg/L	
3-(1,1-DIMETHYLETHYL)PHENOL	1/1	100.0	4.00E-02	4.00E-02			mg/L	
3-CHLORO-1-BUTYNE	1/1	100.0	4.00E-03	4.00E-03			mg/L	
4-(1,1-DIMETHYLETHYL)BENZOIC ACID	1/1	100.0	4.60E-02	4.60E-02			mg/L	
4-HYDROXY-4-METHYL-2-PENTANONE	1/1	100.0	7.80E-02	7.80E-02			mg/L	
ACETIC ACID, ETHYL ESTER	1/1	100.0	1.50E-01	1.50E-01		3.3E+00	mg/L	NO
ACETONE	1/1	100.0	3.00E-02	3.00E-02		3.6E-01	mg/L	NO
BENZENE	2/2	100.0	1.60E-02	5.30E-02	4.9E-04		mg/L	YES
BIS(2-BUTOXYETHYL)ETHER	1/1	100.0	2.49E-01	2.49E-01			mg/L	
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	6.00E-03	6.00E-03	4.7E-03	5.6E-02	mg/L	YES
CHLOROETHANE	2/2	100.0	7.00E-01	1.77E+00		2.1E+00	mg/L	NO
CIS-1,2-DICHLOROETHENE	2/2	100.0	3.80E-01	9.20E-01		3.6E-02	mg/L	YES
DIMETHYLBENZENE	1/1	100.0	5.00E-03	5.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	1/2	50.0	2.00E-03	2.00E-03		1.2E-01	mg/L	NO
HEXADECANOIC ACID	1/1	100.0	2.90E-02	2.90E-02			mg/L	
METHYLENE CHLORIDE	2/2	100.0	1.50E-02	3.30E-02	5.4E-03	1.6E-01	mg/L	YES
PHOSPHORIC ACID, TRIBUTYL ESTER	1/1	100.0	4.00E-02	4.00E-02			mg/L	
POLYCHLORINATED BIPHENYL	2/2	100.0	2.60E-03	9.50E-03	5.7E-06		mg/L	YES
TETRACHLOROETHENE	2/2	100.0	9.00E-03	1.80E-02	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	2/2	100.0	7.00E-03	2.00E-02		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	2/2	100.0	3.00E-03	8.00E-03		7.3E-02	mg/L	NO
TRICHLOROETHENE	2/2	100.0	6.00E-03	2.10E-02	1.9E-03		mg/L	YES
VINYL CHLORIDE	2/2	100.0	8.40E-02	1.80E-01	2.5E-05		mg/L	YES
URANIUM-234 (calc.)	2/2	100.0	3.43E+00	3.43E+00	1.1E+00		pCi/L	YES
URANIUM-235 (calc.)	2/2	100.0	1.56E-01	1.56E-01	1.0E+00		pCi/L	NO

Table F.5. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BURIAL GROUNDS

Location=SEEPS 3&4 (N. Manhole) Medium=LEACHATE (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
URANIUM-238 (calc.)	2/2	100.0	3.34E+00	3.34E+00	7.7E-01		pCi/L	YES

Location=WIP-NORTH Medium=SOIL

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ARSENIC	4/4	100.0	1.10E+00	3.23E+01	4.3E-01	2.3E+00	mg/kg	YES
CYANIDE	2/4	50.0	1.70E+00	1.42E+02		1.6E+02	mg/kg	NO
SILVER	4/4	100.0	7.90E-01	3.10E+00		3.9E+01	mg/kg	NO
TIN	1/4	25.0	5.70E+00	5.70E+00		4.7E+03	mg/kg	NO
ZINC	4/4	100.0	3.05E+01	1.39E+02		2.3E+03	mg/kg	NO
1,4-DICHLOROBENZENE	1/2	50.0	9.20E-02	9.20E-02	2.7E+01	3.2E+01	mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/2	50.0	1.70E+00	1.70E+00	3.2E+01	1.6E+02	mg/kg	NO
DI-N-OCTYLPHTHALATE	1/2	50.0	6.30E-02	6.30E-02		1.6E+02	mg/kg	NO
PCB-1254	2/4	50.0	5.20E-02	1.00E+01		1.6E-01	mg/kg	YES
PCB-1260	1/4	25.0	3.60E+01	3.60E+01	8.3E-02		mg/kg	YES
PHENANTHRENE	1/2	50.0	9.90E-02	9.90E-02			mg/kg	
PYRENE	1/2	50.0	2.40E-01	2.40E-01		2.3E+02	mg/kg	NO
TOLUENE	3/4	75.0	1.00E-03	2.50E-01		2.5E+02	mg/kg	NO
TECHNETIUM-99	1/4	25.0	4.00E+01	4.00E+01	5.7E+02		pCi/g	NO
URANIUM-234	4/4	100.0	1.70E-01	5.80E+00	1.8E+01		pCi/g	NO
URANIUM-238	4/4	100.0	1.30E-01	1.10E+01	7.8E-01		pCi/g	YES

Location=WIP-NORTH Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM				3.00E-01			mg/kg	
AMMONIA COMPOUNDS				5.00E-01			mg/kg	
ARSENIC				4.00E-03	4.3E-01	2.3E+00	mg/kg	NO
BERYLLIUM				2.60E+01	6.3E-02	3.9E+01	mg/kg	YES
BROMINE				1.00E+00			mg/kg	
CHROMIUM COMPOUNDS				4.40E+00	8.9E+02	3.9E+01	mg/kg	NO
CYANIDE				2.00E-02		1.6E+02	mg/kg	NO
LEAD				6.00E+00		4.0E+02	mg/kg	NO
LITHIUM				2.90E+00			mg/kg	
MERCURIC CHLORIDE				1.70E+01		2.3E+00	mg/kg	YES
NICKEL				5.20E+00		1.6E+02	mg/kg	NO
THORIUM				5.80E+02			mg/kg	
TOTAL URANIUM				7.20E+04		2.3E+01	mg/kg	YES

Table F.5. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BURIAL GROUNDS

Location=WIP-NORTH Medium=WASTE INVENTORY (soil) (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
2-BUTANONE						2.4E+03		
4,4'-DDT				4.90E+00	1.9E+00	3.9E+00	mg/kg	YES
4-METHYL-2-PENTANONE						4.7E+02		
ACETIC ACID				6.00E-01			mg/kg	
ACETONE						7.8E+02		
ALIZARIN				1.00E-03			mg/kg	
ASBESTOS								
BENZENE				1.30E+02	4.8E+00		mg/kg	YES
BENZIDINE				3.10E+01	2.8E-03	2.3E+01	mg/kg	YES
CARBON TETRACHLORIDE					2.1E+00	5.5E+00		
CHLOROFORM				1.00E-02	1.8E+00	7.8E+01	mg/kg	NO
CYCLOHEXANE								
DIMETHYLBENZENE						1.6E+04		
EPOXYS				9.50E+01			mg/kg	
ETHER				6.00E-01		1.6E+03	mg/kg	NO
ETHYL ALCOHOL				1.00E-01			mg/kg	
FORMALDEHYDE				4.00E-01	8.1E+05	1.6E+03	mg/kg	NO
HYDRAZINE				9.00E-02	2.1E-01		mg/kg	NO
METHANOL						3.9E+03		
PHENOL				4.70E+01		4.7E+03	mg/kg	NO
PICRIC ACID								
POLYCHLORINATED BIPHENYL				1.70E+00	8.3E-02		mg/kg	YES
TOLUENE						2.5E+02		
TRICHLOROETHANE				7.70E+00	4.1E+00	3.1E+01	mg/kg	YES
WASTE OILS				7.70E+01			mg/kg	
THORIUM-232 (calc.)				6.32E+01	2.4E+01		pCi/g	YES
URANIUM-234 (calc.)				2.44E+04	1.8E+01		pCi/g	YES
URANIUM-235 (calc.)				1.11E+03	1.6E-01		pCi/g	YES
URANIUM-238 (calc.)				2.38E+04	7.8E-01		pCi/g	YES

Location=WIP-SOUTH Medium=SOIL

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ARSENIC	4/4	100.0	1.10E+00	3.23E+01	4.3E-01	2.3E+00	mg/kg	YES
CYANIDE	2/4	50.0	1.70E+00	1.42E+02		1.6E+02	mg/kg	NO
SILVER	4/4	100.0	7.90E-01	3.10E+00		3.9E+01	mg/kg	NO
TIN	1/4	25.0	5.70E+00	5.70E+00		4.7E+03	mg/kg	NO
ZINC	4/4	100.0	3.05E+01	1.39E+02		2.3E+03	mg/kg	NO
1,4-DICHLOROBENZENE	1/2	50.0	9.20E-02	9.20E-02	2.7E+01	3.2E+01	mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/2	50.0	1.70E+00	1.70E+00	3.2E+01	1.6E+02	mg/kg	NO
DI-N-OCTYLPHTHALATE	1/2	50.0	6.30E-02	6.30E-02		1.6E+02	mg/kg	NO
PCB-1254	2/4	50.0	5.20E-02	1.00E+01		1.6E-01	mg/kg	YES

Table F.5. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BURIAL GROUNDS

Location=WIP-SOUTH Medium=SOIL (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
PCB-1260	1/4	25.0	3.60E+01	3.60E+01	8.3E-02		mg/kg	YES
PHENANTHRENE	1/2	50.0	9.90E-02	9.90E-02			mg/kg	
PYRENE	1/2	50.0	2.40E-01	2.40E-01		2.3E+02	mg/kg	NO
TOLUENE	3/4	75.0	1.00E-03	2.50E-01		2.5E+02	mg/kg	NO
TECHNETIUM-99	1/4	25.0	4.00E+01	4.00E+01	5.7E+02		pCi/g	NO
URANIUM-234	4/4	100.0	1.70E-01	5.80E+00	1.8E+01		pCi/g	NO
URANIUM-238	4/4	100.0	1.30E-01	1.10E+01	7.8E-01		pCi/g	YES

Location=WIP-SOUTH Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CHROMIUM				4.70E+01	8.9E+02	3.9E+01	mg/kg	YES
MERCURY				2.00E+00		2.3E+00	mg/kg	NO
MIXED ACIDS (HCL)				8.00E+01		1.0E+06	mg/kg	NO
TOTAL URANIUM				7.50E+04		2.3E+01	mg/kg	YES
URANIUM-234 (calc.)				2.55E+04	1.8E+01		pCi/g	YES
URANIUM-235 (calc.)				1.16E+03	1.6E-01		pCi/g	YES
URANIUM-238 (calc.)				2.48E+04	7.8E-01		pCi/g	YES

Table F.6. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: FLOODPLAIN (western BCV)

Medium=FISH

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
MERCURY	35/35	100.0	1.60E-01	1.30E+00		1.4E-02	mg/kg	YES
PCB-1254	35/35	100.0	1.30E-02	7.70E-01		2.7E-03	mg/kg	YES
PCB-1260	35/35	100.0	2.00E-02	8.90E-01	4.1E-04		mg/kg	YES

Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	52/52	100.0	2.50E-02	1.40E+00		3.3E-01	mg/L	YES
CHLORIDE	52/52	100.0	7.90E+00	2.18E+03			mg/L	
STRONTIUM	52/52	100.0	6.50E-02	1.50E+01		2.2E+00	mg/L	YES
SULFATE	52/52	100.0	6.00E+00	2.83E+03			mg/L	
2-BUTANONE	1/58	1.7	1.60E-02	1.60E-02		1.9E-01	mg/L	NO
CESIUM-137	3/6	50.0	5.60E+00	8.80E+00	1.5E+00		pCi/L	YES
RADIUM (TOTAL ALPHA)	4/6	66.7	8.80E-01	5.40E+00	1.6E-01		pCi/L	YES
RADIUM-228	2/6	33.3	2.40E+00	7.80E+00	1.9E-01		pCi/L	YES
TECHNETIUM-99	1/6	16.7	8.00E+00	8.00E+00	3.4E+01		pCi/L	NO
THORIUM-228	2/6	33.3	2.60E-01	9.20E-01	2.1E-01		pCi/L	YES
THORIUM-230	4/6	66.7	3.80E-01	6.50E-01	1.3E+00		pCi/L	NO
URANIUM-234	3/6	50.0	5.80E-01	1.50E+00	1.1E+00		pCi/L	YES
URANIUM-238	2/6	33.3	3.40E-01	1.00E+00	7.7E-01		pCi/L	YES

Medium=SEDIMENT

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	8/8	100.0	2.79E+03	1.57E+04			mg/kg	
ARSENIC	6/8	75.0	2.10E+00	1.75E+01	4.3E-01	2.3E+00	mg/kg	YES
BERYLLIUM	5/8	62.5	5.90E-01	1.60E+00	6.3E-02	3.9E+01	mg/kg	YES
CADMIUM	3/8	37.5	5.30E-01	5.10E+00	6.0E+03	7.8E+00	mg/kg	NO
CHROMIUM	8/8	100.0	3.10E+00	1.30E+02	8.9E+02	3.9E+01	mg/kg	YES
COBALT	8/8	100.0	3.70E-01	3.39E+01			mg/kg	
COPPER	8/8	100.0	3.70E+00	2.54E+01			mg/kg	
LEAD	8/8	100.0	1.21E+01	5.94E+01		4.0E+02	mg/kg	NO
LITHIUM	7/8	87.5	4.50E+00	6.90E+01			mg/kg	
MANGANESE	8/8	100.0	1.01E+02	2.76E+03		1.1E+03	mg/kg	YES
NICKEL	8/8	100.0	1.10E+00	4.68E+01		1.6E+02	mg/kg	NO
SELENIUM	4/8	50.0	2.00E+00	3.90E+00		3.9E+01	mg/kg	NO
VANADIUM	8/8	100.0	5.30E+00	5.35E+01		5.5E+01	mg/kg	NO
ZINC	8/8	100.0	8.80E+00	1.15E+02		2.3E+03	mg/kg	NO
2,4,5-T	3/8	37.5	2.80E-03	8.60E-03		7.8E+01	mg/kg	NO

Table F.6. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: FLOODPLAIN (western BCV)

Medium=SEDIMENT (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
4,4'-DDD	3/8	37.5	3.30E-04	1.30E-03	2.7E+00		mg/kg	NO
4,4'-DDE	5/8	62.5	8.30E-05	6.20E-03	1.9E+00		mg/kg	NO
4,4'-DDT	2/8	25.0	4.30E-04	4.80E-04	1.9E+00	3.9E+00	mg/kg	NO
4-METHYLPHENOL	1/8	12.5	2.60E-01	2.60E-01		3.9E+01	mg/kg	NO
ALDRIN	2/8	25.0	1.40E-04	2.10E-04	3.8E-02	2.3E-01	mg/kg	NO
ALPHA-BHC	2/8	25.0	2.20E-04	2.90E-04	1.0E-01		mg/kg	NO
ALPHA-CHLORDANE	4/8	50.0	6.60E-05	5.80E-04	4.9E-01	4.7E-01	mg/kg	NO
BENZO(A)ANTHRACENE	5/8	62.5	3.80E-02	1.40E-01	8.6E-01		mg/kg	NO
BENZO(A)PYRENE	3/8	37.5	4.50E-02	1.10E-01	8.6E-02		mg/kg	YES
BENZO(B)FLUORANTHENE	5/8	62.5	6.70E-02	1.90E-01	8.6E-01		mg/kg	NO
BENZO(GHI)PERYLENE	2/8	25.0	6.10E-02	7.90E-02			mg/kg	
BENZO(K)FLUORANTHENE	5/8	62.5	7.10E-02	2.00E-01	8.6E+00		mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	2/8	25.0	3.20E-02	6.40E-02	3.2E+01	1.6E+02	mg/kg	NO
CHRYSENE	4/8	50.0	3.60E-02	1.50E-01	8.6E+01		mg/kg	NO
DELTA-BHC	1/8	12.5	3.50E-03	3.50E-03			mg/kg	
DI-N-BUTYLPHTHALATE	6/8	75.0	8.20E-02	1.50E-01		7.8E+02	mg/kg	NO
ENDOSULFAN I	2/8	25.0	3.30E-04	7.50E-04			mg/kg	
ENDOSULFAN II	1/8	12.5	1.20E-03	1.20E-03			mg/kg	
ENDOSULFAN SULFATE	2/8	25.0	1.70E-03	3.80E-03			mg/kg	
ENDRIN	2/8	25.0	2.10E-04	5.80E-04		8.0E-01	mg/kg	NO
ENDRIN ALDEHYDE	6/8	75.0	2.10E-04	9.20E-03			mg/kg	
FLUORANTHENE	5/8	62.5	6.20E-02	2.60E-01		3.1E+02	mg/kg	NO
GAMMA-CHLORDANE	3/8	37.5	9.30E-05	4.40E-04	4.9E-01	4.7E-01	mg/kg	NO
HEPTACHLOR	1/8	12.5	3.80E-04	3.80E-04	1.4E-01	3.9E+00	mg/kg	NO
HEPTACHLOR EPOXIDE	1/8	12.5	1.10E-03	1.10E-03	7.0E-02	1.0E-01	mg/kg	NO
INDENO(1,2,3-CD)PYRENE	2/8	25.0	6.50E-02	7.20E-02	8.6E-01		mg/kg	NO
METHOXYCHLOR	5/8	62.5	5.10E-04	2.40E-03		3.9E+01	mg/kg	NO
PCB-1254	3/8	37.5	1.70E-02	1.20E+00		1.6E-01	mg/kg	YES
PCB-1260	4/8	50.0	3.80E-02	2.40E-01	8.3E-02		mg/kg	YES
PHENANTHRENE	3/8	37.5	7.20E-02	1.50E-01			mg/kg	
PYRENE	5/8	62.5	6.10E-02	2.40E-01		2.3E+02	mg/kg	NO
AMERICIUM-241	1/8	12.5	7.00E-02	7.00E-02	2.2E+00		pCi/g	NO
CURIUM-244	1/8	12.5	3.00E-01	3.00E-01	3.8E+00		pCi/g	NO
THORIUM-230	8/8	100.0	4.80E-01	1.03E+00	2.1E+01		pCi/g	NO
URANIUM-234	8/8	100.0	1.02E+00	6.98E+00	1.8E+01		pCi/g	NO
URANIUM-235	6/8	75.0	7.00E-02	2.40E-01	1.6E-01		pCi/g	YES
URANIUM-238	8/8	100.0	1.27E+00	9.36E+00	7.8E-01		pCi/g	YES

Medium=SOIL (creek floodplain)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CADMIUM	14/24	58.3	1.20E-01	3.50E+00	6.0E+03	7.8E+00	mg/kg	NO

Table F.6. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: FLOODPLAIN (western BCV)

Medium=SOIL (creek floodplain)
(continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CYANIDE	1/24	4.2	1.10E+00	1.10E+00		1.6E+02	mg/kg	NO
MERCURY	14/15	93.3	1.30E-01	9.80E-01		2.3E+00	mg/kg	NO
SELENIUM	18/24	75.0	1.20E+00	2.00E+00		3.9E+01	mg/kg	NO
2,4,5-T	10/24	41.7	1.00E-03	1.40E-02		7.8E+01	mg/kg	NO
2,4-D	10/24	41.7	5.70E-03	9.50E-02		7.8E+01	mg/kg	NO
4,4'-DDD	3/23	13.0	3.40E-04	8.20E-04	2.7E+00		mg/kg	NO
4,4'-DDE	7/23	30.4	6.70E-05	6.10E-04	1.9E+00		mg/kg	NO
4,4'-DDT	3/23	13.0	2.20E-04	1.60E-03	1.9E+00	3.9E+00	mg/kg	NO
ALPHA-BHC	3/23	13.0	5.40E-05	1.00E-04	1.0E-01		mg/kg	NO
ALPHA-CHLORDANE	10/23	43.5	8.20E-05	3.40E-03	4.9E-01	4.7E-01	mg/kg	NO
BENZO(A)ANTHRACENE	1/24	4.2	7.00E-02	7.00E-02	8.6E-01		mg/kg	NO
BENZO(B)FLUORANTHENE	2/24	8.3	7.20E-02	8.80E-02	8.6E-01		mg/kg	NO
BENZO(K)FLUORANTHENE	2/24	8.3	6.90E-02	9.10E-02	8.6E+00		mg/kg	NO
BETA-BHC	1/23	4.3	9.80E-04	9.80E-04	3.5E-01		mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	9/24	37.5	3.30E-02	1.70E-01	3.2E+01	1.6E+02	mg/kg	NO
CHLOROFORM	1/24	4.2	6.00E-02	6.00E-02	1.8E+00	7.8E+01	mg/kg	NO
CHRYSENE	2/24	8.3	4.40E-02	5.90E-02	8.6E+01		mg/kg	NO
DELTA-BHC	1/23	4.3	8.50E-05	8.50E-05			mg/kg	
DI-N-BUTYLPHTHALATE	8/24	33.3	5.70E-02	1.60E-01		7.8E+02	mg/kg	NO
DIELDRIN	13/23	56.5	8.80E-05	1.30E-02	4.0E-02	3.9E-01	mg/kg	NO
DIETHYLPHTHALATE	1/24	4.2	2.60E-01	2.60E-01		6.3E+03	mg/kg	NO
ENDOSULFAN I	1/23	4.3	3.00E-04	3.00E-04			mg/kg	
ENDOSULFAN II	2/23	8.7	4.60E-04	7.60E-04			mg/kg	
ENDOSULFAN SULFATE	2/23	8.7	2.30E-04	9.80E-04			mg/kg	
ENDRIN	2/23	8.7	2.00E-04	4.10E-04		8.0E-01	mg/kg	NO
ENDRIN ALDEHYDE	10/23	43.5	2.70E-04	3.80E-02			mg/kg	
ENDRIN KETONE	1/23	4.3	1.00E-04	1.00E-04			mg/kg	
FLUORANTHENE	4/24	16.7	4.60E-02	1.00E-01		3.1E+02	mg/kg	NO
GAMMA-CHLORDANE	3/23	13.0	1.30E-04	2.00E-04	4.9E-01	4.7E-01	mg/kg	NO
HEPTACHLOR EPOXIDE	2/23	8.7	1.00E-04	1.60E-03	7.0E-02	1.0E-01	mg/kg	NO
METHOXYCHLOR	5/23	21.7	3.20E-04	3.70E-03		3.9E+01	mg/kg	NO
PCB-1254	4/23	17.4	1.30E-02	5.10E+00		1.6E-01	mg/kg	YES
PCB-1260	17/23	73.9	6.40E-03	3.20E+00	8.3E-02		mg/kg	YES
PHENANTHRENE	1/24	4.2	8.50E-02	8.50E-02			mg/kg	
PYRENE	2/24	8.3	7.80E-02	9.70E-02		2.3E+02	mg/kg	NO
SILVEX	7/24	29.2	1.80E-03	1.50E-02		6.3E+01	mg/kg	NO
AMERICIUM-241	6/24	25.0	2.00E-02	1.60E-01	2.2E+00		pCi/g	NO
CURIUM-243	3/24	12.5	3.00E-02	1.40E-01	2.4E-01		pCi/g	NO
URANIUM-234	24/24	100.0	7.60E-01	3.04E+01	1.8E+01		pCi/g	YES
URANIUM-235	22/24	91.7	2.00E-02	2.08E+00	1.6E-01		pCi/g	YES
URANIUM-238	24/24	100.0	6.90E-01	6.07E+01	7.8E-01		pCi/g	YES

Table F.6. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: FLOODPLAIN (western BCV)

Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	120/134	89.6	2.50E-02	4.21E+00			mg/L	
ANTIMONY	3/28	10.7	1.50E-03	5.70E-02		1.3E-03	mg/L	YES
ARSENIC	3/29	10.3	1.90E-03	6.00E-02	5.6E-05	1.1E-03	mg/L	YES
BERYLLIUM	3/134	2.2	4.30E-04	7.20E-03	1.6E-05	1.5E-02	mg/L	YES
BORON	105/107	98.1	6.70E-03	3.10E-01		3.3E-01	mg/L	NO
CHLORIDE	123/131	93.9	1.50E+00	1.50E+01			mg/L	
COPPER	8/134	6.0	4.60E-03	4.90E-02			mg/L	
FLUORIDE	76/134	56.7	1.00E-02	6.60E-01		2.2E-01	mg/L	YES
GALLIUM	1/56	1.8	2.00E-02	2.00E-02			mg/L	
MANGANESE	133/134	99.3	1.60E-03	4.47E-01		4.8E-01	mg/L	NO
MERCURY	1/126	0.8	3.00E-04	3.00E-04		1.1E-03	mg/L	NO
NITRATE (AS N)	239/254	94.1	1.40E-01	5.00E+02		5.8E+00	mg/L	YES
SILVER	3/134	2.2	6.10E-03	7.90E-03		1.8E-02	mg/L	NO
STRONTIUM	107/107	100.0	1.60E-02	1.49E-01		2.2E+00	mg/L	NO
THALLIUM	1/81	1.2	3.00E-02	3.00E-02			mg/L	
TITANIUM	16/56	28.6	1.00E-02	5.00E-02			mg/L	
TOTAL URANIUM	28/51	54.9	1.00E-03	6.70E-02		1.1E-02	mg/L	YES
VANADIUM	13/134	9.7	2.30E-03	9.00E-03		2.1E-02	mg/L	NO
ZINC	57/134	42.5	3.20E-03	7.80E-02		1.1E+00	mg/L	NO
2-HEXANONE	1/77	1.3	3.00E-03	3.00E-03			mg/L	
ACETONE	2/77	2.6	1.00E-03	7.00E-03		3.6E-01	mg/L	NO
METHYLENE CHLORIDE	2/77	2.6	2.00E-03	4.00E-03	5.4E-03	1.6E-01	mg/L	NO
CESIUM-137	2/3	66.7	6.80E+00	7.50E+00	1.5E+00		pCi/L	YES
THORIUM-230	3/3	100.0	3.40E-01	5.30E-01	1.3E+00		pCi/L	NO
URANIUM-233/234	10/29	34.5	2.50E-01	3.20E+00	1.1E+00		pCi/L	YES
URANIUM-238	12/29	41.4	2.20E-01	7.10E+00	7.7E-01		pCi/L	YES

Table F.7. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: DARA

Medium=SOIL INVENTORY

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,2,4,5-TETRACHLOROBENZENE	1/32	3.1		2.50E+01		2.3E+00	mg/kg	YES
1,2,4-TRICHLOROBENZENE	19/32	59.4		4.90E+00		7.8E+01	mg/kg	NO
2,4,5-T	1/32	3.1		3.40E-02		7.8E+01	mg/kg	NO
2,4-DIMETHYLPHENOL	12/32	37.5		5.10E+00		1.6E+02	mg/kg	NO
4-METHYL-2-PENTANONE	2/21	9.5		4.30E-02		4.7E+02	mg/kg	NO
ACETONE	10/21	47.6		3.60E-01		7.8E+02	mg/kg	NO
ANTHRACENE	1/32	3.1		5.10E+00		2.3E+03	mg/kg	NO
BENZO(A)ANTHRACENE	1/32	3.1		5.10E+00	8.6E-01		mg/kg	YES
BIS(2-ETHYLHEXYL)PHTHALATE	13/32	40.6		5.10E+00	3.2E+01	1.6E+02	mg/kg	NO
CARBON DISULFIDE	5/21	23.8		1.00E-02		7.8E+02	mg/kg	NO
CHLOROETHANE	1/21	4.8		4.30E-02		1.5E+02	mg/kg	NO
CHRYSENE	1/32	3.1		5.10E+00	8.6E+01		mg/kg	NO
DIMETHYLBENZENE	13/21	61.9		2.40E-02		1.6E+04	mg/kg	NO
ETHYL ETHER	2/21	9.5		2.10E-01		1.6E+03	mg/kg	NO
ETHYLBENZENE	11/21	52.4		2.10E-02		4.7E-01	mg/kg	NO
FLUORANTHENE	2/32	6.3		5.10E+00		3.1E+02	mg/kg	NO
HEXACHLORODIBENZO-FURANS	27/32	84.4		2.92E+00			mg/kg	
HEXACHLORODIBENZO-P-DIOXINS	22/32	68.8		2.65E+00	1.0E-04		mg/kg	YES
METHANOL	3/32	9.4		3.87E+00		3.9E+03	mg/kg	NO
METHYLENE CHLORIDE	21/21	100.0		3.00E-01	3.6E+01	4.7E+02	mg/kg	NO
NAPHTHALENE	1/32	3.1		5.10E+00		2.8E+02	mg/kg	NO
PCB-1254	32/32	100.0		1.03E+02		1.6E-01	mg/kg	YES
PENTACHLOROBENZENE	3/32	9.4		2.50E+01		6.3E+00	mg/kg	YES
PENTACHLORODIBENZO-FURANS	31/32	96.9		3.41E+00			mg/kg	
PENTACHLORODIBENZO-P-DIOXINS	2/32	6.3		3.90E-01			mg/kg	
PHENANTHRENE	6/32	18.8		5.10E+00			mg/kg	
PYRENE	5/32	15.6		5.10E+00		2.3E+02	mg/kg	NO
TETRACHLORODIBENZO-FURANS	32/32	100.0		6.67E+00			mg/kg	
TETRACHLORODIBENZO-P-DIOXINS	2/32	6.3		2.40E+00	4.3E-06		mg/kg	YES
TOLUENE	11/21	52.4		6.20E-02		2.5E+02	mg/kg	NO
TRICHLOROFLUOROMETHANE	2/21	9.5		2.10E-02		4.0E+02	mg/kg	NO
URANIUM-234	32/32	100.0		1.14E+02	1.8E+01		pCi/g	YES
URANIUM-235	32/32	100.0		4.91E+00	1.6E-01		pCi/g	YES
URANIUM-236	32/32	100.0		3.53E+00	1.9E+01		pCi/g	NO
URANIUM-238	32/32	100.0		7.69E+01	7.8E-01		pCi/g	YES

Table F.8. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: OIL LANDFARM STORAGE PAD

Medium=SOIL INVENTORY

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	40/40	100.0	9.60E+03	1.80E+04			mg/kg	
ANTIMONY	40/40	100.0	2.20E+00	2.80E+00		3.1E+00	mg/kg	NO
ARSENIC	40/40	100.0	2.20E+00	2.80E+00	4.3E-01	2.3E+00	mg/kg	YES
BARIUM	40/40	100.0	5.20E+00	1.60E+02		5.5E+02	mg/kg	NO
BERYLLIUM	40/40	100.0	7.10E-01	1.30E+01	6.3E-02	3.9E+01	mg/kg	YES
BORON	40/40	100.0	3.50E+00	5.70E+00		7.0E+02	mg/kg	NO
CADMIUM	40/40	100.0	2.20E-01	4.60E-01	6.0E+03	7.8E+00	mg/kg	NO
CALCIUM	40/40	100.0	1.60E+03	2.60E+04			mg/kg	
CHLORIDE	40/40	100.0	5.00E+00	4.02E+02			mg/kg	
CHROMIUM	40/40	100.0	1.50E+01	3.70E+01	8.9E+02	3.9E+01	mg/kg	NO
COBALT	40/40	100.0	7.00E+00	1.40E+01			mg/kg	
COPPER	40/40	100.0	9.00E+00	2.50E+01			mg/kg	
CYANIDE	40/40	100.0	5.00E-01	5.00E-01		1.6E+02	mg/kg	NO
FLUORIDE	40/40	100.0	5.00E+00	2.40E+01		4.7E+02	mg/kg	NO
IRON	40/40	100.0	1.40E+04	2.90E+04			mg/kg	
LEAD	40/40	100.0	7.10E+00	3.30E+01		4.0E+02	mg/kg	NO
LITHIUM	40/40	100.0	6.60E+02	8.30E+02			mg/kg	
MAGNESIUM	40/40	100.0	8.90E+00	9.40E+03			mg/kg	
MANGANESE	40/40	100.0	6.40E+01	9.70E+02		1.1E+03	mg/kg	NO
MERCURY	40/40	100.0	9.30E-02	7.26E-01		2.3E+00	mg/kg	NO
MOLYBDENUM	40/40	100.0	1.80E+00	2.20E+00		3.9E+01	mg/kg	NO
NICKEL	40/40	100.0	1.10E+01	2.30E+01		1.6E+02	mg/kg	NO
PHOSPHATES	40/40	100.0	5.00E+00	4.90E+02			mg/kg	
PHOSPHORUS	40/40	100.0	1.50E+02	1.10E+03			mg/kg	
SELENIUM	40/40	100.0	2.20E+00	2.80E+00		3.9E+01	mg/kg	NO
SILICON	40/40	100.0	1.30E+03	2.10E+03			mg/kg	
SILVER	40/40	100.0	2.20E-01	2.80E-01		3.9E+01	mg/kg	NO
SODIUM	40/40	100.0	2.20E+02	2.80E+02			mg/kg	
STRONTIUM	40/40	100.0	5.20E+00	2.20E+01		4.7E+03	mg/kg	NO
TIN	40/40	100.0	2.20E+00	2.80E+00		4.7E+03	mg/kg	NO
TITANIUM	40/40	100.0	9.70E+01	1.60E+02			mg/kg	
TOTAL URANIUM	40/40	100.0	1.60E+01	1.51E+02		2.3E+01	mg/kg	YES
VANADIUM	40/40	100.0	1.50E+01	2.60E+01		5.5E+01	mg/kg	NO
ZINC	40/40	100.0	2.40E+01	4.90E+01		2.3E+03	mg/kg	NO
ZIRCONIUM	40/40	100.0	3.10E+00	8.00E+00			mg/kg	
POLYCHLORINATED BIPHENYL	40/40	100.0	1.70E-01	9.25E+01	8.3E-02		mg/kg	YES
URANIUM-234	40/40	100.0	9.19E+00	3.24E+01	1.8E+01		pCi/g	YES
URANIUM-235	40/40	100.0	3.51E-01	2.70E+00	1.6E-01		pCi/g	YES
URANIUM-238	40/40	100.0	5.14E+00	4.59E+01	7.8E-01		pCi/g	YES

Table F.9. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BEAR CREEK ROAD DEBRIS BURIAL AND CREEKSIDE DEBRIS BURIAL

Location=BCR DB Medium=SOIL (hot spot)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	5.97E+03	5.97E+03			mg/kg	
ANTIMONY	1/1	100.0	1.00E+00	1.00E+00		3.1E+00	mg/kg	NO
ARSENIC	1/1	100.0	1.07E+01	1.07E+01	4.3E-01	2.3E+00	mg/kg	YES
BARIUM	1/1	100.0	6.33E+02	6.33E+02		5.5E+02	mg/kg	YES
BERYLLIUM	1/1	100.0	8.80E-01	8.80E-01	6.3E-02	3.9E+01	mg/kg	YES
CADMIUM	1/1	100.0	1.56E+01	1.56E+01	6.0E+03	7.8E+00	mg/kg	YES
CALCIUM	1/1	100.0	5.58E+03	5.58E+03			mg/kg	
CHROMIUM	1/1	100.0	7.81E+01	7.81E+01	8.9E+02	3.9E+01	mg/kg	YES
COBALT	1/1	100.0	8.20E+00	8.20E+00			mg/kg	
COPPER	1/1	100.0	1.65E+03	1.65E+03			mg/kg	
IRON	1/1	100.0	1.52E+04	1.52E+04			mg/kg	
LEAD	1/1	100.0	5.16E+02	5.16E+02		4.0E+02	mg/kg	YES
LITHIUM	1/1	100.0	1.08E+01	1.08E+01			mg/kg	
MAGNESIUM	1/1	100.0	8.87E+02	8.87E+02			mg/kg	
MANGANESE	1/1	100.0	3.34E+02	3.34E+02		1.1E+03	mg/kg	NO
MERCURY	1/1	100.0	5.40E+00	5.40E+00		2.3E+00	mg/kg	YES
NICKEL	1/1	100.0	8.65E+01	8.65E+01		1.6E+02	mg/kg	NO
POTASSIUM	1/1	100.0	9.08E+02	9.08E+02			mg/kg	
SELENIUM	1/1	100.0	2.20E+00	2.20E+00		3.9E+01	mg/kg	NO
SILVER	1/1	100.0	3.27E+01	3.27E+01		3.9E+01	mg/kg	NO
SODIUM	1/1	100.0	4.03E+02	4.03E+02			mg/kg	
VANADIUM	1/1	100.0	1.86E+01	1.86E+01		5.5E+01	mg/kg	NO
ZINC	1/1	100.0	8.75E+02	8.75E+02		2.3E+03	mg/kg	NO
2,4,5-T	1/1	100.0	6.00E-03	6.00E-03		7.8E+01	mg/kg	NO
2-METHYLNAPHTHALENE	1/1	100.0	7.30E-02	7.30E-02			mg/kg	
BENZO(A)ANTHRACENE	1/1	100.0	5.80E-02	5.80E-02	8.6E-01		mg/kg	NO
BENZO(A)PYRENE	1/1	100.0	5.20E-02	5.20E-02	8.6E-02		mg/kg	NO
BENZO(B)FLUORANTHENE	1/1	100.0	1.90E-01	1.90E-01	8.6E-01		mg/kg	NO
BENZO(K)FLUORANTHENE	1/1	100.0	1.80E-01	1.80E-01	8.6E+00		mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	1.50E-01	1.50E-01	3.2E+01	1.6E+02	mg/kg	NO
CHRYSENE	1/1	100.0	6.00E-02	6.00E-02	8.6E+01		mg/kg	NO
DI-N-BUTYLPHTHALATE	1/1	100.0	6.90E-02	6.90E-02		7.8E+02	mg/kg	NO
FLUORANTHENE	1/1	100.0	9.20E-02	9.20E-02		3.1E+02	mg/kg	NO
GAMMA-BHC	1/1	100.0	2.80E-04	2.80E-04	4.9E-01	2.3E+00	mg/kg	NO
NAPHTHALENE	1/1	100.0	7.00E-02	7.00E-02		2.8E+02	mg/kg	NO
PCB-1254	1/1	100.0	3.60E+00	3.60E+00		1.6E-01	mg/kg	YES
PHENANTHRENE	1/1	100.0	6.30E-02	6.30E-02			mg/kg	
PYRENE	1/1	100.0	1.20E-01	1.20E-01		2.3E+02	mg/kg	NO
CESIUM-137	1/1	100.0	1.19E+00	1.19E+00	2.1E-02		pCi/g	YES
CURIUM-243	1/1	100.0	3.30E-01	3.30E-01	2.4E-01		pCi/g	YES
PLUTONIUM-239/240	1/1	100.0	5.00E-02	5.00E-02	2.5E+00		pCi/g	NO
TECHNETIUM-99	1/1	100.0	1.87E+01	1.87E+01	5.7E+02		pCi/g	NO
THORIUM-228	1/1	100.0	8.80E-01	8.80E-01	4.3E-02		pCi/g	YES
THORIUM-230	1/1	100.0	1.09E+00	1.09E+00	2.1E+01		pCi/g	NO
THORIUM-232	1/1	100.0	6.70E-01	6.70E-01	2.4E+01		pCi/g	NO
URANIUM-234	1/1	100.0	4.11E+02	4.11E+02	1.8E+01		pCi/g	YES
URANIUM-235	1/1	100.0	1.81E+00	1.81E+00	1.6E-01		pCi/g	YES

Table F.9. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BEAR CREEK ROAD DEBRIS BURIAL AND CREEKSIDE DEBRIS BURIAL

Location=BCR DB Medium=SOIL (hot spot) (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
URANIUM-238	1/1	100.0	6.38E+01	6.38E+01	7.8E-01		pCi/g	YES

Location=CS DB Medium=SOIL (hot spot)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	1.59E+04	1.59E+04			mg/kg	
ANTIMONY	1/1	100.0	4.90E-01	4.90E-01		3.1E+00	mg/kg	NO
ARSENIC	1/1	100.0	7.90E+00	7.90E+00	4.3E-01	2.3E+00	mg/kg	YES
BARIUM	1/1	100.0	9.97E+01	9.97E+01		5.5E+02	mg/kg	NO
BERYLLIUM	1/1	100.0	1.40E+00	1.40E+00	6.3E-02	3.9E+01	mg/kg	YES
CADMIUM	1/1	100.0	1.70E+00	1.70E+00	6.0E+03	7.8E+00	mg/kg	NO
CALCIUM	1/1	100.0	1.39E+04	1.39E+04			mg/kg	
CHROMIUM	1/1	100.0	1.07E+02	1.07E+02	8.9E+02	3.9E+01	mg/kg	YES
COBALT	1/1	100.0	1.77E+01	1.77E+01			mg/kg	
COPPER	1/1	100.0	5.20E+01	5.20E+01			mg/kg	
IRON	1/1	100.0	2.55E+04	2.55E+04			mg/kg	
LEAD	1/1	100.0	4.73E+01	4.73E+01		4.0E+02	mg/kg	NO
LITHIUM	1/1	100.0	3.25E+01	3.25E+01			mg/kg	
MAGNESIUM	1/1	100.0	5.05E+03	5.05E+03			mg/kg	
MANGANESE	1/1	100.0	7.97E+02	7.97E+02		1.1E+03	mg/kg	NO
MERCURY	1/1	100.0	3.30E+01	3.30E+01		2.3E+00	mg/kg	YES
NICKEL	1/1	100.0	4.30E+01	4.30E+01		1.6E+02	mg/kg	NO
POTASSIUM	1/1	100.0	2.03E+03	2.03E+03			mg/kg	
SELENIUM	1/1	100.0	2.50E+00	2.50E+00		3.9E+01	mg/kg	NO
SILVER	1/1	100.0	8.70E+00	8.70E+00		3.9E+01	mg/kg	NO
SODIUM	1/1	100.0	2.17E+02	2.17E+02			mg/kg	
VANADIUM	1/1	100.0	2.70E+01	2.70E+01		5.5E+01	mg/kg	NO
ZINC	1/1	100.0	1.51E+02	1.51E+02		2.3E+03	mg/kg	NO
2,4-DIMETHYLPHENOL	1/1	100.0	1.40E-01	1.40E-01		1.6E+02	mg/kg	NO
2-METHYLNAPHTHALENE	1/1	100.0	1.20E+00	1.20E+00			mg/kg	
2-METHYLPHENOL	1/1	100.0	3.70E-02	3.70E-02		3.9E+02	mg/kg	NO
4-METHYLPHENOL	1/1	100.0	1.10E-01	1.10E-01		3.9E+01	mg/kg	NO
ACENAPHTHENE	1/1	100.0	4.20E+00	4.20E+00		4.7E+02	mg/kg	NO
ANTHRACENE	1/1	100.0	5.30E+00	5.30E+00		2.3E+03	mg/kg	NO
BENZO(A)ANTHRACENE	1/1	100.0	1.00E+01	1.00E+01	8.6E-01		mg/kg	YES
BENZO(A)PYRENE	1/1	100.0	8.00E+00	8.00E+00	8.6E-02		mg/kg	YES
BENZO(B)FLUORANTHENE	1/1	100.0	1.40E+01	1.40E+01	8.6E-01		mg/kg	YES
BENZO(GHI)PERYLENE	1/1	100.0	1.80E+00	1.80E+00			mg/kg	
BENZO(K)FLUORANTHENE	1/1	100.0	1.30E+01	1.30E+01	8.6E+00		mg/kg	YES
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	2.40E-01	2.40E-01	3.2E+01	1.6E+02	mg/kg	NO
CARBAZOLE	1/1	100.0	4.10E+00	4.10E+00	3.2E+01		mg/kg	NO
CHRYSENE	1/1	100.0	9.10E+00	9.10E+00	8.6E+01		mg/kg	NO

Table F.9. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BEAR CREEK ROAD DEBRIS BURIAL AND CREEKSIDE DEBRIS BURIAL

Location=CS DB Medium=SOIL (hot spot)
(continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
DIBENZO(A,H)ANTHRACENE	1/1	100.0	3.50E-01	3.50E-01	8.6E-02		mg/kg	YES
DIBENZOFURAN	1/1	100.0	2.90E+00	2.90E+00			mg/kg	
FLUORANTHENE	1/1	100.0	2.80E+01	2.80E+01		3.1E+02	mg/kg	NO
FLUORENE	1/1	100.0	4.30E+00	4.30E+00		3.1E+02	mg/kg	NO
INDENO(1,2,3-CD)PYRENE	1/1	100.0	2.20E+00	2.20E+00	8.6E-01		mg/kg	YES
NAPHTHALENE	1/1	100.0	9.20E+00	9.20E+00		2.8E+02	mg/kg	NO
PCB-1254	1/1	100.0	1.20E+00	1.20E+00		1.6E-01	mg/kg	YES
PHENANTHRENE	1/1	100.0	3.00E+01	3.00E+01			mg/kg	
PHENOL	1/1	100.0	9.00E-02	9.00E-02		4.7E+03	mg/kg	NO
PYRENE	1/1	100.0	2.00E+01	2.00E+01		2.3E+02	mg/kg	NO
AMERICIUM-241	1/1	100.0	1.50E-01	1.50E-01	2.2E+00		pCi/g	NO
CESIUM-137	1/1	100.0	2.10E-01	2.10E-01	2.1E-02		pCi/g	YES
CURIUM-243	1/1	100.0	1.60E-01	1.60E-01	2.4E-01		pCi/g	NO
PLUTONIUM-238	1/1	100.0	5.10E-01	5.10E-01	2.7E+00		pCi/g	NO
PLUTONIUM-239/240	1/1	100.0	1.00E-01	1.00E-01	2.5E+00		pCi/g	NO
TECHNETIUM-99	1/1	100.0	3.43E+00	3.43E+00	5.7E+02		pCi/g	NO
THORIUM-228	1/1	100.0	2.20E+00	2.20E+00	4.3E-02		pCi/g	YES
THORIUM-230	1/1	100.0	1.22E+00	1.22E+00	2.1E+01		pCi/g	NO
THORIUM-232	1/1	100.0	1.51E+00	1.51E+00	2.4E+01		pCi/g	NO
URANIUM-234	1/1	100.0	2.79E+01	2.79E+01	1.8E+01		pCi/g	YES
URANIUM-235	1/1	100.0	1.45E+00	1.45E+00	1.6E-01		pCi/g	YES
URANIUM-238	1/1	100.0	2.48E+01	2.48E+01	7.8E-01		pCi/g	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=BG-01 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	6.09E+00	6.09E+00			mg/L	
BERYLLIUM	1/1	100.0	1.20E-03	1.20E-03	1.6E-05	1.5E-02	mg/L	YES
NICKEL	1/1	100.0	5.43E-02	5.43E-02		7.2E-02	mg/L	NO
VANADIUM	1/1	100.0	7.00E-03	7.00E-03		2.1E-02	mg/L	NO
TRICHLOROETHENE	1/1	100.0	1.00E-03	1.00E-03	1.9E-03		mg/L	NO
POTASSIUM-40	1/1	100.0	1.60E+02	1.60E+02	3.8E+00		pCi/L	YES
THORIUM-228	1/1	100.0	1.10E+00	1.10E+00	2.1E-01		pCi/L	YES
THORIUM-232	1/1	100.0	1.20E+00	1.20E+00	1.5E+00		pCi/L	NO
URANIUM-238	1/1	100.0	1.20E+00	1.20E+00	7.7E-01		pCi/L	YES

Sample Station=BG-02 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	3.06E+01	3.06E+01			mg/L	
BERYLLIUM	1/1	100.0	2.60E-03	2.60E-03	1.6E-05	1.5E-02	mg/L	YES
COBALT	1/1	100.0	5.80E-02	5.80E-02			mg/L	
COPPER	1/1	100.0	5.34E-02	5.34E-02			mg/L	
CYANIDE	1/1	100.0	2.20E-02	2.20E-02		6.6E-02	mg/L	NO
LEAD	1/1	100.0	1.80E-02	1.80E-02		1.5E-02	mg/L	YES
MANGANESE	1/1	100.0	2.89E+00	2.89E+00		4.8E-01	mg/L	YES
NICKEL	1/1	100.0	9.65E-02	9.65E-02		7.2E-02	mg/L	YES
VANADIUM	1/1	100.0	4.46E-02	4.46E-02		2.1E-02	mg/L	YES
ZINC	1/1	100.0	1.05E-01	1.05E-01		1.1E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	1/1	100.0	1.40E-01	1.40E-01		1.3E-01	mg/L	YES
1,1-DICHLOROETHANE	1/1	100.0	2.00E-01	2.00E-01		8.1E-02	mg/L	YES
1,1-DICHLOROETHENE	1/1	100.0	7.80E-02	7.80E-02	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	1/1	100.0	5.10E-02	5.10E-02	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	1/1	100.0	1.50E+00	1.50E+00		3.3E-02	mg/L	YES
BENZENE	1/1	100.0	9.30E-02	9.30E-02	4.9E-04		mg/L	YES
CHLOROETHANE	1/1	100.0	2.50E-02	2.50E-02		2.1E+00	mg/L	NO
CHLOROFORM	1/1	100.0	1.30E-02	1.30E-02	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	1/1	100.0	3.00E-03	3.00E-03		5.8E+00	mg/L	NO
TETRACHLOROETHENE	1/1	100.0	2.30E-01	2.30E-01	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	1/1	100.0	8.20E-01	8.20E-01	1.9E-03		mg/L	YES
TRICHLOROFLUOROMETHANE	1/1	100.0	1.20E-01	1.20E-01		1.3E-01	mg/L	NO
VINYL CHLORIDE	1/1	100.0	1.90E-01	1.90E-01	2.5E-05		mg/L	YES
THORIUM-228	1/1	100.0	1.80E+00	1.80E+00	2.1E-01		pCi/L	YES
THORIUM-232	1/1	100.0	1.40E+00	1.40E+00	1.5E+00		pCi/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=BG-03 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	5.48E+00	5.48E+00			mg/L	
CHLORIDE	1/1	100.0	3.80E+01	3.80E+01			mg/L	
MERCURY	1/1	100.0	5.60E-04	5.60E-04		1.1E-03	mg/L	NO
VANADIUM	1/1	100.0	6.20E-03	6.20E-03		2.1E-02	mg/L	NO
1,1,1-TRICHLOROETHANE	1/1	100.0	2.20E+00	2.20E+00		1.3E-01	mg/L	YES
1,1,2-TRICHLOROETHANE	1/1	100.0	9.00E-03	9.00E-03	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	1/1	100.0	8.20E-01	8.20E-01		8.1E-02	mg/L	YES
1,1-DICHLOROETHENE	1/1	100.0	1.70E+00	1.70E+00	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	1/1	100.0	3.00E-01	3.00E-01	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	1/1	100.0	2.00E+00	2.00E+00		3.3E-02	mg/L	YES
1,2-DICHLOROPROPANE	1/1	100.0	1.00E-03	1.00E-03	1.2E-03	8.3E-04	mg/L	YES
BENZENE	1/1	100.0	1.00E+00	1.00E+00	4.9E-04		mg/L	YES
CHLOROETHANE	1/1	100.0	1.30E-02	1.30E-02		2.1E+00	mg/L	NO
CHLOROFORM	1/1	100.0	2.40E-02	2.40E-02	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	1/1	100.0	3.00E-03	3.00E-03		5.8E+00	mg/L	NO
TETRACHLOROETHENE	1/1	100.0	2.80E+00	2.80E+00	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	1/1	100.0	4.00E-03	4.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	1/1	100.0	3.20E+00	3.20E+00	1.9E-03		mg/L	YES
TRICHLOROFLUOROMETHANE	1/1	100.0	1.60E+00	1.60E+00		1.3E-01	mg/L	YES
VINYL CHLORIDE	1/1	100.0	2.90E-01	2.90E-01	2.5E-05		mg/L	YES
THORIUM-228	1/1	100.0	1.50E+00	1.50E+00	2.1E-01		pCi/L	YES
URANIUM-238	1/1	100.0	1.10E+00	1.10E+00	7.7E-01		pCi/L	YES

Sample Station=BG-04 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
LEAD	1/1	100.0	3.23E-02	3.23E-02		1.5E-02	mg/L	YES
MANGANESE	1/1	100.0	5.65E+00	5.65E+00		4.8E-01	mg/L	YES
MERCURY	1/1	100.0	1.00E-03	1.00E-03		1.1E-03	mg/L	NO
1,1-DICHLOROETHANE	1/1	100.0	9.30E-02	9.30E-02		8.1E-02	mg/L	YES
1,2-DICHLOROETHANE	1/1	100.0	5.00E-03	5.00E-03	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	1/1	100.0	1.60E-02	1.60E-02		3.3E-02	mg/L	NO
BENZENE	1/1	100.0	1.10E-01	1.10E-01	4.9E-04		mg/L	YES
DIMETHYLBENZENE	1/1	100.0	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
TETRACHLOROETHENE	1/1	100.0	3.00E-03	3.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	1/1	100.0	5.00E-03	5.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	1/1	100.0	2.00E-03	2.00E-03	1.9E-03		mg/L	YES
VINYL CHLORIDE	1/1	100.0	5.00E-03	5.00E-03	2.5E-05		mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=BG-05 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BENZENE	1/1	100.0	2.00E-03	2.00E-03	4.9E-04		mg/L	YES

Sample Station=BG-12 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	1.64E+01	1.64E+01			mg/L	
LEAD	1/1	100.0	2.07E-02	2.07E-02		1.5E-02	mg/L	YES
MANGANESE	1/1	100.0	5.29E+00	5.29E+00		4.8E-01	mg/L	YES
NICKEL	1/1	100.0	4.61E-02	4.61E-02		7.2E-02	mg/L	NO
VANADIUM	1/1	100.0	2.36E-02	2.36E-02		2.1E-02	mg/L	YES
ZINC	1/1	100.0	5.15E-02	5.15E-02		1.1E+00	mg/L	NO
TETRACHLOROETHENE	1/1	100.0	1.40E-01	1.40E-01	7.8E-04	1.9E-02	mg/L	YES
THORIUM-228	1/1	100.0	1.30E+00	1.30E+00	2.1E-01		pCi/L	YES
URANIUM-234	1/1	100.0	1.60E+00	1.60E+00	1.1E+00		pCi/L	YES
URANIUM-238	1/1	100.0	1.60E+00	1.60E+00	7.7E-01		pCi/L	YES

Sample Station=BG-13 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	2.41E+01	2.41E+01			mg/L	
COBALT	1/1	100.0	3.20E-02	3.20E-02			mg/L	
COPPER	1/1	100.0	3.98E-02	3.98E-02			mg/L	
MANGANESE	1/1	100.0	2.05E+00	2.05E+00		4.8E-01	mg/L	YES
NICKEL	1/1	100.0	5.86E-02	5.86E-02		7.2E-02	mg/L	NO
VANADIUM	1/1	100.0	3.68E-02	3.68E-02		2.1E-02	mg/L	YES
ZINC	1/1	100.0	1.43E-01	1.43E-01		1.1E+00	mg/L	NO
THORIUM-228	1/1	100.0	2.00E+00	2.00E+00	2.1E-01		pCi/L	YES
THORIUM-230	1/1	100.0	1.20E+00	1.20E+00	1.3E+00		pCi/L	NO
THORIUM-232	1/1	100.0	1.30E+00	1.30E+00	1.5E+00		pCi/L	NO

Sample Station=BY-01 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
COPPER	1/1	100.0	1.37E-02	1.37E-02			mg/L	
MOLYBDENUM	1/1	100.0	1.29E-01	1.29E-01		1.8E-02	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=BY-01 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NICKEL	1/1	100.0	5.43E-02	5.43E-02		7.2E-02	mg/L	NO
SULFATE	1/1	100.0	1.30E+02	1.30E+02			mg/L	
1,1-DICHLOROETHANE	1/1	100.0	2.00E-03	2.00E-03		8.1E-02	mg/L	NO
1,2-DICHLOROETHENE	1/1	100.0	3.00E-03	3.00E-03		3.3E-02	mg/L	NO
TRICHLOROETHENE	1/1	100.0	3.00E-03	3.00E-03	1.9E-03		mg/L	YES
THORIUM-228	1/1	100.0	1.20E+00	1.20E+00	2.1E-01		pCi/L	YES
THORIUM-230	1/1	100.0	1.30E+00	1.30E+00	1.3E+00		pCi/L	YES
URANIUM-234	1/1	100.0	4.70E+00	4.70E+00	1.1E+00		pCi/L	YES
URANIUM-238	1/1	100.0	3.30E+00	3.30E+00	7.7E-01		pCi/L	YES

Sample Station=BY-02 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
MERCURY	1/1	100.0	1.60E-03	1.60E-03		1.1E-03	mg/L	YES
NICKEL	1/1	100.0	2.04E-02	2.04E-02		7.2E-02	mg/L	NO
SULFATE	1/1	100.0	5.00E+01	5.00E+01			mg/L	
1,1,2-TRICHLOROETHANE	1/1	100.0	5.00E-03	5.00E-03	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	1/1	100.0	3.00E-03	3.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	1/1	100.0	5.00E-03	5.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	1/1	100.0	2.30E-02	2.30E-02	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	1/1	100.0	1.10E+00	1.10E+00		3.3E-02	mg/L	YES
BENZENE	1/1	100.0	8.00E-03	8.00E-03	4.9E-04		mg/L	YES
TETRACHLOROETHENE	1/1	100.0	6.20E-01	6.20E-01	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	1/1	100.0	2.10E-01	2.10E-01	1.9E-03		mg/L	YES
VINYL CHLORIDE	1/1	100.0	7.30E-02	7.30E-02	2.5E-05		mg/L	YES
LEAD-212	1/1	100.0	1.60E+01	1.60E+01	2.6E+00		pCi/L	YES
THORIUM-228	1/1	100.0	1.20E+00	1.20E+00	2.1E-01		pCi/L	YES
URANIUM-234	1/1	100.0	4.90E+00	4.90E+00	1.1E+00		pCi/L	YES
URANIUM-238	1/1	100.0	5.00E+00	5.00E+00	7.7E-01		pCi/L	YES

Sample Station=BY-03 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	1.92E+01	1.92E+01			mg/L	
BERYLLIUM	1/1	100.0	1.70E-03	1.70E-03	1.6E-05	1.5E-02	mg/L	YES
CHLORIDE	1/1	100.0	3.50E+01	3.50E+01			mg/L	
COBALT	1/1	100.0	3.47E-02	3.47E-02			mg/L	
COPPER	1/1	100.0	5.24E-02	5.24E-02			mg/L	

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=BY-03 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
LEAD	1/1	100.0	6.01E-02	6.01E-02		1.5E-02	mg/L	YES
MANGANESE	1/1	100.0	3.11E+00	3.11E+00		4.8E-01	mg/L	YES
MERCURY	1/1	100.0	4.40E-04	4.40E-04		1.1E-03	mg/L	NO
NICKEL	1/1	100.0	7.99E-02	7.99E-02		7.2E-02	mg/L	YES
SULFATE	1/1	100.0	1.02E+02	1.02E+02			mg/L	
VANADIUM	1/1	100.0	3.19E-02	3.19E-02		2.1E-02	mg/L	YES
ZINC	1/1	100.0	5.78E-02	5.78E-02		1.1E+00	mg/L	NO
1,1,2-TRICHLOROETHANE	1/1	100.0	3.00E-03	3.00E-03	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	1/1	100.0	9.00E-03	9.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	1/1	100.0	1.10E-01	1.10E-01	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	1/1	100.0	6.00E-03	6.00E-03	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	1/1	100.0	7.80E-02	7.80E-02		3.3E-02	mg/L	YES
BENZENE	1/1	100.0	1.00E-02	1.00E-02	4.9E-04		mg/L	YES
CHLOROFORM	1/1	100.0	1.40E-01	1.40E-01	2.1E-04	3.3E-02	mg/L	YES
TETRACHLOROETHENE	1/1	100.0	1.50E-02	1.50E-02	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	1/1	100.0	1.00E-03	1.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	1/1	100.0	2.00E+00	2.00E+00	1.9E-03		mg/L	YES
VINYL CHLORIDE	1/1	100.0	9.00E-03	9.00E-03	2.5E-05		mg/L	YES
THORIUM-230	1/1	100.0	2.60E+00	2.60E+00	1.3E+00		pCi/L	YES
URANIUM-234	1/1	100.0	2.90E+00	2.90E+00	1.1E+00		pCi/L	YES
URANIUM-238	1/1	100.0	3.60E+00	3.60E+00	7.7E-01		pCi/L	YES

Sample Station=BY-04 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
FLUORIDE	1/1	100.0	3.00E+00	3.00E+00		2.2E-01	mg/L	YES
LEAD	1/1	100.0	1.00E-02	1.00E-02		1.5E-02	mg/L	NO
MERCURY	1/1	100.0	1.70E-03	1.70E-03		1.1E-03	mg/L	YES
SULFATE	1/1	100.0	1.20E+02	1.20E+02			mg/L	
BENZENE	1/1	100.0	1.00E-03	1.00E-03	4.9E-04		mg/L	YES
FLUORANTHENE	1/1	100.0	2.00E-03	2.00E-03		3.8E-02	mg/L	NO
PCB-1254	1/1	100.0	4.50E-04	4.50E-04		3.8E-05	mg/L	YES
PHENANTHRENE	1/1	100.0	1.00E-03	1.00E-03			mg/L	
PYRENE	1/1	100.0	2.00E-03	2.00E-03		3.1E-02	mg/L	NO
TOLUENE	1/1	100.0	1.00E-03	1.00E-03		7.4E-02	mg/L	NO
THORIUM-228	1/1	100.0	1.90E+00	1.90E+00	2.1E-01		pCi/L	YES
THORIUM-230	1/1	100.0	2.20E+00	2.20E+00	1.3E+00		pCi/L	YES
THORIUM-232	1/1	100.0	1.00E+00	1.00E+00	1.5E+00		pCi/L	NO
URANIUM-234	1/1	100.0	3.30E+02	3.30E+02	1.1E+00		pCi/L	YES
URANIUM-235	1/1	100.0	8.00E+00	8.00E+00	1.0E+00		pCi/L	YES
URANIUM-238	1/1	100.0	1.40E+02	1.40E+02	7.7E-01		pCi/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=BY-05 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	1.49E+01	1.49E+01			mg/L	
BERYLLIUM	1/1	100.0	8.50E-04	8.50E-04	1.6E-05	1.5E-02	mg/L	YES
COBALT	1/1	100.0	2.49E-02	2.49E-02			mg/L	
LEAD	1/1	100.0	1.38E-02	1.38E-02		1.5E-02	mg/L	NO
MERCURY	1/1	100.0	6.20E-04	6.20E-04		1.1E-03	mg/L	NO
NICKEL	1/1	100.0	6.24E-02	6.24E-02		7.2E-02	mg/L	NO
SULFATE	1/1	100.0	5.70E+01	5.70E+01			mg/L	
VANADIUM	1/1	100.0	1.87E-02	1.87E-02		2.1E-02	mg/L	NO
ZINC	1/1	100.0	8.01E-02	8.01E-02		1.1E+00	mg/L	NO
FLUORANTHENE	1/1	100.0	4.00E-03	4.00E-03		3.8E-02	mg/L	NO
PHENANTHRENE	1/1	100.0	3.00E-03	3.00E-03			mg/L	
PYRENE	1/1	100.0	3.00E-03	3.00E-03		3.1E-02	mg/L	NO
URANIUM-238	1/1	100.0	1.50E+00	1.50E+00	7.7E-01		pCi/L	YES

Sample Station=BY-06 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	5.63E+00	5.63E+00			mg/L	
FLUORIDE	1/1	100.0	2.10E+00	2.10E+00		2.2E-01	mg/L	YES
LEAD	1/1	100.0	1.38E-02	1.38E-02		1.5E-02	mg/L	NO
MERCURY	1/1	100.0	7.84E-02	7.84E-02		1.1E-03	mg/L	YES
SULFATE	1/1	100.0	3.00E+02	3.00E+02			mg/L	
FLUORANTHENE	1/1	100.0	1.00E-03	1.00E-03		3.8E-02	mg/L	NO
PYRENE	1/1	100.0	1.00E-03	1.00E-03		3.1E-02	mg/L	NO
THORIUM-228	1/1	100.0	1.20E+00	1.20E+00	2.1E-01		pCi/L	YES
URANIUM-234	1/1	100.0	1.10E+02	1.10E+02	1.1E+00		pCi/L	YES
URANIUM-235	1/1	100.0	6.50E+00	6.50E+00	1.0E+00		pCi/L	YES
URANIUM-238	1/1	100.0	1.00E+02	1.00E+02	7.7E-01		pCi/L	YES

Sample Station=BY-09 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
COPPER	1/1	100.0	1.21E-01	1.21E-01			mg/L	
FLUORIDE	1/1	100.0	4.00E+00	4.00E+00		2.2E-01	mg/L	YES
LEAD	1/1	100.0	1.18E-01	1.18E-01		1.5E-02	mg/L	YES
MERCURY	1/1	100.0	5.80E-04	5.80E-04		1.1E-03	mg/L	NO
NICKEL	1/1	100.0	4.74E-02	4.74E-02		7.2E-02	mg/L	NO
ZINC	1/1	100.0	3.24E-01	3.24E-01		1.1E+00	mg/L	NO
1,1-DICHLOROETHANE	1/1	100.0	3.00E-03	3.00E-03		8.1E-02	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=BY-09 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	2.00E-03	2.00E-03	4.7E-03	5.6E-02	mg/L	NO
CHLOROETHANE	1/1	100.0	1.70E-02	1.70E-02		2.1E+00	mg/L	NO
DI-N-BUTYLPHTHALATE	1/1	100.0	1.00E-03	1.00E-03		2.9E-01	mg/L	NO
FLUORANTHENE	1/1	100.0	2.00E-03	2.00E-03		3.8E-02	mg/L	NO
PHENANTHRENE	1/1	100.0	1.00E-03	1.00E-03			mg/L	
PYRENE	1/1	100.0	1.00E-03	1.00E-03		3.1E-02	mg/L	NO
TOLUENE	1/1	100.0	1.00E-03	1.00E-03		7.4E-02	mg/L	NO
THORIUM-228	1/1	100.0	1.70E+00	1.70E+00	2.1E-01		pCi/L	YES
THORIUM-230	1/1	100.0	2.20E+00	2.20E+00	1.3E+00		pCi/L	YES
URANIUM-234	1/1	100.0	1.30E+03	1.30E+03	1.1E+00		pCi/L	YES
URANIUM-235	1/1	100.0	5.30E+01	5.30E+01	1.0E+00		pCi/L	YES
URANIUM-238	1/1	100.0	1.80E+03	1.80E+03	7.7E-01		pCi/L	YES

Sample Station=GW-003 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CHLORIDE	2/2	100.0	3.50E+01	3.70E+01			mg/L	
CHROMIUM	1/2	50.0	8.00E-02	8.00E-02		1.6E-02	mg/L	YES
LEAD	2/2	100.0	9.70E-03	1.10E-02		1.5E-02	mg/L	NO
1,1,1-TRICHLOROETHANE	2/2	100.0	2.40E-01	5.10E-01		1.3E-01	mg/L	YES
1,1-DICHLOROETHANE	2/2	100.0	1.90E+00	2.00E+00		8.1E-02	mg/L	YES
1,1-DICHLOROETHENE	2/2	100.0	6.20E-01	6.20E-01	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	1/2	50.0	2.00E-03	2.00E-03	1.6E-04		mg/L	YES
CARBON DISULFIDE	1/2	50.0	1.00E-03	1.00E-03		1.0E-01	mg/L	NO
CHLOROETHANE	1/2	50.0	2.00E-02	2.00E-02		2.1E+00	mg/L	NO
CHLOROFORM	1/2	50.0	8.00E-04	8.00E-04	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	1/2	50.0	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	1/2	50.0	2.00E-03	2.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	1/2	50.0	4.00E-03	4.00E-03	5.4E-03	1.6E-01	mg/L	NO
TOLUENE	1/2	50.0	7.00E-04	7.00E-04		7.4E-02	mg/L	NO
VINYL CHLORIDE	1/2	50.0	9.00E-03	9.00E-03	2.5E-05		mg/L	YES

Sample Station=GW-005 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	5/5	100.0	3.40E-01	6.20E-01		3.3E-01	mg/L	YES
CHROMIUM	4/5	80.0	1.20E-02	4.10E-01		1.6E-02	mg/L	YES
COPPER	5/5	100.0	6.50E-03	5.60E-02			mg/L	

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-005 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TOTAL URANIUM	5/5	100.0	2.20E-02	6.20E-02		1.1E-02	mg/L	YES
VANADIUM	4/5	80.0	6.20E-03	2.70E-02		2.1E-02	mg/L	YES
ZINC	5/5	100.0	1.00E-02	6.00E-01		1.1E+00	mg/L	NO
THORIUM-230	1/1	100.0	2.90E-01	2.90E-01	1.3E+00		pCi/L	NO
URANIUM-234	1/1	100.0	9.80E+00	9.80E+00	1.1E+00		pCi/L	YES
URANIUM-238	1/1	100.0	3.50E+00	3.50E+00	7.7E-01		pCi/L	YES

Sample Station=GW-007 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	1/1	100.0	7.50E-02	7.50E-02		3.3E-01	mg/L	NO
CADMIUM	6/6	100.0	5.00E-03	3.00E-02		1.5E-03	mg/L	YES
CHLORIDE	7/7	100.0	1.60E+01	2.50E+01			mg/L	
LEAD	10/10	100.0	4.40E-03	6.40E-01		1.5E-02	mg/L	YES
1,1,1-TRICHLOROETHANE	6/10	60.0	1.00E-03	4.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	9/10	90.0	4.00E-03	1.10E-02		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	8/10	80.0	1.00E-03	5.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	4/4	100.0	6.70E-02	1.50E-01		3.3E-02	mg/L	YES
2-BUTANONE	3/10	30.0	9.00E-03	9.10E-02		1.9E-01	mg/L	NO
2-HEXANONE	1/10	10.0	2.00E-03	2.00E-03			mg/L	
ACETONE	1/10	10.0	7.00E-03	7.00E-03		3.6E-01	mg/L	NO
BENZENE	1/10	10.0	1.00E-03	1.00E-03	4.9E-04		mg/L	YES
CHLOROFORM	1/10	10.0	2.00E-03	2.00E-03	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	1/10	10.0	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
METHYLENE CHLORIDE	6/10	60.0	1.00E-03	1.00E-02	5.4E-03	1.6E-01	mg/L	YES
TETRACHLOROETHENE	10/10	100.0	4.30E-02	1.00E-01	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	3/10	30.0	5.00E-04	1.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	6/6	100.0	1.30E-01	2.70E-01		7.3E-02	mg/L	YES
TRICHLOROETHENE	9/10	90.0	7.00E-03	2.00E-02	1.9E-03		mg/L	YES
VINYL ACETATE	1/10	10.0	3.00E-03	3.00E-03		4.1E-02	mg/L	NO
VINYL CHLORIDE	5/10	50.0	3.00E-03	6.00E-03	2.5E-05		mg/L	YES

Sample Station=GW-010 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	4.30E+01	4.30E+01			mg/L	
BARIUM	1/1	100.0	8.10E-01	8.10E-01		2.5E-01	mg/L	YES
BERYLLIUM	1/1	100.0	3.10E-03	3.10E-03	1.6E-05	1.5E-02	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-010 Medium=GROUNDWATER
(continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CHROMIUM	9/10	90.0	1.80E-02	1.40E-01		1.6E-02	mg/L	YES
COBALT	1/1	100.0	9.10E-02	9.10E-02			mg/L	
COPPER	1/1	100.0	4.10E-02	4.10E-02			mg/L	
LEAD	10/10	100.0	7.90E-03	8.50E-02		1.5E-02	mg/L	YES
MANGANESE	1/1	100.0	6.90E+00	6.90E+00		4.8E-01	mg/L	YES
NICKEL	1/1	100.0	1.40E-01	1.40E-01		7.2E-02	mg/L	YES
SILICON	1/1	100.0	2.40E+01	2.40E+01			mg/L	
TITANIUM	1/1	100.0	2.90E-01	2.90E-01			mg/L	
VANADIUM	1/1	100.0	4.90E-02	4.90E-02		2.1E-02	mg/L	YES
ZINC	1/1	100.0	1.20E-01	1.20E-01		1.1E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	9/10	90.0	9.00E-04	3.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	9/10	90.0	8.00E-03	1.60E-02		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	10/10	100.0	2.00E-03	8.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	4/4	100.0	1.60E-02	3.00E-02		3.3E-02	mg/L	NO
2-BUTANONE	4/10	40.0	5.00E-03	1.50E-02		1.9E-01	mg/L	NO
2-HEXANONE	1/10	10.0	1.00E-03	1.00E-03			mg/L	
4-METHYL-2-PENTANONE	1/10	10.0	2.00E-03	2.00E-03		1.6E-02	mg/L	NO
ACETONE	4/10	40.0	3.00E-03	1.10E-02		3.6E-01	mg/L	NO
BENZENE	1/10	10.0	1.00E-03	1.00E-03	4.9E-04		mg/L	YES
CHLOROFORM	3/10	30.0	3.00E-03	3.00E-03	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	4/10	40.0	1.00E-03	1.00E-02	5.4E-03	1.6E-01	mg/L	YES
TETRACHLOROETHENE	10/10	100.0	3.00E-03	1.00E-02	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	2/10	20.0	5.00E-04	1.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	6/6	100.0	5.00E-03	3.70E-02		7.3E-02	mg/L	NO
TRICHLOROETHENE	10/10	100.0	4.00E-03	8.00E-03	1.9E-03		mg/L	YES
VINYL ACETATE	1/10	10.0	3.00E-03	3.00E-03		4.1E-02	mg/L	NO

Sample Station=GW-013 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
2-BUTANONE	1/15	6.7	4.00E-03	4.00E-03		1.9E-01	mg/L	NO
4-METHYL-2-PENTANONE	2/15	13.3	1.00E-03	2.00E-03		1.6E-02	mg/L	NO
ACETONE	2/15	13.3	2.00E-03	6.00E-03		3.6E-01	mg/L	NO
METHYLENE CHLORIDE	5/15	33.3	1.00E-03	4.00E-03	5.4E-03	1.6E-01	mg/L	NO
TOLUENE	1/15	6.7	3.00E-03	3.00E-03		7.4E-02	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-014 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ANTIMONY	1/1	100.0	1.10E-01	1.10E-01		1.3E-03	mg/L	YES
BARIUM	1/1	100.0	1.20E+00	1.20E+00		2.5E-01	mg/L	YES
BORON	1/1	100.0	4.20E+00	4.20E+00		3.3E-01	mg/L	YES
CHLORIDE	5/5	100.0	9.80E+01	1.26E+02			mg/L	
LEAD	5/5	100.0	5.00E-03	2.75E-01		1.5E-02	mg/L	YES
LITHIUM	1/1	100.0	3.20E-01	3.20E-01			mg/L	
MANGANESE	3/3	100.0	2.30E+00	3.90E+00		4.8E-01	mg/L	YES
NIOBIUM	1/1	100.0	1.40E-02	1.40E-02			mg/L	
1,1,1-TRICHLOROETHANE	4/6	66.7	2.00E-03	1.10E-01		1.3E-01	mg/L	NO
1,1,2,2-TETRACHLOROETHANE	1/6	16.7	2.40E-02	2.40E-02	7.1E-05		mg/L	YES
1,1,2-TRICHLOROETHANE	1/6	16.7	2.00E-03	2.00E-03	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	7/7	100.0	5.30E-01	1.70E+00		8.1E-02	mg/L	YES
1,1-DICHLOROETHENE	7/7	100.0	9.70E-02	3.60E-01	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	6/6	100.0	6.00E-03	2.80E-02	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	1/1	100.0	2.60E+00	2.60E+00		3.3E-02	mg/L	YES
2-BUTANONE	3/6	50.0	1.80E-02	1.50E+00		1.9E-01	mg/L	YES
2-HEXANONE	2/6	33.3	2.00E-03	1.00E-02			mg/L	
ACETONE	2/6	33.3	1.40E-02	4.00E-02		3.6E-01	mg/L	NO
BENZENE	6/6	100.0	2.60E-02	1.80E-01	4.9E-04		mg/L	YES
CARBON DISULFIDE	1/6	16.7	1.00E-03	1.00E-03		1.0E-01	mg/L	NO
CHLOROETHANE	5/6	83.3	6.90E-02	1.10E-01		2.1E+00	mg/L	NO
CHLOROFORM	3/6	50.0	2.00E-03	3.00E-03	2.1E-04	3.3E-02	mg/L	YES
CIS-1,3-DICHLOROPROPENE	1/6	16.7	4.00E-03	4.00E-03			mg/L	
DIMETHYLBENZENE	4/6	66.7	8.00E-04	6.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	1/6	16.7	1.00E-03	1.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	6/6	100.0	6.00E-03	1.60E-02	5.4E-03	1.6E-01	mg/L	YES
PHENOLS	2/4	50.0	2.00E-03	5.00E-03			mg/L	
TETRACHLOROETHENE	7/7	100.0	1.60E-01	2.70E+01	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	6/6	100.0	8.00E-04	3.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	6/6	100.0	1.70E-02	3.00E+01		7.3E-02	mg/L	YES
TRICHLOROETHENE	7/7	100.0	6.70E-01	1.30E+01	1.9E-03		mg/L	YES
VINYL CHLORIDE	6/7	85.7	7.60E-01	3.40E+00	2.5E-05		mg/L	YES
CESIUM-137	1/1	100.0	8.70E+00	8.70E+00	1.5E+00		pCi/L	YES
URANIUM-234	1/1	100.0	4.80E-01	4.80E-01	1.1E+00		pCi/L	NO
URANIUM-238	1/1	100.0	8.90E-01	8.90E-01	7.7E-01		pCi/L	YES

Sample Station=GW-018 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	1/2	50.0	5.80E-02	5.80E-02		3.3E-01	mg/L	NO
STRONTIUM	2/2	100.0	1.60E-02	1.90E-01		2.2E+00	mg/L	NO
METHYLENE CHLORIDE	1/2	50.0	1.60E-02	1.60E-02	5.4E-03	1.6E-01	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-021 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BARIUM	1/1	100.0	8.20E-01	8.20E-01		2.5E-01	mg/L	YES
LEAD	4/4	100.0	9.00E-03	5.30E-01		1.5E-02	mg/L	YES
ZINC	1/1	100.0	6.80E-02	6.80E-02		1.1E+00	mg/L	NO
1,1-DICHLOROETHANE	3/4	75.0	1.10E-01	2.09E-01		8.1E-02	mg/L	YES
1,2-DICHLOROETHANE	3/4	75.0	1.00E-03	2.00E-03	1.6E-04		mg/L	YES
2-BUTANONE	3/4	75.0	3.00E-03	1.80E-02		1.9E-01	mg/L	NO
2-HEXANONE	1/4	25.0	5.00E-03	5.00E-03			mg/L	
4-METHYL-2-PENTANONE	1/4	25.0	2.00E-03	2.00E-03		1.6E-02	mg/L	NO
ACETONE	2/4	50.0	2.00E-03	4.90E-02		3.6E-01	mg/L	NO
CHLOROETHANE	4/4	100.0	3.40E-01	7.40E-01		2.1E+00	mg/L	NO
CHLOROFORM	3/4	75.0	1.00E-03	3.00E-03	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	3/4	75.0	2.00E-03	6.00E-03	5.4E-03	1.6E-01	mg/L	YES
TETRACHLOROETHENE	2/4	50.0	2.00E-03	1.70E-02	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	2/4	50.0	1.00E-03	1.00E-03	1.9E-03		mg/L	NO
VINYL ACETATE	1/4	25.0	3.00E-03	3.00E-03		4.1E-02	mg/L	NO
VINYL CHLORIDE	1/4	25.0	2.00E-03	2.00E-03	2.5E-05		mg/L	YES

Sample Station=GW-027 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BARIUM	1/1	100.0	1.20E+00	1.20E+00		2.5E-01	mg/L	YES
BORON	1/1	100.0	3.10E+01	3.10E+01		3.3E-01	mg/L	YES
CADMIUM	4/6	66.7	2.00E-03	5.00E-03		1.5E-03	mg/L	YES
CHLORIDE	3/3	100.0	2.77E+02	3.17E+02			mg/L	
COBALT	1/1	100.0	7.80E-02	7.80E-02			mg/L	
COPPER	1/1	100.0	1.50E-02	1.50E-02			mg/L	
LITHIUM	1/1	100.0	9.90E-01	9.90E-01			mg/L	
MANGANESE	1/1	100.0	1.90E+01	1.90E+01		4.8E-01	mg/L	YES
NICKEL	1/1	100.0	4.60E-01	4.60E-01		7.2E-02	mg/L	YES
1,1,1-TRICHLOROETHANE	6/6	100.0	5.00E-01	3.40E+00		1.3E-01	mg/L	YES
1,1,2,2-TETRACHLOROETHANE	1/5	20.0	5.00E-03	5.00E-03	7.1E-05		mg/L	YES
1,1,2-TRICHLOROETHANE	4/6	66.7	3.50E-02	1.30E-01	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	5/5	100.0	7.00E-01	2.60E+00		8.1E-02	mg/L	YES
1,1-DICHLOROETHENE	5/6	83.3	1.60E-01	7.60E-01	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	6/6	100.0	2.30E-02	7.00E-02	1.6E-04		mg/L	YES
2-BUTANONE	4/6	66.7	1.30E-02	3.60E+00		1.9E-01	mg/L	YES
2-HEXANONE	3/6	50.0	7.00E-03	2.20E-01			mg/L	
4-METHYL-2-PENTANONE	3/6	50.0	3.00E-03	3.20E-01		1.6E-02	mg/L	YES
ACETONE	2/5	40.0	1.80E-02	8.50E-01		3.6E-01	mg/L	YES
BENZENE	5/5	100.0	4.80E-02	1.40E-01	4.9E-04		mg/L	YES
CARBON DISULFIDE	1/5	20.0	1.20E-02	1.20E-02		1.0E-01	mg/L	NO
CARBON TETRACHLORIDE	2/5	40.0	7.60E-02	1.90E-01	2.1E-04	2.4E-03	mg/L	YES
CHLOROBENZENE	1/4	25.0	1.00E-03	1.00E-03		3.9E-03	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-027 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CHLOROETHANE	3/5	60.0	8.00E-03	2.80E-02		2.1E+00	mg/L	NO
CHLOROFORM	5/5	100.0	2.00E-03	1.70E+00	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	3/5	60.0	1.30E-02	1.20E-01		5.8E+00	mg/L	NO
ETHYLBENZENE	3/5	60.0	2.00E-03	2.10E-02		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	6/6	100.0	1.10E-02	4.90E-01	5.4E-03	1.6E-01	mg/L	YES
PHENOLS	1/1	100.0	5.10E-02	5.10E-02			mg/L	
STYRENE	1/5	20.0	1.20E-02	1.20E-02		1.1E-01	mg/L	NO
TETRACHLOROETHENE	6/6	100.0	1.00E+00	6.30E+01	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	6/6	100.0	1.70E-02	1.90E-01		7.4E-02	mg/L	YES
TRANS-1,2-DICHLOROETHENE	6/6	100.0	2.30E+00	5.00E+01		7.3E-02	mg/L	YES
TRICHLOROETHENE	6/6	100.0	1.10E+00	1.70E+01	1.9E-03		mg/L	YES
VINYL CHLORIDE	5/6	83.3	4.20E-01	3.10E+00	2.5E-05		mg/L	YES

Sample Station=GW-037 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
FLUORIDE	4/5	80.0	2.90E-01	4.00E-01		2.2E-01	mg/L	YES
ACETONE	1/5	20.0	6.00E-03	6.00E-03		3.6E-01	mg/L	NO
METHYLENE CHLORIDE	1/5	20.0	1.70E-02	1.70E-02	5.4E-03	1.6E-01	mg/L	YES

Sample Station=GW-039 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CADMIUM	8/8	100.0	5.00E-03	5.20E-02		1.5E-03	mg/L	YES
CHLORIDE	5/5	100.0	1.17E+02	1.32E+02			mg/L	
CHROMIUM	8/8	100.0	4.00E-02	6.00E-02		1.6E-02	mg/L	YES
LEAD	8/8	100.0	4.00E-03	1.10E-01		1.5E-02	mg/L	YES
MANGANESE	1/1	100.0	2.20E+00	2.20E+00		4.8E-01	mg/L	YES
NICKEL	1/1	100.0	9.20E-02	9.20E-02		7.2E-02	mg/L	YES
SILICON	1/1	100.0	9.60E+00	9.60E+00			mg/L	
1,1,1-TRICHLOROETHANE	8/8	100.0	1.40E+00	1.30E+01		1.3E-01	mg/L	YES
1,1,2-TRICHLOROETHANE	8/8	100.0	1.20E-01	3.00E-01	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	8/8	100.0	9.00E-01	7.80E+00		8.1E-02	mg/L	YES
1,1-DICHLOROETHENE	8/8	100.0	1.30E+00	1.30E+01	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	8/8	100.0	7.70E-02	1.02E-01	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	1/1	100.0	2.90E+00	2.90E+00		3.3E-02	mg/L	YES
2-BUTANONE	3/8	37.5	1.70E-02	1.20E+00		1.9E-01	mg/L	YES
2-HEXANONE	1/8	12.5	1.00E-03	1.00E-03			mg/L	

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-039 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
4-METHYL-2-PENTANONE	1/8	12.5	2.00E-03	2.00E-03		1.6E-02	mg/L	NO
ACETONE	3/8	37.5	5.90E-02	1.20E-01		3.6E-01	mg/L	NO
BENZENE	8/8	100.0	8.00E-03	1.80E-02	4.9E-04		mg/L	YES
CARBON DISULFIDE	3/8	37.5	2.00E-03	3.60E-02		1.0E-01	mg/L	NO
CHLOROETHANE	7/8	87.5	8.10E-02	1.80E-01		2.1E+00	mg/L	NO
CHLOROFORM	7/8	87.5	6.00E-03	1.80E-02	2.1E-04	3.3E-02	mg/L	YES
CHLOROMETHANE	1/8	12.5	2.00E-03	2.00E-03	1.9E-03		mg/L	YES
DIMETHYLBENZENE	1/8	12.5	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
METHYLENE CHLORIDE	8/8	100.0	7.80E-02	9.90E-02	5.4E-03	1.6E-01	mg/L	YES
PHENOLS	1/1	100.0	3.00E-03	3.00E-03			mg/L	
TETRACHLOROETHENE	8/8	100.0	3.50E-02	6.40E-02	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	2/8	25.0	1.00E-03	2.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	7/7	100.0	3.50E-02	8.90E+00		7.3E-02	mg/L	YES
TRANS-1,3-DICHLOROPROPENE	1/8	12.5	1.50E-02	1.50E-02			mg/L	
TRICHLOROETHENE	8/8	100.0	9.00E-02	2.50E-01	1.9E-03		mg/L	YES
VINYL CHLORIDE	7/8	87.5	4.20E-02	2.90E-01	2.5E-05		mg/L	YES

Sample Station=GW-040 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
FLUORIDE	13/13	100.0	2.00E-01	4.00E-01		2.2E-01	mg/L	YES
LEAD	14/14	100.0	5.50E-03	4.40E-02		1.5E-02	mg/L	YES
VANADIUM	10/13	76.9	5.00E-03	3.50E-02		2.1E-02	mg/L	YES
2-HEXANONE	1/14	7.1	1.00E-03	1.00E-03			mg/L	
4-METHYL-2-PENTANONE	2/14	14.3	1.00E-03	2.00E-03		1.6E-02	mg/L	NO
ACETONE	1/14	7.1	1.00E-03	1.00E-03		3.6E-01	mg/L	NO
METHYLENE CHLORIDE	3/14	21.4	8.00E-04	1.00E-03	5.4E-03	1.6E-01	mg/L	NO
TOLUENE	1/14	7.1	4.00E-04	4.00E-04		7.4E-02	mg/L	NO
TECHNETIUM-99	1/1	100.0	2.00E+01	2.00E+01	3.4E+01		pCi/L	NO
THORIUM-228	1/1	100.0	9.60E-01	9.60E-01	2.1E-01		pCi/L	YES
THORIUM-230	1/1	100.0	4.40E-01	4.40E-01	1.3E+00		pCi/L	NO
THORIUM-232	1/1	100.0	2.70E-01	2.70E-01	1.5E+00		pCi/L	NO
URANIUM-234	1/1	100.0	5.40E-01	5.40E-01	1.1E+00		pCi/L	NO

Sample Station=GW-042 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,1-TRICHLOROETHANE	4/16	25.0	9.00E-04	1.00E-02		1.3E-01	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-042 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CHLOROFORM	1/16	6.3	6.00E-04	6.00E-04	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	2/16	12.5	1.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	1/16	6.3	1.00E-03	1.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	2/16	12.5	6.00E-04	1.00E-03		7.4E-02	mg/L	NO

Sample Station=GW-043 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
2-BUTANONE	2/20	10.0	6.00E-03	9.00E-03		1.9E-01	mg/L	NO
4-METHYL-2-PENTANONE	2/20	10.0	1.00E-03	1.00E-03		1.6E-02	mg/L	NO
ACETONE	2/20	10.0	2.00E-03	3.00E-03		3.6E-01	mg/L	NO
METHYLENE CHLORIDE	3/20	15.0	1.00E-03	3.00E-03	5.4E-03	1.6E-01	mg/L	NO
TOLUENE	1/20	5.0	7.00E-04	7.00E-04		7.4E-02	mg/L	NO
VINYL ACETATE	1/20	5.0	2.00E-03	2.00E-03		4.1E-02	mg/L	NO

Sample Station=GW-044 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,2,2-TETRACHLOROETHANE	1/19	5.3	1.00E-03	1.00E-03	7.1E-05		mg/L	YES
2-BUTANONE	1/19	5.3	1.20E-02	1.20E-02		1.9E-01	mg/L	NO
4-METHYL-2-PENTANONE	2/19	10.5	1.00E-03	3.00E-03		1.6E-02	mg/L	NO
ACETONE	3/19	15.8	3.00E-03	1.50E-02		3.6E-01	mg/L	NO
METHYLENE CHLORIDE	4/19	21.1	1.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
CESIUM-137	1/1	100.0	7.60E+00	7.60E+00	1.5E+00		pCi/L	YES
THORIUM-230	1/1	100.0	7.40E-01	7.40E-01	1.3E+00		pCi/L	NO

Sample Station=GW-045 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
LEAD	5/5	100.0	4.50E-03	3.10E-02		1.5E-02	mg/L	YES
1,1-DICHLOROETHANE	1/6	16.7	4.00E-03	4.00E-03		8.1E-02	mg/L	NO
ACETONE	2/6	33.3	3.00E-03	1.10E-02		3.6E-01	mg/L	NO
CARBON DISULFIDE	1/6	16.7	1.00E-03	1.00E-03		1.0E-01	mg/L	NO
METHYLENE CHLORIDE	1/6	16.7	1.00E-03	1.00E-03	5.4E-03	1.6E-01	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-045 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TETRACHLOROETHENE	6/6	100.0	4.00E-03	1.50E-02	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	1/6	16.7	1.00E-03	1.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	1/2	50.0	8.60E-02	8.60E-02		7.3E-02	mg/L	YES
TRICHLOROETHENE	1/6	16.7	9.00E-03	9.00E-03	1.9E-03		mg/L	YES

Sample Station=GW-046 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	1/1	100.0	5.70E-02	5.70E-02		3.3E-01	mg/L	NO
CHLORIDE	9/9	100.0	8.50E+00	2.80E+01			mg/L	
LEAD	7/9	77.8	4.00E-03	2.57E-01		1.5E-02	mg/L	YES
LITHIUM	1/1	100.0	1.00E-01	1.00E-01			mg/L	
NIOBIUM	1/1	100.0	7.70E-03	7.70E-03			mg/L	
1,1,1-TRICHLOROETHANE	10/10	100.0	6.00E-03	9.70E-01		1.3E-01	mg/L	YES
1,1-DICHLOROETHANE	10/10	100.0	8.00E-03	2.30E-01		8.1E-02	mg/L	YES
1,1-DICHLOROETHENE	10/10	100.0	2.00E-03	1.40E-01	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	8/9	88.9	1.00E-03	1.80E-02	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	4/4	100.0	3.60E-02	2.60E+00		3.3E-02	mg/L	YES
2-BUTANONE	3/8	37.5	3.00E-03	5.00E-03		1.9E-01	mg/L	NO
2-HEXANONE	1/8	12.5	4.00E-03	4.00E-03			mg/L	
4-METHYL-2-PENTANONE	1/9	11.1	2.20E-02	2.20E-02		1.6E-02	mg/L	YES
ACETONE	2/8	25.0	3.00E-03	5.00E-03		3.6E-01	mg/L	NO
BENZENE	10/10	100.0	3.00E-03	1.00E-01	4.9E-04		mg/L	YES
BROMOFORM	6/9	66.7	2.00E-03	2.00E-02	1.1E-02	7.2E-02	mg/L	YES
CARBON TETRACHLORIDE	1/8	12.5	1.10E-02	1.10E-02	2.1E-04	2.4E-03	mg/L	YES
CHLOROETHANE	4/8	50.0	9.00E-03	1.20E-02		2.1E+00	mg/L	NO
CHLOROFORM	9/10	90.0	4.00E-03	5.90E-02	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	8/10	80.0	1.00E-03	3.50E-02		5.8E+00	mg/L	NO
ETHYLBENZENE	1/8	12.5	1.00E-03	1.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	10/10	100.0	1.00E-03	5.40E-02	5.4E-03	1.6E-01	mg/L	YES
TETRACHLOROETHENE	10/10	100.0	2.20E-02	2.00E+00	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	5/8	62.5	3.00E-04	2.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	6/6	100.0	1.70E-01	1.14E+00		7.3E-02	mg/L	YES
TRICHLOROETHENE	10/10	100.0	8.00E-03	8.00E-01	1.9E-03		mg/L	YES
VINYL CHLORIDE	9/10	90.0	9.00E-03	5.30E-01	2.5E-05		mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-047 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CADMIUM	1/1	100.0	3.50E-03	3.50E-03		1.5E-03	mg/L	YES
ZINC	4/4	100.0	5.90E-03	1.10E+00		1.1E+00	mg/L	YES
2-BUTANONE	1/5	20.0	6.00E-03	6.00E-03		1.9E-01	mg/L	NO

Sample Station=GW-052 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	5/5	100.0	3.40E-02	1.30E+00		3.3E-01	mg/L	YES
CHLORIDE	5/5	100.0	1.20E+01	1.85E+01			mg/L	
LEAD	5/5	100.0	7.90E-03	7.80E-02		1.5E-02	mg/L	YES
NITRATE (AS N)	5/5	100.0	6.30E+00	2.80E+01		5.8E+00	mg/L	YES
STRONTIUM	5/5	100.0	1.10E-01	2.00E-01		2.2E+00	mg/L	NO
SULFATE	5/5	100.0	1.87E+01	2.87E+01			mg/L	
TOTAL URANIUM	5/5	100.0	4.20E-02	8.90E-02		1.1E-02	mg/L	YES
4-METHYL-2-PENTANONE	1/5	20.0	2.00E-03	2.00E-03		1.6E-02	mg/L	NO

Sample Station=GW-053 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	14/14	100.0	2.40E-01	4.40E-01		3.3E-01	mg/L	YES
1,1,1-TRICHLOROETHANE	5/14	35.7	9.00E-04	2.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	14/14	100.0	6.00E-03	2.10E-02		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	3/14	21.4	8.00E-04	1.10E-02	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	5/14	35.7	1.00E-03	2.00E-03	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	13/14	92.9	1.00E-02	3.30E-02		3.3E-02	mg/L	YES
2-BUTANONE	1/14	7.1	1.60E-02	1.60E-02		1.9E-01	mg/L	NO
4-METHYL-2-PENTANONE	1/14	7.1	4.00E-03	4.00E-03		1.6E-02	mg/L	NO
ACETONE	2/14	14.3	6.00E-03	1.10E-02		3.6E-01	mg/L	NO
BENZENE	5/14	35.7	6.00E-04	2.00E-03	4.9E-04		mg/L	YES
CHLOROETHANE	3/14	21.4	2.00E-03	3.00E-03		2.1E+00	mg/L	NO
METHYLENE CHLORIDE	6/14	42.9	7.00E-04	1.80E-02	5.4E-03	1.6E-01	mg/L	YES
TETRACHLOROETHENE	8/14	57.1	7.00E-04	1.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	1/14	7.1	1.00E-03	1.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	13/14	92.9	1.00E-03	4.00E-03	1.9E-03		mg/L	YES
VINYL CHLORIDE	14/14	100.0	6.00E-03	2.60E-02	2.5E-05		mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-054 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	10/10	100.0	7.30E-01	1.10E+00		3.3E-01	mg/L	YES
LEAD	8/10	80.0	4.30E-03	7.30E-02		1.5E-02	mg/L	YES
1,1,1-TRICHLOROETHANE	1/10	10.0	7.00E-04	7.00E-04		1.3E-01	mg/L	NO
ACETONE	2/10	20.0	7.00E-03	8.00E-03		3.6E-01	mg/L	NO
METHYLENE CHLORIDE	1/10	10.0	2.30E-02	2.30E-02	5.4E-03	1.6E-01	mg/L	YES
TETRACHLOROETHENE	1/10	10.0	5.00E-04	5.00E-04	7.8E-04	1.9E-02	mg/L	NO
TOLUENE	1/10	10.0	2.00E-03	2.00E-03		7.4E-02	mg/L	NO
VINYL ACETATE	1/10	10.0	2.00E-03	2.00E-03		4.1E-02	mg/L	NO

Sample Station=GW-056 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,2-DICHLOROETHENE	3/17	17.6	2.00E-03	4.00E-03		3.3E-02	mg/L	NO
ACETONE	1/17	5.9	2.60E-02	2.60E-02		3.6E-01	mg/L	NO
CHLOROFORM	2/17	11.8	9.00E-04	2.00E-03	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	4/17	23.5	1.00E-03	2.20E-02	5.4E-03	1.6E-01	mg/L	YES
TOLUENE	1/17	5.9	2.00E-03	2.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	1/17	5.9	6.00E-04	6.00E-04	1.9E-03		mg/L	NO
VINYL ACETATE	1/17	5.9	2.00E-03	2.00E-03		4.1E-02	mg/L	NO

Sample Station=GW-057 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CHLORIDE	11/11	100.0	4.90E+01	3.41E+02			mg/L	
ACETONE	1/11	9.1	5.00E-03	5.00E-03		3.6E-01	mg/L	NO
METHYLENE CHLORIDE	3/11	27.3	1.00E-03	2.20E-02	5.4E-03	1.6E-01	mg/L	YES
VINYL ACETATE	1/11	9.1	2.00E-03	2.00E-03		4.1E-02	mg/L	NO

Sample Station=GW-058 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TOTAL URANIUM	10/10	100.0	8.00E-03	3.20E-02		1.1E-02	mg/L	YES
ACETONE	1/11	9.1	5.00E-03	5.00E-03		3.6E-01	mg/L	NO
BENZENE	1/11	9.1	9.00E-04	9.00E-04	4.9E-04		mg/L	YES
METHYLENE CHLORIDE	4/11	36.4	1.00E-03	1.70E-02	5.4E-03	1.6E-01	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-058 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TOLUENE	1/11	9.1	6.00E-04	6.00E-04		7.4E-02	mg/L	NO
TRICHLOROETHENE	1/11	9.1	6.00E-04	6.00E-04	1.9E-03		mg/L	NO

Sample Station=GW-061 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	15/15	100.0	6.00E+00	2.72E+01		5.8E+00	mg/L	YES
TOTAL URANIUM	15/15	100.0	1.70E-02	8.80E-02		1.1E-02	mg/L	YES
1,2-DICHLOROETHENE	2/15	13.3	9.00E-04	2.00E-03		3.3E-02	mg/L	NO
2-BUTANONE	1/15	6.7	8.00E-03	8.00E-03		1.9E-01	mg/L	NO
ACETONE	2/15	13.3	6.00E-03	2.30E-02		3.6E-01	mg/L	NO
BENZENE	1/15	6.7	9.00E-04	9.00E-04	4.9E-04		mg/L	YES
METHYLENE CHLORIDE	2/15	13.3	1.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
TRICHLOROETHENE	2/15	13.3	7.00E-04	8.00E-04	1.9E-03		mg/L	NO

Sample Station=GW-063 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CHROMIUM	9/11	81.8	1.60E-02	3.40E-01		1.6E-02	mg/L	YES
COPPER	10/11	90.9	6.20E-03	1.90E-01			mg/L	
LEAD	9/11	81.8	5.00E-03	1.40E-01		1.5E-02	mg/L	YES
1,2-DICHLOROETHENE	2/12	16.7	9.00E-04	1.00E-03		3.3E-02	mg/L	NO
ACETONE	3/12	25.0	4.00E-03	6.00E-03		3.6E-01	mg/L	NO
BENZENE	1/12	8.3	9.00E-04	9.00E-04	4.9E-04		mg/L	YES
CARBON TETRACHLORIDE	4/12	33.3	9.00E-04	2.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	4/12	33.3	8.00E-04	1.00E-03	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	1/12	8.3	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
TRICHLOROETHENE	12/12	100.0	1.30E-02	3.70E-02	1.9E-03		mg/L	YES
VINYL ACETATE	1/12	8.3	2.00E-03	2.00E-03		4.1E-02	mg/L	NO

Sample Station=GW-064 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	19/19	100.0	5.80E-01	1.20E+01		5.8E+00	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-064 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,1-TRICHLOROETHANE	13/20	65.0	7.00E-04	2.00E-03		1.3E-01	mg/L	NO
1,2-DICHLOROETHENE	20/20	100.0	5.00E-03	9.80E-02		3.3E-02	mg/L	YES
ACETONE	1/20	5.0	3.00E-02	3.00E-02		3.6E-01	mg/L	NO
CARBON TETRACHLORIDE	18/20	90.0	1.00E-03	5.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	12/20	60.0	2.00E-03	4.00E-03	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	1/20	5.0	1.00E-03	1.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	10/20	50.0	1.00E-03	2.00E-03	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	20/20	100.0	6.40E-02	1.30E-01	1.9E-03		mg/L	YES
VINYL ACETATE	1/20	5.0	3.00E-03	3.00E-03		4.1E-02	mg/L	NO

Sample Station=GW-067 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
COPPER	1/1	100.0	1.70E-02	1.70E-02			mg/L	
LEAD	11/11	100.0	2.00E-02	2.30E-01		1.5E-02	mg/L	YES
1,1-DICHLOROETHANE	7/11	63.6	1.00E-03	2.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	1/11	9.1	2.00E-03	2.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	1/11	9.1	6.00E-04	6.00E-04	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	1/4	25.0	1.00E-03	1.00E-03		3.3E-02	mg/L	NO
2-BUTANONE	3/11	27.3	8.00E-03	1.30E-02		1.9E-01	mg/L	NO
ACETONE	3/11	27.3	1.00E-03	6.00E-03		3.6E-01	mg/L	NO
BENZENE	1/11	9.1	2.00E-03	2.00E-03	4.9E-04		mg/L	YES
CARBON DISULFIDE	1/11	9.1	1.00E-03	1.00E-03		1.0E-01	mg/L	NO
CHLOROFORM	5/11	45.5	4.00E-04	3.00E-03	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	1/11	9.1	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	2/11	18.2	8.00E-04	2.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	5/11	45.5	9.00E-04	4.00E-03	5.4E-03	1.6E-01	mg/L	NO
STYRENE	1/11	9.1	9.00E-04	9.00E-04		1.1E-01	mg/L	NO
TETRACHLOROETHENE	2/11	18.2	9.00E-04	1.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	4/11	36.4	4.00E-04	1.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	2/7	28.6	1.00E-03	2.00E-03		7.3E-02	mg/L	NO
TRICHLOROETHENE	1/11	9.1	3.00E-03	3.00E-03	1.9E-03		mg/L	YES

Sample Station=GW-068 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,1-TRICHLOROETHANE	8/8	100.0	1.40E-02	9.60E-02		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	8/8	100.0	4.00E-01	7.50E-01		8.1E-02	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-068 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1-DICHLOROETHENE	8/8	100.0	6.00E-02	1.10E-01	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	5/8	62.5	2.00E-03	4.00E-03	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	2/2	100.0	3.80E-01	3.90E-01		3.3E-02	mg/L	YES
2-BUTANONE	3/8	37.5	5.00E-03	2.00E-02		1.9E-01	mg/L	NO
2-HEXANONE	1/8	12.5	1.00E-03	1.00E-03			mg/L	
4-METHYL-2-PENTANONE	2/8	25.0	4.00E-03	1.00E-02		1.6E-02	mg/L	NO
ACETONE	5/8	62.5	5.00E-03	1.30E-01		3.6E-01	mg/L	NO
BENZENE	8/8	100.0	2.00E-02	4.30E-02	4.9E-04		mg/L	YES
CARBON DISULFIDE	1/8	12.5	1.00E-03	1.00E-03		1.0E-01	mg/L	NO
CARBON TETRACHLORIDE	1/8	12.5	8.00E-03	8.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROETHANE	1/8	12.5	2.00E-03	2.00E-03		2.1E+00	mg/L	NO
CHLOROFORM	7/8	87.5	1.00E-02	3.30E-02	2.1E-04	3.3E-02	mg/L	YES
CIS-1,3-DICHLOROPROPENE	1/8	12.5	1.00E-03	1.00E-03			mg/L	
DIMETHYLBENZENE	5/8	62.5	1.00E-03	6.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	2/8	25.0	6.00E-03	6.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	7/8	87.5	2.00E-03	6.00E-03	5.4E-03	1.6E-01	mg/L	YES
PHENOLS	3/4	75.0	2.00E-03	9.00E-03			mg/L	
TETRACHLOROETHENE	8/8	100.0	7.10E-02	2.20E-01	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	8/8	100.0	3.00E-03	1.50E-02		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	6/6	100.0	3.90E-01	5.50E-01		7.3E-02	mg/L	YES
TRICHLOROETHENE	8/8	100.0	1.60E-01	7.20E-01	1.9E-03		mg/L	YES
VINYL CHLORIDE	8/8	100.0	7.00E-02	2.30E-01	2.5E-05		mg/L	YES

Sample Station=GW-069 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BARIUM	19/19	100.0	3.30E-01	4.40E-01		2.5E-01	mg/L	YES
CHLORIDE	19/19	100.0	3.00E+01	4.90E+01			mg/L	
ACETONE	1/19	5.3	7.00E-03	7.00E-03		3.6E-01	mg/L	NO
METHYLENE CHLORIDE	1/19	5.3	8.00E-04	8.00E-04	5.4E-03	1.6E-01	mg/L	NO
VINYL CHLORIDE	4/19	21.1	1.00E-03	2.00E-03	2.5E-05		mg/L	YES

Sample Station=GW-071 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CHLORIDE	6/6	100.0	2.80E+01	4.40E+01			mg/L	
1,1,1-TRICHLOROETHANE	6/6	100.0	8.00E-03	3.30E-01		1.3E-01	mg/L	YES
1,1-DICHLOROETHANE	6/6	100.0	2.80E-01	8.20E-01		8.1E-02	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-071 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1-DICHLOROETHENE	5/6	83.3	1.10E-02	1.60E-02	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	5/6	83.3	4.20E-02	5.80E-02		3.3E-02	mg/L	YES
ACETONE	1/6	16.7	2.90E-02	2.90E-02		3.6E-01	mg/L	NO
BENZENE	6/6	100.0	6.90E-02	4.20E-01	4.9E-04		mg/L	YES
TETRACHLOROETHENE	6/6	100.0	4.00E-01	5.90E-01	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	6/6	100.0	4.10E-01	6.50E-01	1.9E-03		mg/L	YES

Sample Station=GW-072 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1-DICHLOROETHANE	6/6	100.0	6.00E-03	2.50E-02		8.1E-02	mg/L	NO
ACETONE	1/6	16.7	7.00E-03	7.00E-03		3.6E-01	mg/L	NO
METHYLENE CHLORIDE	4/6	66.7	2.00E-03	4.00E-03	5.4E-03	1.6E-01	mg/L	NO

Sample Station=GW-073 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,1-TRICHLOROETHANE	4/13	30.8	1.00E-03	2.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	2/13	15.4	1.00E-03	2.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	4/13	30.8	1.00E-03	3.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	5/6	83.3	4.00E-03	1.30E-02		3.3E-02	mg/L	NO
2-BUTANONE	3/13	23.1	5.00E-03	1.10E-02		1.9E-01	mg/L	NO
2-HEXANONE	1/13	7.7	1.00E-03	1.00E-03			mg/L	
ACETONE	3/13	23.1	6.00E-03	2.70E-02		3.6E-01	mg/L	NO
CARBON DISULFIDE	1/13	7.7	1.00E-03	1.00E-03		1.0E-01	mg/L	NO
CHLOROFORM	2/13	15.4	2.00E-03	3.00E-03	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	2/13	15.4	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	1/13	7.7	2.00E-03	2.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	4/13	30.8	2.00E-03	2.40E-02	5.4E-03	1.6E-01	mg/L	YES
STYRENE	1/13	7.7	4.00E-04	4.00E-04		1.1E-01	mg/L	NO
TETRACHLOROETHENE	6/13	46.2	9.00E-04	6.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	2/13	15.4	2.00E-04	1.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	6/7	85.7	1.00E-03	1.30E-02		7.3E-02	mg/L	NO
TRICHLOROETHENE	5/13	38.5	7.00E-04	2.00E-03	1.9E-03		mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-074 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	2/10	20.0	5.00E-03	6.00E-03		3.6E-01	mg/L	NO
TOLUENE	1/10	10.0	7.00E-04	7.00E-04		7.4E-02	mg/L	NO

Sample Station=GW-075 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
METHYLENE CHLORIDE	1/10	10.0	3.00E-03	3.00E-03	5.4E-03	1.6E-01	mg/L	NO

Sample Station=GW-076 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	5/5	100.0	1.90E-02	7.80E-02		3.3E-01	mg/L	NO

Sample Station=GW-077 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	1/5	20.0	4.00E-03	4.00E-03		3.6E-01	mg/L	NO

Sample Station=GW-078 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	1/5	20.0	5.00E-03	5.00E-03		3.6E-01	mg/L	NO
CHLOROFORM	1/5	20.0	5.00E-04	5.00E-04	2.1E-04	3.3E-02	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-079 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	1/10	10.0	1.10E-02	1.10E-02		3.6E-01	mg/L	NO
BENZENE	1/10	10.0	1.00E-03	1.00E-03	4.9E-04		mg/L	YES
METHYLENE CHLORIDE	2/10	20.0	2.00E-03	3.00E-03	5.4E-03	1.6E-01	mg/L	NO

Sample Station=GW-080 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CADMIUM	12/15	80.0	2.20E-03	2.20E-02		1.5E-03	mg/L	YES
COPPER	15/15	100.0	1.00E-02	7.00E-01			mg/L	
LEAD	13/15	86.7	4.20E-03	2.10E-01		1.5E-02	mg/L	YES
4-METHYL-2-PENTANONE	1/15	6.7	1.00E-03	1.00E-03		1.6E-02	mg/L	NO
ACETONE	1/15	6.7	1.00E-02	1.00E-02		3.6E-01	mg/L	NO
BENZENE	1/15	6.7	9.00E-04	9.00E-04	4.9E-04		mg/L	YES
METHYLENE CHLORIDE	2/15	13.3	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO

Sample Station=GW-082 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,1-TRICHLOROETHANE	1/16	6.3	4.00E-04	4.00E-04		1.3E-01	mg/L	NO
1,2-DICHLOROETHENE	13/16	81.3	1.00E-02	9.00E-02		3.3E-02	mg/L	YES
DIMETHYLBENZENE	1/16	6.3	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
TRICHLOROETHENE	1/16	6.3	2.00E-03	2.00E-03	1.9E-03		mg/L	YES
VINYL CHLORIDE	11/16	68.8	1.00E-03	3.10E-02	2.5E-05		mg/L	YES

Sample Station=GW-083 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	1/10	10.0	4.00E-03	4.00E-03		3.6E-01	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-084 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
4-METHYL-2-PENTANONE	1/20	5.0	3.00E-03	3.00E-03		1.6E-02	mg/L	NO
METHYLENE CHLORIDE	1/20	5.0	5.00E-04	5.00E-04	5.4E-03	1.6E-01	mg/L	NO

Sample Station=GW-085 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	16/16	100.0	1.15E+02	3.13E+02		5.8E+00	mg/L	YES
ACETONE	1/20	5.0	1.30E-02	1.30E-02		3.6E-01	mg/L	NO
BROMODICHLOROMETHANE	2/20	10.0	2.00E-03	3.00E-03	1.4E-03	7.2E-02	mg/L	YES
CHLOROFORM	2/20	10.0	1.50E-02	2.50E-02	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	1/20	5.0	4.00E-03	4.00E-03	5.4E-03	1.6E-01	mg/L	NO

Sample Station=GW-086 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BERYLLIUM	6/7	85.7	6.30E-04	1.50E-03	1.6E-05	1.5E-02	mg/L	YES
CHROMIUM	7/7	100.0	3.10E-02	1.10E-01		1.6E-02	mg/L	YES
LEAD	7/7	100.0	8.90E-03	3.80E-02		1.5E-02	mg/L	YES
NICKEL	6/7	85.7	1.40E-02	4.80E-02		7.2E-02	mg/L	NO
VANADIUM	5/7	71.4	1.00E-02	3.60E-02		2.1E-02	mg/L	YES
ZINC	7/7	100.0	2.20E-02	1.60E-01		1.1E+00	mg/L	NO
METHYLENE CHLORIDE	1/9	11.1	4.00E-03	4.00E-03	5.4E-03	1.6E-01	mg/L	NO

Sample Station=GW-087 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	3.10E+00	3.10E+00			mg/L	
BORON	1/1	100.0	1.50E-01	1.50E-01		3.3E-01	mg/L	NO
CHLORIDE	4/4	100.0	2.00E+01	3.30E+01			mg/L	
COPPER	1/1	100.0	3.50E-02	3.50E-02			mg/L	
LEAD	4/4	100.0	1.20E-02	2.60E-02		1.5E-02	mg/L	YES
MERCURY	2/2	100.0	6.00E-04	6.00E-04		1.1E-03	mg/L	NO
NICKEL	1/1	100.0	3.00E-02	3.00E-02		7.2E-02	mg/L	NO
TOTAL URANIUM	4/4	100.0	1.40E-01	5.22E-01		1.1E-02	mg/L	YES
VANADIUM	1/1	100.0	5.40E-03	5.40E-03		2.1E-02	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-087 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ZINC	1/1	100.0	5.20E-02	5.20E-02		1.1E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	9/9	100.0	2.00E-03	1.20E-02		1.3E-01	mg/L	NO
1,1,2,2-TETRACHLOROETHANE	1/9	11.1	4.10E-02	4.10E-02	7.1E-05		mg/L	YES
1,1,2-TRICHLOROETHANE	3/9	33.3	7.00E-03	1.00E-02	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	8/9	88.9	4.00E-03	9.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	7/9	77.8	4.00E-03	1.70E-02	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	9/9	100.0	6.00E-03	2.70E-02	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	3/3	100.0	9.80E-02	1.90E-01		3.3E-02	mg/L	YES
2-BUTANONE	3/9	33.3	1.10E-02	6.00E-02		1.9E-01	mg/L	NO
2-HEXANONE	1/9	11.1	2.00E-03	2.00E-03			mg/L	
4-METHYL-2-PENTANONE	1/9	11.1	2.00E-03	2.00E-03		1.6E-02	mg/L	NO
ACETONE	4/9	44.4	3.00E-03	8.60E-02		3.6E-01	mg/L	NO
BENZENE	9/9	100.0	5.00E-03	5.30E-02	4.9E-04		mg/L	YES
CARBON DISULFIDE	1/9	11.1	1.00E-03	1.00E-03		1.0E-01	mg/L	NO
CHLOROBENZENE	1/9	11.1	3.00E-04	3.00E-04		3.9E-03	mg/L	NO
CHLOROFORM	9/9	100.0	2.60E-02	8.40E-02	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	2/9	22.2	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	1/9	11.1	1.00E-03	1.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	7/9	77.8	1.00E-03	3.40E+00	5.4E-03	1.6E-01	mg/L	YES
PHENOLS	1/4	25.0	2.00E-03	2.00E-03			mg/L	
TETRACHLOROETHENE	9/9	100.0	2.40E-01	1.60E+00	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	3/9	33.3	4.00E-04	1.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	6/6	100.0	1.10E-01	2.40E-01		7.3E-02	mg/L	YES
TRICHLOROETHENE	9/9	100.0	1.70E-01	8.00E-01	1.9E-03		mg/L	YES
VINYL CHLORIDE	3/9	33.3	2.00E-03	7.00E-03	2.5E-05		mg/L	YES
NEPTUNIUM-237	1/1	100.0	2.40E-01	2.40E-01	1.6E-01		pCi/L	YES
TECHNETIUM-99	1/1	100.0	3.60E+01	3.60E+01	3.4E+01		pCi/L	YES
URANIUM-234	1/1	100.0	1.30E+02	1.30E+02	1.1E+00		pCi/L	YES
URANIUM-235	1/1	100.0	8.40E+00	8.40E+00	1.0E+00		pCi/L	YES
URANIUM-238	1/1	100.0	3.80E+02	3.80E+02	7.7E-01		pCi/L	YES

Sample Station=GW-089 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	10/10	100.0	3.10E-02	9.20E-01		3.3E-01	mg/L	YES
LEAD	9/10	90.0	4.30E-03	1.28E-01		1.5E-02	mg/L	YES
1,1-DICHLOROETHANE	10/10	100.0	5.00E-03	2.00E-02		8.1E-02	mg/L	NO
ACETONE	1/10	10.0	5.00E-03	5.00E-03		3.6E-01	mg/L	NO
BENZENE	2/10	20.0	7.00E-04	9.00E-04	4.9E-04		mg/L	YES
CHLOROETHANE	9/10	90.0	6.00E-03	4.50E-02		2.1E+00	mg/L	NO
TOLUENE	1/10	10.0	4.00E-04	4.00E-04		7.4E-02	mg/L	NO
VINYL ACETATE	1/10	10.0	1.00E-03	1.00E-03		4.1E-02	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-089 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
VINYL CHLORIDE	8/10	80.0	2.00E-03	5.00E-03	2.5E-05		mg/L	YES

Sample Station=GW-094 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
LITHIUM	1/1	100.0	8.50E-02	8.50E-02			mg/L	
2-BUTANONE	2/13	15.4	3.00E-03	6.00E-03		1.9E-01	mg/L	NO
ACETONE	3/13	23.1	3.00E-03	7.00E-03		3.6E-01	mg/L	NO
CHLOROFORM	1/13	7.7	2.00E-03	2.00E-03	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	2/13	15.4	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
METHYLENE CHLORIDE	1/13	7.7	1.00E-03	1.00E-03	5.4E-03	1.6E-01	mg/L	NO
PHENOLS	1/4	25.0	2.00E-03	2.00E-03			mg/L	
TOLUENE	2/13	15.4	7.00E-04	1.00E-03		7.4E-02	mg/L	NO

Sample Station=GW-095 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	1/15	6.7	5.00E-03	5.00E-03		3.6E-01	mg/L	NO

Sample Station=GW-097 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1-DICHLOROETHANE	13/13	100.0	9.00E-03	1.70E-02		8.1E-02	mg/L	NO
1,2-DICHLOROETHENE	6/6	100.0	6.00E-03	8.00E-03		3.3E-02	mg/L	NO
2-BUTANONE	3/13	23.1	1.00E-02	1.60E-02		1.9E-01	mg/L	NO
4-METHYL-2-PENTANONE	1/13	7.7	3.00E-03	3.00E-03		1.6E-02	mg/L	NO
ACETONE	3/13	23.1	5.00E-03	9.00E-03		3.6E-01	mg/L	NO
BENZENE	2/13	15.4	4.00E-04	1.00E-03	4.9E-04		mg/L	YES
CHLOROBENZENE	1/13	7.7	2.00E-04	2.00E-04		3.9E-03	mg/L	NO
CHLOROETHANE	9/13	69.2	7.00E-03	1.90E-02		2.1E+00	mg/L	NO
CHLOROFORM	2/13	15.4	5.00E-04	2.00E-03	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	2/13	15.4	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	2/13	15.4	9.00E-04	2.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	6/13	46.2	4.00E-04	6.00E-03	5.4E-03	1.6E-01	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-097 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
PHENOLS	1/4	25.0	3.00E-03	3.00E-03			mg/L	
TETRACHLOROETHENE	2/13	15.4	3.00E-03	3.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	3/13	23.1	4.00E-04	1.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	6/7	85.7	9.00E-03	2.70E-02		7.3E-02	mg/L	NO
TRICHLOROETHENE	2/13	15.4	5.00E-04	2.00E-03	1.9E-03		mg/L	YES
VINYL CHLORIDE	1/13	7.7	2.00E-03	2.00E-03	2.5E-05		mg/L	YES

Sample Station=GW-098 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	1/1	100.0	1.50E-01	1.50E-01		3.3E-01	mg/L	NO
1,1,1-TRICHLOROETHANE	12/13	92.3	1.00E-03	2.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	13/13	100.0	2.00E-03	6.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	11/13	84.6	1.00E-03	4.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	6/6	100.0	2.10E-02	3.50E-02		3.3E-02	mg/L	YES
2-BUTANONE	4/13	30.8	3.00E-03	1.30E-02		1.9E-01	mg/L	NO
2-HEXANONE	1/13	7.7	1.00E-03	1.00E-03			mg/L	
4-METHYL-2-PENTANONE	1/13	7.7	2.00E-03	2.00E-03		1.6E-02	mg/L	NO
ACETONE	6/13	46.2	3.00E-03	8.00E-03		3.6E-01	mg/L	NO
BENZENE	1/13	7.7	2.00E-04	2.00E-04	4.9E-04		mg/L	NO
CHLOROETHANE	3/13	23.1	3.00E-03	4.00E-03		2.1E+00	mg/L	NO
CHLOROFORM	3/13	23.1	6.00E-04	3.00E-03	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	2/13	15.4	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	2/13	15.4	8.00E-04	1.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	7/13	53.8	7.00E-04	4.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	5/13	38.5	9.00E-04	2.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	4/13	30.8	4.00E-04	1.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	6/7	85.7	7.00E-03	2.20E-02		7.3E-02	mg/L	NO
TRICHLOROETHENE	12/13	92.3	6.00E-03	1.20E-02	1.9E-03		mg/L	YES

Sample Station=GW-100 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ANTIMONY	1/2	50.0	1.30E-01	1.30E-01		1.3E-03	mg/L	YES
BARIUM	6/6	100.0	6.40E-01	1.20E+00		2.5E-01	mg/L	YES
BORON	2/2	100.0	5.30E-02	1.00E-01		3.3E-01	mg/L	NO
CADMIUM	8/11	72.7	2.40E-03	6.00E-02		1.5E-03	mg/L	YES
CHLORIDE	12/12	100.0	2.00E+01	7.80E+01			mg/L	

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-100 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
COPPER	2/2	100.0	6.80E-03	2.50E-02			mg/L	
NIOBIUM	1/2	50.0	2.20E-02	2.20E-02			mg/L	
NITRATE (AS N)	12/12	100.0	2.16E+02	4.57E+02		5.8E+00	mg/L	YES
STRONTIUM	2/2	100.0	5.00E-01	6.10E-01		2.2E+00	mg/L	NO
SULFATE	11/11	100.0	1.02E+01	3.70E+01			mg/L	
TOTAL URANIUM	10/12	83.3	1.00E-03	7.40E-02		1.1E-02	mg/L	YES
1,1,1-TRICHLOROETHANE	1/13	7.7	1.00E-03	1.00E-03		1.3E-01	mg/L	NO
2-BUTANONE	3/13	23.1	6.00E-03	8.00E-03		1.9E-01	mg/L	NO
2-HEXANONE	1/13	7.7	1.00E-03	1.00E-03			mg/L	
ACETONE	3/13	23.1	2.00E-03	1.40E-02		3.6E-01	mg/L	NO
CHLOROFORM	3/13	23.1	2.00E-03	3.00E-03	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	2/13	15.4	2.00E-03	5.00E-03	5.4E-03	1.6E-01	mg/L	NO
PHENOLS	1/4	25.0	4.00E-03	4.00E-03			mg/L	
TETRACHLOROETHENE	1/13	7.7	1.00E-03	1.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	1/13	7.7	1.00E-03	1.00E-03		7.4E-02	mg/L	NO

Sample Station=GW-101 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BARIUM	4/4	100.0	2.40E+00	6.60E+00		2.5E-01	mg/L	YES
BORON	3/3	100.0	8.50E-02	2.20E-01		3.3E-01	mg/L	NO
CADMIUM	4/4	100.0	4.30E-03	1.40E-01		1.5E-03	mg/L	YES
CHLORIDE	3/3	100.0	2.80E+01	3.80E+01			mg/L	
COPPER	3/4	75.0	8.00E-02	1.20E-01			mg/L	
MANGANESE	4/4	100.0	4.90E+00	7.60E+00		4.8E-01	mg/L	YES
MERCURY	4/4	100.0	1.40E-03	1.20E-02		1.1E-03	mg/L	YES
NICKEL	1/2	50.0	1.20E-01	1.20E-01		7.2E-02	mg/L	YES
NITRATE (AS N)	4/4	100.0	1.42E+03	2.51E+03		5.8E+00	mg/L	YES
STRONTIUM	4/4	100.0	6.60E+00	1.40E+01		2.2E+00	mg/L	YES
SULFATE	4/4	100.0	6.20E+01	1.20E+02			mg/L	
TOTAL URANIUM	4/4	100.0	4.30E-02	6.20E-02		1.1E-02	mg/L	YES

Sample Station=GW-103 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	6.90E+02	6.90E+02			mg/L	
BERYLLIUM	1/1	100.0	6.40E-02	6.40E-02	1.6E-05	1.5E-02	mg/L	YES
CHLORIDE	1/1	100.0	2.67E+02	2.67E+02			mg/L	

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-103 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
COBALT	1/1	100.0	2.30E+00	2.30E+00			mg/L	
COPPER	1/1	100.0	3.10E+00	3.10E+00			mg/L	
KJELDAHL NITROGEN	1/1	100.0	1.74E+00	1.74E+00			mg/L	
LEAD	1/1	100.0	1.60E-01	1.60E-01		1.5E-02	mg/L	YES
LITHIUM	1/1	100.0	3.50E+00	3.50E+00			mg/L	
MANGANESE	1/1	100.0	1.10E+02	1.10E+02		4.8E-01	mg/L	YES
MERCURY	1/1	100.0	1.60E-02	1.60E-02		1.1E-03	mg/L	YES
NICKEL	1/1	100.0	1.80E+01	1.80E+01		7.2E-02	mg/L	YES
NITRATE (AS N)	1/1	100.0	2.05E+03	2.05E+03		5.8E+00	mg/L	YES
SILICON	1/1	100.0	3.70E+01	3.70E+01			mg/L	
STRONTIUM	1/1	100.0	1.70E+00	1.70E+00		2.2E+00	mg/L	NO
SULFATE	1/1	100.0	8.30E+02	8.30E+02			mg/L	
THORIUM	1/1	100.0	2.80E-01	2.80E-01			mg/L	
TITANIUM	1/1	100.0	3.40E-01	3.40E-01			mg/L	
TOTAL URANIUM	1/1	100.0	3.26E+01	3.26E+01		1.1E-02	mg/L	YES
ZINC	1/1	100.0	5.10E+00	5.10E+00		1.1E+00	mg/L	YES
1,1,1-TRICHLOROETHANE	1/2	50.0	2.80E-02	2.80E-02		1.3E-01	mg/L	NO
ACETONE	1/2	50.0	1.80E-01	1.80E-01		3.6E-01	mg/L	NO
CHLOROFORM	1/2	50.0	9.00E-03	9.00E-03	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	2/2	100.0	5.00E-03	2.20E-02	5.4E-03	1.6E-01	mg/L	YES
TETRACHLOROETHENE	2/2	100.0	7.60E-02	5.20E-01	7.8E-04	1.9E-02	mg/L	YES

Sample Station=GW-104 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,1-TRICHLOROETHANE	1/2	50.0	8.00E-03	8.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHENE	1/2	50.0	5.00E-03	5.00E-03	1.3E-05	3.2E-02	mg/L	YES
ACETONE	1/2	50.0	1.50E-01	1.50E-01		3.6E-01	mg/L	NO
CHLOROFORM	2/2	100.0	2.50E-02	6.80E-02	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	2/2	100.0	1.10E-02	7.30E-02	5.4E-03	1.6E-01	mg/L	YES
TETRACHLOROETHENE	2/2	100.0	3.40E-01	3.70E-01	7.8E-04	1.9E-02	mg/L	YES

Sample Station=GW-115 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	2/18	11.1	6.00E-03	2.50E-02		3.6E-01	mg/L	NO
METHYLENE CHLORIDE	1/18	5.6	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	1/18	5.6	1.00E-03	1.00E-03	7.8E-04	1.9E-02	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-117 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1-DICHLOROETHANE	11/11	100.0	1.00E-03	3.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	1/11	9.1	2.00E-03	2.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	2/11	18.2	1.00E-03	1.00E-03		3.3E-02	mg/L	NO
ACETONE	2/11	18.2	5.00E-03	7.00E-03		3.6E-01	mg/L	NO
BENZENE	1/11	9.1	1.00E-03	1.00E-03	4.9E-04		mg/L	YES
METHYLENE CHLORIDE	1/11	9.1	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	11/11	100.0	9.00E-03	2.20E-02	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	3/11	27.3	9.00E-04	1.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	11/11	100.0	3.00E-03	6.00E-03	1.9E-03		mg/L	YES

Sample Station=GW-118 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
COPPER	3/5	60.0	1.70E-02	4.30E-02			mg/L	
1,1-DICHLOROETHANE	2/16	12.5	6.00E-04	7.00E-04		8.1E-02	mg/L	NO
4-METHYL-2-PENTANONE	1/16	6.3	1.00E-03	1.00E-03		1.6E-02	mg/L	NO
ACETONE	3/16	18.8	5.00E-03	6.90E-02		3.6E-01	mg/L	NO
BENZENE	7/16	43.8	7.00E-04	2.00E-03	4.9E-04		mg/L	YES
TOLUENE	7/16	43.8	8.00E-04	2.00E-03		7.4E-02	mg/L	NO
VINYL ACETATE	3/16	18.8	1.00E-03	6.00E-03		4.1E-02	mg/L	NO

Sample Station=GW-119 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,1-TRICHLOROETHANE	2/11	18.2	5.00E-04	9.00E-04		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	11/11	100.0	5.00E-03	8.00E-03		8.1E-02	mg/L	NO
ACETONE	1/11	9.1	4.00E-03	4.00E-03		3.6E-01	mg/L	NO
TETRACHLOROETHENE	11/11	100.0	1.00E-03	5.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	2/11	18.2	6.00E-04	8.00E-04		7.4E-02	mg/L	NO
TRICHLOROETHENE	7/11	63.6	8.00E-04	3.00E-03	1.9E-03		mg/L	YES

Sample Station=GW-120 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
2-BUTANONE	1/12	8.3	9.00E-03	9.00E-03		1.9E-01	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-120 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
2-HEXANONE	1/12	8.3	1.00E-03	1.00E-03			mg/L	
ACETONE	2/12	16.7	5.00E-03	1.20E-02		3.6E-01	mg/L	NO
CHLOROFORM	1/12	8.3	4.00E-03	4.00E-03	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	2/12	16.7	2.00E-03	1.00E-02	5.4E-03	1.6E-01	mg/L	YES
PHENOLS	1/1	100.0	3.00E-03	3.00E-03			mg/L	
TOLUENE	3/12	25.0	4.00E-04	2.00E-03		7.4E-02	mg/L	NO

Sample Station=GW-122 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BARIUM	5/5	100.0	8.20E+00	1.00E+01		2.5E-01	mg/L	YES
BORON	3/3	100.0	3.40E-01	3.90E-01		3.3E-01	mg/L	YES
CHLORIDE	5/5	100.0	1.19E+02	1.75E+02			mg/L	
COPPER	3/3	100.0	1.10E-02	4.60E-02			mg/L	
NITRATE (AS N)	5/5	100.0	6.60E+02	9.18E+02		5.8E+00	mg/L	YES
STRONTIUM	4/4	100.0	1.90E+01	2.30E+01		2.2E+00	mg/L	YES
TETRACHLOROETHENE	1/6	16.7	1.00E-03	1.00E-03	7.8E-04	1.9E-02	mg/L	YES

Sample Station=GW-123 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	3/11	27.3	1.20E-02	3.70E-02		3.6E-01	mg/L	NO
BENZENE	4/11	36.4	5.00E-04	2.00E-03	4.9E-04		mg/L	YES
TOLUENE	2/11	18.2	9.00E-04	3.00E-03		7.4E-02	mg/L	NO

Sample Station=GW-124 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CADMIUM	6/10	60.0	2.50E-03	9.00E-03		1.5E-03	mg/L	YES
KJELDAHL NITROGEN	1/1	100.0	1.20E+00	1.20E+00			mg/L	
NIOBIUM	1/2	50.0	8.10E-03	8.10E-03			mg/L	
NITRATE (AS N)	8/8	100.0	1.60E+02	3.46E+02		5.8E+00	mg/L	YES
1,1,1-TRICHLOROETHANE	2/14	14.3	1.00E-03	2.00E-03		1.3E-01	mg/L	NO
1,2-DICHLOROETHENE	5/6	83.3	4.00E-03	9.00E-03		3.3E-02	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-124 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
2-BUTANONE	1/14	7.1	9.00E-03	9.00E-03		1.9E-01	mg/L	NO
ACETONE	2/14	14.3	4.00E-03	8.00E-03		3.6E-01	mg/L	NO
CHLOROFORM	13/14	92.9	2.00E-03	6.00E-03	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	1/14	7.1	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
METHYLENE CHLORIDE	3/14	21.4	1.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	14/14	100.0	8.00E-03	2.10E-02	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	4/14	28.6	3.00E-04	1.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	6/8	75.0	5.00E-03	1.30E-02		7.3E-02	mg/L	NO
TRICHLOROETHENE	14/14	100.0	5.00E-03	1.20E-02	1.9E-03		mg/L	YES
VINYL ACETATE	1/14	7.1	1.00E-03	1.00E-03		4.1E-02	mg/L	NO

Sample Station=GW-125 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	3/11	27.3	1.00E-02	3.30E-02		3.6E-01	mg/L	NO
BENZENE	3/11	27.3	2.00E-04	8.00E-04	4.9E-04		mg/L	YES
TOLUENE	5/11	45.5	9.00E-04	1.00E-03		7.4E-02	mg/L	NO

Sample Station=GW-126 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
LITHIUM	1/1	100.0	8.60E-02	8.60E-02			mg/L	
1,2-DICHLOROETHANE	1/13	7.7	4.00E-03	4.00E-03	1.6E-04		mg/L	YES
2-BUTANONE	2/13	15.4	6.00E-03	8.00E-03		1.9E-01	mg/L	NO
2-HEXANONE	1/13	7.7	1.00E-03	1.00E-03			mg/L	
4-METHYL-2-PENTANONE	1/13	7.7	2.00E-03	2.00E-03		1.6E-02	mg/L	NO
ACETONE	3/13	23.1	4.00E-03	1.20E-02		3.6E-01	mg/L	NO
BENZENE	1/13	7.7	1.00E-03	1.00E-03	4.9E-04		mg/L	YES
CHLOROFORM	3/13	23.1	2.00E-03	3.00E-03	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	2/13	15.4	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	1/13	7.7	2.00E-03	2.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	4/13	30.8	1.00E-03	6.00E-03	5.4E-03	1.6E-01	mg/L	YES
TETRACHLOROETHENE	2/13	15.4	1.60E-02	2.10E-02	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	2/13	15.4	1.00E-03	7.10E-02	1.9E-03		mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-127 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	2.40E+01	2.40E+01			mg/L	
BERYLLIUM	1/1	100.0	7.00E-04	7.00E-04	1.6E-05	1.5E-02	mg/L	YES
BORON	1/1	100.0	1.70E-01	1.70E-01		3.3E-01	mg/L	NO
CADMIUM	8/8	100.0	2.70E-03	9.40E-03		1.5E-03	mg/L	YES
CHLORIDE	10/10	100.0	1.07E+02	3.39E+02			mg/L	
COPPER	1/1	100.0	1.20E-01	1.20E-01			mg/L	
FLUORIDE	9/9	100.0	8.00E-01	1.10E+00		2.2E-01	mg/L	YES
KJELDAHL NITROGEN	1/1	100.0	2.00E-01	2.00E-01			mg/L	
MANGANESE	1/1	100.0	2.70E+00	2.70E+00		4.8E-01	mg/L	YES
NICKEL	1/1	100.0	5.60E-02	5.60E-02		7.2E-02	mg/L	NO
NIOBIUM	1/1	100.0	1.70E-02	1.70E-02			mg/L	
NITRATE (AS N)	10/10	100.0	5.00E+00	6.34E+01		5.8E+00	mg/L	YES
SILICON	1/1	100.0	3.90E+01	3.90E+01			mg/L	
SULFATE	10/10	100.0	2.70E+01	2.61E+02			mg/L	
TITANIUM	1/1	100.0	8.50E-01	8.50E-01			mg/L	
TOTAL URANIUM	10/10	100.0	2.00E-03	8.85E-01		1.1E-02	mg/L	YES
VANADIUM	1/1	100.0	2.30E-02	2.30E-02		2.1E-02	mg/L	YES
ZINC	1/1	100.0	7.60E-02	7.60E-02		1.1E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	1/10	10.0	1.00E-03	1.00E-03		1.3E-01	mg/L	NO
2-BUTANONE	1/10	10.0	2.00E-03	2.00E-03		1.9E-01	mg/L	NO
2-CHLOROETHYLVINYL ETHER	1/4	25.0	4.00E-03	4.00E-03			mg/L	
ACETONE	1/10	10.0	4.00E-03	4.00E-03		3.6E-01	mg/L	NO
BENZENE	1/10	10.0	1.00E-03	1.00E-03	4.9E-04		mg/L	YES
CHLOROFORM	3/10	30.0	4.00E-04	1.00E-03	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	1/10	10.0	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
METHYLENE CHLORIDE	2/10	20.0	1.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	5/10	50.0	8.00E-04	4.20E-02	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	2/10	20.0	4.00E-04	1.00E-03		7.4E-02	mg/L	NO
VINYL ACETATE	1/10	10.0	1.00E-03	1.00E-03		4.1E-02	mg/L	NO

Sample Station=GW-162 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	9/9	100.0	3.10E-02	7.10E-02		3.3E-01	mg/L	NO
ACETONE	2/11	18.2	2.00E-03	1.80E-02		3.6E-01	mg/L	NO
CESIUM-137	1/1	100.0	1.00E+01	1.00E+01	1.5E+00		pCi/L	YES
THORIUM-230	1/1	100.0	2.80E-01	2.80E-01	1.3E+00		pCi/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-165 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	2/5	40.0	7.00E-03	2.80E-02		3.6E-01	mg/L	NO
METHYLENE CHLORIDE	1/5	20.0	2.20E-02	2.20E-02	5.4E-03	1.6E-01	mg/L	YES
VINYL ACETATE	1/5	20.0	2.00E-03	2.00E-03		4.1E-02	mg/L	NO

Sample Station=GW-166 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	2/5	40.0	5.00E-03	8.00E-03		3.6E-01	mg/L	NO
METHYLENE CHLORIDE	1/5	20.0	2.30E-02	2.30E-02	5.4E-03	1.6E-01	mg/L	YES
VINYL ACETATE	1/5	20.0	2.00E-03	2.00E-03		4.1E-02	mg/L	NO

Sample Station=GW-209 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
LEAD	3/3	100.0	1.20E-02	1.60E-02		1.5E-02	mg/L	YES

Sample Station=GW-210 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	4/4	100.0	6.60E-02	9.60E-02		3.3E-01	mg/L	NO
SULFATE	4/4	100.0	3.80E+01	4.20E+01			mg/L	
ZINC	4/4	100.0	1.10E+00	5.10E+00		1.1E+00	mg/L	YES
1,1-DICHLOROETHENE	1/5	20.0	1.00E-03	1.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	1/5	20.0	1.00E-03	1.00E-03		3.3E-02	mg/L	NO
2-BUTANONE	1/5	20.0	2.00E-03	2.00E-03		1.9E-01	mg/L	NO
2-HEXANONE	1/5	20.0	5.00E-03	5.00E-03			mg/L	
4-METHYL-2-PENTANONE	1/5	20.0	2.00E-03	2.00E-03		1.6E-02	mg/L	NO
ACETONE	2/5	40.0	6.00E-03	7.00E-03		3.6E-01	mg/L	NO
BENZENE	1/5	20.0	8.00E-04	8.00E-04	4.9E-04		mg/L	YES
CARBON DISULFIDE	1/5	20.0	2.00E-03	2.00E-03		1.0E-01	mg/L	NO
METHYLENE CHLORIDE	1/5	20.0	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
TRICHLOROETHENE	1/5	20.0	2.00E-03	2.00E-03	1.9E-03		mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-211 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	3/3	100.0	1.90E-01	3.00E-01		3.3E-01	mg/L	NO
SULFATE	3/3	100.0	8.50E+02	1.04E+03			mg/L	
ACETONE	1/5	20.0	8.00E-03	8.00E-03		3.6E-01	mg/L	NO

Sample Station=GW-225 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	11/11	100.0	7.20E+01	1.05E+02		5.8E+00	mg/L	YES
1,1,1-TRICHLOROETHANE	9/11	81.8	2.00E-03	4.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHENE	9/11	81.8	3.00E-03	6.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	2/10	20.0	3.00E-03	4.00E-03		3.3E-02	mg/L	NO
ACETONE	1/11	9.1	2.20E-02	2.20E-02		3.6E-01	mg/L	NO
BENZENE	1/10	10.0	2.00E-03	2.00E-03	4.9E-04		mg/L	YES
CARBON TETRACHLORIDE	11/11	100.0	2.00E-03	9.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	6/10	60.0	2.00E-03	5.00E-03	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	1/9	11.1	5.00E-03	5.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	9/11	81.8	2.00E-03	7.00E-03	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	11/11	100.0	3.00E-01	4.60E-01	1.9E-03		mg/L	YES

Sample Station=GW-226 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	5/5	100.0	4.00E-01	7.10E-01		3.3E-01	mg/L	YES
COBALT	5/5	100.0	1.90E-02	1.40E-01			mg/L	
COPPER	4/5	80.0	6.90E-03	1.90E-02			mg/L	
MANGANESE	5/5	100.0	7.50E+00	1.60E+01		4.8E-01	mg/L	YES
TOTAL URANIUM	6/6	100.0	1.40E-02	9.20E-02		1.1E-02	mg/L	YES
ZINC	4/5	80.0	4.50E-02	1.50E-01		1.1E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	1/6	16.7	6.00E-04	6.00E-04		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	4/6	66.7	2.00E-03	3.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	3/6	50.0	1.00E-03	3.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	6/6	100.0	1.50E-02	3.70E-02		3.3E-02	mg/L	YES
ACETONE	1/6	16.7	1.20E-02	1.20E-02		3.6E-01	mg/L	NO
BENZENE	3/6	50.0	4.00E-04	2.00E-03	4.9E-04		mg/L	YES
CHLOROBENZENE	4/6	66.7	4.00E-03	8.00E-03		3.9E-03	mg/L	YES
CHLOROETHANE	2/6	33.3	3.00E-03	4.00E-03		2.1E+00	mg/L	NO
METHYLENE CHLORIDE	1/6	16.7	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
TOLUENE	1/6	16.7	3.00E-03	3.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	6/6	100.0	3.00E-03	2.20E-02	1.9E-03		mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-227 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	10/10	100.0	9.40E+00	4.50E+01		5.8E+00	mg/L	YES
TOTAL URANIUM	10/10	100.0	2.40E-02	1.96E-01		1.1E-02	mg/L	YES
1,2-DICHLOROETHENE	1/11	9.1	3.00E-03	3.00E-03		3.3E-02	mg/L	NO
BENZENE	1/11	9.1	1.00E-03	1.00E-03	4.9E-04		mg/L	YES
CARBON TETRACHLORIDE	1/11	9.1	2.00E-03	2.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	1/11	9.1	1.00E-03	1.00E-03	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	1/11	9.1	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
TRICHLOROETHENE	11/11	100.0	3.00E-03	8.80E-02	1.9E-03		mg/L	YES
VINYL ACETATE	1/11	9.1	2.00E-03	2.00E-03		4.1E-02	mg/L	NO

Sample Station=GW-228 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	3/3	100.0	1.20E-01	1.90E-01		3.3E-01	mg/L	NO
KJELDAHL NITROGEN	1/2	50.0	3.40E-01	3.40E-01			mg/L	
NITRATE (AS N)	13/13	100.0	1.29E+00	3.70E+01		5.8E+00	mg/L	YES
1,1,1-TRICHLOROETHANE	10/17	58.8	7.00E-04	2.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	13/17	76.5	2.00E-03	5.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	2/17	11.8	9.00E-04	5.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	1/17	5.9	4.00E-04	4.00E-04	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	5/6	83.3	8.00E-03	1.20E-02		3.3E-02	mg/L	NO
2-BUTANONE	4/17	23.5	2.00E-03	1.20E-02		1.9E-01	mg/L	NO
2-HEXANONE	2/17	11.8	1.00E-03	4.00E-03			mg/L	
4-METHYL-2-PENTANONE	1/17	5.9	2.00E-03	2.00E-03		1.6E-02	mg/L	NO
ACETONE	4/17	23.5	3.00E-03	1.60E-02		3.6E-01	mg/L	NO
CARBON DISULFIDE	1/17	5.9	1.00E-03	1.00E-03		1.0E-01	mg/L	NO
CARBON TETRACHLORIDE	3/17	17.6	6.00E-04	2.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROETHANE	2/17	11.8	9.00E-04	1.00E-03		2.1E+00	mg/L	NO
CHLOROFORM	13/17	76.5	9.00E-04	6.00E-03	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	1/17	5.9	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	1/17	5.9	2.00E-03	2.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	5/17	29.4	7.00E-04	5.00E-03	5.4E-03	1.6E-01	mg/L	NO
PHENOLS	1/4	25.0	4.00E-03	4.00E-03			mg/L	
STYRENE	1/17	5.9	8.00E-04	8.00E-04		1.1E-01	mg/L	NO
TETRACHLOROETHENE	13/17	76.5	1.00E-03	3.60E-02	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	2/17	11.8	6.00E-04	9.00E-04		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	10/11	90.9	4.00E-03	1.70E-02		7.3E-02	mg/L	NO
TRICHLOROETHENE	17/17	100.0	6.00E-02	1.60E-01	1.9E-03		mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-229 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
AMMONIA NITROGEN	1/3	33.3	3.53E+00	3.53E+00			mg/L	
BORON	4/4	100.0	9.20E-01	3.00E+00		3.3E-01	mg/L	YES
KJELDAHL NITROGEN	3/3	100.0	2.66E+00	4.90E+00			mg/L	
MANGANESE	6/6	100.0	4.40E+00	8.10E+00		4.8E-01	mg/L	YES
NIOBIUM	2/4	50.0	2.60E-02	2.90E-02			mg/L	
TOTAL URANIUM	14/14	100.0	1.10E-02	4.20E-02		1.1E-02	mg/L	YES
1,1,1-TRICHLOROETHANE	3/17	17.6	6.00E-04	2.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	17/17	100.0	4.00E-03	2.00E-02		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	6/17	35.3	1.00E-03	4.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	1/17	5.9	5.00E-04	5.00E-04	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	6/6	100.0	7.00E-04	3.80E-02		3.3E-02	mg/L	YES
2-BUTANONE	3/17	17.6	5.00E-03	1.40E-02		1.9E-01	mg/L	NO
ACETONE	6/17	35.3	7.00E-03	6.00E-02		3.6E-01	mg/L	NO
BENZENE	16/17	94.1	2.00E-03	1.00E-02	4.9E-04		mg/L	YES
CARBON DISULFIDE	1/17	5.9	1.00E-03	1.00E-03		1.0E-01	mg/L	NO
CHLOROBENZENE	13/17	76.5	2.00E-03	6.00E-03		3.9E-03	mg/L	YES
CHLOROETHANE	5/17	29.4	1.00E-03	8.00E-03		2.1E+00	mg/L	NO
CHLOROFORM	3/17	17.6	6.00E-04	3.00E-03	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	3/17	17.6	1.00E-03	6.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	3/17	17.6	9.00E-04	2.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	3/17	17.6	1.00E-03	4.00E-03	5.4E-03	1.6E-01	mg/L	NO
PHENOLS	3/4	75.0	3.00E-03	6.00E-03			mg/L	
TETRACHLOROETHENE	3/17	17.6	4.00E-04	2.40E-02	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	7/17	41.2	5.00E-04	4.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	10/11	90.9	6.00E-04	5.35E-02		7.3E-02	mg/L	NO
TRICHLOROETHENE	5/17	29.4	2.00E-03	4.00E-03	1.9E-03		mg/L	YES
VINYL CHLORIDE	16/17	94.1	1.40E-02	3.50E-02	2.5E-05		mg/L	YES

Sample Station=GW-236 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CADMIUM	2/2	100.0	3.50E-02	1.02E+00		1.5E-03	mg/L	YES
LEAD	2/2	100.0	2.20E-02	3.20E-02		1.5E-02	mg/L	YES
MERCURY	2/2	100.0	6.00E-04	1.90E-03		1.1E-03	mg/L	YES
NITRATE (AS N)	2/2	100.0	3.61E+02	3.85E+02		5.8E+00	mg/L	YES
TOTAL URANIUM	1/2	50.0	5.10E-02	5.10E-02		1.1E-02	mg/L	YES
1,1,1-TRICHLOROETHANE	7/7	100.0	8.00E-03	4.30E-02		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	5/7	71.4	2.00E-03	8.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	2/7	28.6	1.00E-03	5.00E-03	1.3E-05	3.2E-02	mg/L	YES
TETRACHLOROETHENE	5/7	71.4	9.00E-04	2.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	1/7	14.3	3.00E-04	3.00E-04		7.4E-02	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-242 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
LEAD	7/7	100.0	8.50E-03	5.20E-02		1.5E-02	mg/L	YES
1,1,1-TRICHLOROETHANE	1/10	10.0	1.00E-03	1.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	9/10	90.0	2.00E-03	8.00E-03		8.1E-02	mg/L	NO
1,2-DICHLOROETHENE	6/6	100.0	4.20E-02	1.30E-01		3.3E-02	mg/L	YES
2-BUTANONE	2/10	20.0	9.00E-03	1.20E-02		1.9E-01	mg/L	NO
2-HEXANONE	1/10	10.0	3.00E-03	3.00E-03			mg/L	
ACETONE	1/10	10.0	1.70E-02	1.70E-02		3.6E-01	mg/L	NO
METHYLENE CHLORIDE	2/10	20.0	3.00E-03	6.00E-03	5.4E-03	1.6E-01	mg/L	YES
TETRACHLOROETHENE	3/10	30.0	3.00E-03	8.00E-03	7.8E-04	1.9E-02	mg/L	YES
TRANS-1,2-DICHLOROETHENE	3/4	75.0	6.20E-02	9.80E-02		7.3E-02	mg/L	YES
TRICHLOROETHENE	7/10	70.0	1.00E-03	3.10E-02	1.9E-03		mg/L	YES
VINYL CHLORIDE	9/10	90.0	5.00E-03	7.30E-02	2.5E-05		mg/L	YES

Sample Station=GW-243 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	6/6	100.0	6.80E+02	8.00E+02			mg/L	
BARIUM	6/6	100.0	4.80E+00	9.30E+00		2.5E-01	mg/L	YES
BERYLLIUM	5/5	100.0	3.60E-02	7.80E-02	1.6E-05	1.5E-02	mg/L	YES
BORON	6/6	100.0	7.50E-01	2.10E+00		3.3E-01	mg/L	YES
CADMIUM	6/6	100.0	1.90E+00	4.00E+00		1.5E-03	mg/L	YES
CHLORIDE	3/3	100.0	3.97E+02	4.44E+02			mg/L	
CHROMIUM	6/6	100.0	1.90E-01	3.10E-01		1.6E-02	mg/L	YES
COBALT	6/6	100.0	1.20E+00	1.90E+00			mg/L	
COPPER	6/6	100.0	8.90E-01	1.40E+00			mg/L	
FLUORIDE	6/6	100.0	4.00E-01	1.10E+02		2.2E-01	mg/L	YES
MANGANESE	6/6	100.0	1.70E+02	2.20E+02		4.8E-01	mg/L	YES
MERCURY	6/6	100.0	2.30E-03	1.10E-01		1.1E-03	mg/L	YES
NICKEL	6/6	100.0	1.50E+01	2.00E+01		7.2E-02	mg/L	YES
NITRATE (AS N)	6/6	100.0	5.87E+03	6.66E+03		5.8E+00	mg/L	YES
STRONTIUM	6/6	100.0	9.70E+00	1.20E+01		2.2E+00	mg/L	YES
SULFATE	4/4	100.0	5.52E+02	1.80E+03			mg/L	
TOTAL URANIUM	6/6	100.0	1.90E+00	4.40E+01		1.1E-02	mg/L	YES
ZINC	6/6	100.0	3.00E+00	4.60E+00		1.1E+00	mg/L	YES
1,1,1-TRICHLOROETHANE	2/2	100.0	1.90E-02	2.50E-02		1.3E-01	mg/L	NO
1,2-DICHLOROETHENE	5/5	100.0	5.20E-02	1.00E-01		3.3E-02	mg/L	YES
4-METHYL-2-PENTANONE	1/1	100.0	9.70E-02	9.70E-02		1.6E-02	mg/L	YES
ACETONE	6/6	100.0	4.60E-01	6.00E+00		3.6E-01	mg/L	YES
CHLOROFORM	4/4	100.0	3.30E-02	6.90E-02	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	8/8	100.0	1.60E-01	5.60E-01	5.4E-03	1.6E-01	mg/L	YES
TETRACHLOROETHENE	8/8	100.0	3.70E+00	9.00E+00	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	2/2	100.0	1.20E-02	3.50E-02		7.4E-02	mg/L	NO
TRICHLOROETHENE	1/1	100.0	1.60E-02	1.60E-02	1.9E-03		mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-243 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
AMERICIUM-241	5/6	83.3	2.70E+01	3.80E+01	1.5E-01		pCi/L	YES
NEPTUNIUM-237	7/8	87.5	4.00E+01	1.09E+03	1.6E-01		pCi/L	YES
RADIUM (TOTAL ALPHA)	1/1	100.0	3.51E+01	3.51E+01	1.6E-01		pCi/L	YES
STRONTIUM-90	7/8	87.5	7.40E+00	2.54E+02	8.5E-01		pCi/L	YES
TECHNETIUM-99	8/8	100.0	2.31E+04	8.04E+04	3.4E+01		pCi/L	YES
THORIUM-228	1/1	100.0	3.20E+00	3.20E+00	2.1E-01		pCi/L	YES
TRITIUM	8/9	88.9	1.90E+03	5.41E+03	5.8E+02		pCi/L	YES
URANIUM-234	8/8	100.0	8.80E+01	4.65E+03	1.1E+00		pCi/L	YES
URANIUM-235	7/8	87.5	5.20E+00	5.47E+02	1.0E+00		pCi/L	YES
URANIUM-238	8/8	100.0	2.30E+02	1.36E+04	7.7E-01		pCi/L	YES

Sample Station=GW-244 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CADMIUM	7/7	100.0	6.00E-03	1.27E+00		1.5E-03	mg/L	YES
CHLORIDE	4/4	100.0	1.61E+02	2.23E+02			mg/L	
FLUORIDE	4/4	100.0	7.00E+00	3.20E+01		2.2E-01	mg/L	YES
LEAD	7/7	100.0	5.00E-03	1.06E-01		1.5E-02	mg/L	YES
MERCURY	7/7	100.0	8.00E-04	7.00E-03		1.1E-03	mg/L	YES
NITRATE (AS N)	4/4	100.0	5.20E+03	6.20E+03		5.8E+00	mg/L	YES
TOTAL URANIUM	3/5	60.0	1.50E-02	1.11E-01		1.1E-02	mg/L	YES
2-BUTANONE	2/9	22.2	1.40E-02	2.10E-02		1.9E-01	mg/L	NO
2-HEXANONE	1/9	11.1	3.00E-03	3.00E-03			mg/L	
ACETONE	6/9	66.7	8.00E-03	3.20E-02		3.6E-01	mg/L	NO
CARBON DISULFIDE	1/9	11.1	2.00E-03	2.00E-03		1.0E-01	mg/L	NO
CHLOROFORM	9/9	100.0	8.00E-03	1.70E-02	2.1E-04	3.3E-02	mg/L	YES
ETHYLBENZENE	1/9	11.1	8.00E-04	8.00E-04		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	8/9	88.9	6.00E-03	1.00E-02	5.4E-03	1.6E-01	mg/L	YES
TETRACHLOROETHENE	3/9	33.3	5.00E-04	6.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	2/9	22.2	1.00E-03	1.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	1/7	14.3	2.00E-03	2.00E-03		7.3E-02	mg/L	NO
TRICHLOROETHENE	1/9	11.1	2.00E-03	2.00E-03	1.9E-03		mg/L	YES

Sample Station=GW-245 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	1.30E+01	1.30E+01			mg/L	
BARIUM	2/2	100.0	2.00E+01	2.20E+01		2.5E-01	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-245 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BERYLLIUM	1/1	100.0	8.00E-03	8.00E-03	1.6E-05	1.5E-02	mg/L	YES
BORON	1/1	100.0	1.30E-01	1.30E-01		3.3E-01	mg/L	NO
CADMIUM	9/9	100.0	9.00E-03	2.60E-01		1.5E-03	mg/L	YES
CHLORIDE	6/6	100.0	2.23E+02	3.66E+02			mg/L	
COBALT	1/1	100.0	1.40E-01	1.40E-01			mg/L	
FLUORIDE	6/6	100.0	4.00E+00	1.40E+01		2.2E-01	mg/L	YES
LITHIUM	1/1	100.0	6.20E-01	6.20E-01			mg/L	
MANGANESE	1/1	100.0	4.30E+01	4.30E+01		4.8E-01	mg/L	YES
NICKEL	1/1	100.0	1.50E+00	1.50E+00		7.2E-02	mg/L	YES
NITRATE (AS N)	6/6	100.0	2.69E+03	3.81E+03		5.8E+00	mg/L	YES
STRONTIUM	1/1	100.0	1.30E+01	1.30E+01		2.2E+00	mg/L	YES
TOTAL URANIUM	9/9	100.0	7.00E-02	1.88E-01		1.1E-02	mg/L	YES
ZINC	1/1	100.0	1.80E-01	1.80E-01		1.1E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	8/10	80.0	1.00E-03	3.00E-03		1.3E-01	mg/L	NO
2-BUTANONE	2/10	20.0	8.00E-03	1.20E-02		1.9E-01	mg/L	NO
2-HEXANONE	2/10	20.0	1.00E-03	4.00E-03			mg/L	
ACETONE	4/10	40.0	2.00E-03	1.40E-02		3.6E-01	mg/L	NO
CARBON DISULFIDE	2/10	20.0	1.00E-03	2.00E-03		1.0E-01	mg/L	NO
CHLOROFORM	10/10	100.0	6.00E-03	1.10E-02	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	1/10	10.0	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
METHYLENE CHLORIDE	10/10	100.0	5.00E-03	9.00E-03	5.4E-03	1.6E-01	mg/L	YES
TETRACHLOROETHENE	9/10	90.0	9.00E-03	1.90E-02	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	4/10	40.0	9.00E-04	1.00E-03		7.4E-02	mg/L	NO

Sample Station=GW-246 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	9.90E+01	9.90E+01			mg/L	
BARIUM	2/2	100.0	2.50E+01	2.80E+01		2.5E-01	mg/L	YES
BERYLLIUM	1/1	100.0	3.50E-02	3.50E-02	1.6E-05	1.5E-02	mg/L	YES
BORON	1/1	100.0	2.80E-01	2.80E-01		3.3E-01	mg/L	NO
CADMIUM	7/7	100.0	1.69E-01	5.50E-01		1.5E-03	mg/L	YES
CHLORIDE	4/4	100.0	2.88E+02	1.34E+03			mg/L	
COBALT	1/1	100.0	4.80E-01	4.80E-01			mg/L	
FLUORIDE	4/4	100.0	1.10E+00	2.00E+00		2.2E-01	mg/L	YES
LITHIUM	1/1	100.0	1.20E+00	1.20E+00			mg/L	
MANGANESE	1/1	100.0	8.80E+01	8.80E+01		4.8E-01	mg/L	YES
MERCURY	7/7	100.0	1.60E-03	4.00E-03		1.1E-03	mg/L	YES
NICKEL	1/1	100.0	5.00E+00	5.00E+00		7.2E-02	mg/L	YES
NIOBIUM	1/1	100.0	1.00E-01	1.00E-01			mg/L	
NITRATE (AS N)	4/4	100.0	2.86E+03	3.63E+03		5.8E+00	mg/L	YES
STRONTIUM	1/1	100.0	9.40E+00	9.40E+00		2.2E+00	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-246 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TOTAL URANIUM	7/7	100.0	4.64E-01	8.93E-01		1.1E-02	mg/L	YES
ZINC	1/1	100.0	2.80E-01	2.80E-01		1.1E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	9/10	90.0	2.00E-03	4.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHENE	5/10	50.0	1.00E-03	2.00E-03	1.3E-05	3.2E-02	mg/L	YES
2-BUTANONE	2/10	20.0	8.00E-03	2.80E-02		1.9E-01	mg/L	NO
ACETONE	5/10	50.0	5.00E-03	1.50E-02		3.6E-01	mg/L	NO
CARBON DISULFIDE	2/10	20.0	7.00E-04	2.00E-03		1.0E-01	mg/L	NO
CARBON TETRACHLORIDE	1/10	10.0	7.00E-04	7.00E-04	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	9/10	90.0	1.40E-02	2.20E-02	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	2/10	20.0	1.00E-03	1.60E-02		5.8E+00	mg/L	NO
ETHYLBENZENE	2/10	20.0	6.00E-04	4.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	8/10	80.0	9.00E-03	1.30E-02	5.4E-03	1.6E-01	mg/L	YES
TETRACHLOROETHENE	9/10	90.0	2.50E-02	4.80E-02	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	5/10	50.0	6.00E-04	1.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	8/10	80.0	9.00E-04	1.00E-03	1.9E-03		mg/L	NO

Sample Station=GW-247 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BARIUM	2/2	100.0	2.90E+01	3.20E+01		2.5E-01	mg/L	YES
BORON	1/1	100.0	1.40E-01	1.40E-01		3.3E-01	mg/L	NO
CADMIUM	8/8	100.0	7.70E-02	2.10E-01		1.5E-03	mg/L	YES
CHLORIDE	5/5	100.0	2.69E+02	3.04E+02			mg/L	
FLUORIDE	5/5	100.0	1.60E+00	3.80E+00		2.2E-01	mg/L	YES
LITHIUM	1/1	100.0	5.00E-01	5.00E-01			mg/L	
MANGANESE	1/1	100.0	2.40E+01	2.40E+01		4.8E-01	mg/L	YES
NICKEL	1/1	100.0	4.70E-01	4.70E-01		7.2E-02	mg/L	YES
NITRATE (AS N)	5/5	100.0	3.07E+03	3.88E+03		5.8E+00	mg/L	YES
STRONTIUM	1/1	100.0	1.30E+01	1.30E+01		2.2E+00	mg/L	YES
TOTAL URANIUM	8/8	100.0	2.10E-02	3.60E-02		1.1E-02	mg/L	YES
ZINC	1/1	100.0	4.90E-02	4.90E-02		1.1E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	1/10	10.0	2.00E-03	2.00E-03		1.3E-01	mg/L	NO
2-BUTANONE	3/10	30.0	9.00E-03	1.00E-02		1.9E-01	mg/L	NO
2-HEXANONE	1/10	10.0	2.00E-03	2.00E-03			mg/L	
ACETONE	5/10	50.0	2.00E-03	1.30E-02		3.6E-01	mg/L	NO
CHLOROFORM	10/10	100.0	7.00E-03	1.00E-02	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	10/10	100.0	7.00E-03	1.10E-02	5.4E-03	1.6E-01	mg/L	YES
TETRACHLOROETHENE	10/10	100.0	2.00E-03	5.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	4/10	40.0	1.00E-03	2.00E-03		7.4E-02	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-248 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NIOBIUM	2/4	50.0	8.30E-03	1.20E-02			mg/L	
SULFATE	8/8	100.0	3.40E+01	4.30E+01			mg/L	
ACETONE	1/4	25.0	5.00E-03	5.00E-03		3.6E-01	mg/L	NO
PHENOLS	2/8	25.0	1.00E-03	3.00E-03			mg/L	
TETRACHLOROETHENE	1/4	25.0	1.00E-03	1.00E-03	7.8E-04	1.9E-02	mg/L	YES

Sample Station=GW-249 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
SULFATE	5/5	100.0	2.90E+01	6.90E+01			mg/L	
ACETONE	1/5	20.0	1.00E-02	1.00E-02		3.6E-01	mg/L	NO

Sample Station=GW-250 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
SULFATE	8/8	100.0	2.19E+02	3.44E+02			mg/L	
1,1,1-TRICHLOROETHANE	1/10	10.0	1.30E-02	1.30E-02		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	1/10	10.0	2.00E-03	2.00E-03		8.1E-02	mg/L	NO
2-BUTANONE	2/10	20.0	2.00E-03	9.00E-03		1.9E-01	mg/L	NO
ACETONE	3/10	30.0	1.00E-02	4.30E-02		3.6E-01	mg/L	NO
CARBON TETRACHLORIDE	2/10	20.0	1.00E-03	1.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	1/10	10.0	1.00E-03	1.00E-03	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	1/10	10.0	9.00E-04	9.00E-04		5.8E+00	mg/L	NO
ETHYLBENZENE	1/10	10.0	1.00E-03	1.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	3/10	30.0	3.00E-03	6.00E-03	5.4E-03	1.6E-01	mg/L	YES
TETRACHLOROETHENE	2/10	20.0	5.00E-04	4.00E-03	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	1/10	10.0	2.00E-03	2.00E-03	1.9E-03		mg/L	YES

Sample Station=GW-257 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	5/5	100.0	7.90E-01	2.20E+01			mg/L	
LEAD	5/5	100.0	5.50E-03	7.10E-02		1.5E-02	mg/L	YES
ZINC	5/5	100.0	4.90E-03	7.80E-02		1.1E+00	mg/L	NO
CHLOROMETHANE	1/4	25.0	8.00E-03	8.00E-03	1.9E-03		mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-257 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TETRACHLOROETHENE	4/4	100.0	1.30E-01	2.10E-01	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	1/4	25.0	8.00E-04	8.00E-04	1.9E-03		mg/L	NO

Sample Station=GW-258 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NIOBIUM	1/4	25.0	8.50E-03	8.50E-03			mg/L	
PHENOLS	2/8	25.0	6.00E-03	3.30E-02			mg/L	
TETRACHLOROETHENE	4/4	100.0	4.00E-03	2.30E-02	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	1/4	25.0	2.00E-03	2.00E-03	1.9E-03		mg/L	YES
THORIUM-230	1/1	100.0	5.00E-01	5.00E-01	1.3E+00		pCi/L	NO
URANIUM-234	1/1	100.0	1.60E-01	1.60E-01	1.1E+00		pCi/L	NO

Sample Station=GW-259 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NIOBIUM	1/4	25.0	1.00E-02	1.00E-02			mg/L	
1,1,1-TRICHLOROETHANE	2/2	100.0	3.00E-03	3.00E-03		1.3E-01	mg/L	NO
BENZENE	1/3	33.3	5.00E-03	5.00E-03	4.9E-04		mg/L	YES
PHENOLS	3/8	37.5	1.00E-03	2.00E-01			mg/L	
TETRACHLOROETHENE	4/4	100.0	1.30E+00	2.10E+00	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	4/4	100.0	2.30E-02	2.90E-02	1.9E-03		mg/L	YES

Sample Station=GW-276 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	7/7	100.0	1.50E+01	3.80E+02			mg/L	
AMMONIA NITROGEN	4/5	80.0	4.99E+00	5.79E+00			mg/L	
BARIUM	10/10	100.0	6.10E-01	8.70E+00		2.5E-01	mg/L	YES
BERYLLIUM	7/7	100.0	9.90E-03	1.10E-01	1.6E-05	1.5E-02	mg/L	YES
BORON	7/7	100.0	3.60E-02	1.50E-01		3.3E-01	mg/L	NO
CADMIUM	5/5	100.0	6.00E-02	2.90E-01		1.5E-03	mg/L	YES
CHLORIDE	10/10	100.0	1.01E+02	2.00E+02			mg/L	
COBALT	7/7	100.0	2.10E-01	1.40E+00			mg/L	

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

---------- Sample Station=GW-276 Medium=GROUNDWATER ----------
(continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
COPPER	7/7	100.0	3.70E-02	3.90E-01			mg/L	
FLUORIDE	10/10	100.0	2.00E-01	6.20E+00		2.2E-01	mg/L	YES
KJELDAHL NITROGEN	3/5	60.0	9.00E-01	1.80E+00			mg/L	
LEAD	8/10	80.0	1.00E-02	2.80E-01		1.5E-02	mg/L	YES
LITHIUM	5/5	100.0	1.90E-01	2.70E-01			mg/L	
MANGANESE	7/7	100.0	9.50E+00	7.90E+01		4.8E-01	mg/L	YES
MERCURY	7/10	70.0	7.00E-04	2.50E-03		1.1E-03	mg/L	YES
NICKEL	7/7	100.0	6.00E-01	6.90E+00		7.2E-02	mg/L	YES
NIOBIUM	3/5	60.0	7.50E-03	1.50E-02			mg/L	
NITRATE (AS N)	10/10	100.0	1.47E+02	1.58E+03		5.8E+00	mg/L	YES
NITRITE (AS N)	1/4	25.0	6.70E+00	6.70E+00		3.6E-01	mg/L	YES
STRONTIUM	7/7	100.0	3.10E-01	2.70E+00		2.2E+00	mg/L	YES
TOTAL URANIUM	10/10	100.0	2.90E-02	1.35E+01		1.1E-02	mg/L	YES
ZINC	7/7	100.0	2.10E-01	2.40E+00		1.1E+00	mg/L	YES
1,1,1-TRICHLOROETHANE	10/16	62.5	6.00E-04	8.00E-03		1.3E-01	mg/L	NO
1,1,2-TRICHLOROETHANE	1/16	6.3	1.00E-03	1.00E-03	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHENE	5/16	31.3	2.00E-03	3.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	1/16	6.3	4.00E-03	4.00E-03	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	4/8	50.0	1.00E-03	2.00E-03		3.3E-02	mg/L	NO
2,4-DINITROPHENOL	2/5	40.0	1.10E-02	7.70E-02		7.2E-03	mg/L	YES
2-BUTANONE	3/16	18.8	2.00E-03	3.00E-02		1.9E-01	mg/L	NO
2-NITROPHENOL	5/5	100.0	1.80E-02	7.10E-02			mg/L	
4-NITROPHENOL	5/5	100.0	2.20E-02	1.20E-01			mg/L	
ACETONE	8/16	50.0	4.00E-03	1.00E-01		3.6E-01	mg/L	NO
BENZENE	9/16	56.3	6.00E-04	3.00E-03	4.9E-04		mg/L	YES
BENZENEMETHANOL	2/5	40.0	2.00E-03	2.00E-03		1.1E+00	mg/L	NO
BENZOIC ACID	1/5	20.0	5.80E-02	5.80E-02		1.4E+01	mg/L	NO
BIS(2-ETHYLHEXYL)PHTHALATE	3/5	60.0	9.00E-03	2.10E-02	4.7E-03	5.6E-02	mg/L	YES
BROMODICHLOROMETHANE	1/16	6.3	3.00E-03	3.00E-03	1.4E-03	7.2E-02	mg/L	YES
BROMOFORM	1/16	6.3	2.00E-03	2.00E-03	1.1E-02	7.2E-02	mg/L	NO
BUTYLBENZYLPHTHALATE	1/5	20.0	1.00E-03	1.00E-03		5.7E-01	mg/L	NO
CARBON DISULFIDE	1/16	6.3	1.00E-03	1.00E-03		1.0E-01	mg/L	NO
CHLOROBENZENE	1/16	6.3	3.00E-03	3.00E-03		3.9E-03	mg/L	NO
CHLOROFORM	15/16	93.8	1.00E-03	1.00E-02	2.1E-04	3.3E-02	mg/L	YES
DI-N-OCTYLPHTHALATE	1/5	20.0	2.00E-03	2.00E-03		9.9E-04	mg/L	YES
DIBROMOCHLOROMETHANE	1/16	6.3	1.00E-03	1.00E-03	1.0E-03	7.2E-02	mg/L	YES
DIMETHYLBENZENE	10/16	62.5	2.00E-03	5.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	4/16	25.0	6.00E-04	3.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	13/16	81.3	3.00E-03	2.40E-02	5.4E-03	1.6E-01	mg/L	YES
NAPHTHALENE	4/5	80.0	1.00E-03	1.00E-03		1.1E-01	mg/L	NO
PHENOLS	1/5	20.0	2.00E-03	2.00E-03			mg/L	
TETRACHLOROETHENE	16/16	100.0	8.00E-03	2.50E-01	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	13/16	81.3	1.00E-03	5.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	1/10	10.0	2.00E-03	2.00E-03		7.3E-02	mg/L	NO
TRICHLOROETHENE	9/16	56.3	8.00E-04	7.00E-03	1.9E-03		mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-277 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
AMMONIA NITROGEN	1/3	33.3	1.82E+00	1.82E+00			mg/L	
BARIUM	7/7	100.0	8.00E+00	1.30E+01		2.5E-01	mg/L	YES
BORON	3/3	100.0	8.60E-02	2.40E-01		3.3E-01	mg/L	NO
CHLORIDE	12/12	100.0	1.14E+02	2.25E+02			mg/L	
KJELDAHL NITROGEN	1/3	33.3	4.00E-01	4.00E-01			mg/L	
LITHIUM	3/3	100.0	1.00E-01	1.30E-01			mg/L	
MANGANESE	3/3	100.0	5.30E+00	8.50E+00		4.8E-01	mg/L	YES
NIOBIUM	1/2	50.0	1.20E-02	1.20E-02			mg/L	
NITRATE (AS N)	12/12	100.0	1.46E+03	2.72E+03		5.8E+00	mg/L	YES
STRONTIUM	3/3	100.0	6.50E+00	7.50E+00		2.2E+00	mg/L	YES
THALLIUM	1/3	33.3	1.00E-02	1.00E-02			mg/L	
TITANIUM	2/3	66.7	1.60E-01	2.50E-01			mg/L	
TOTAL URANIUM	12/12	100.0	7.00E-03	9.20E-02		1.1E-02	mg/L	YES
ZINC	2/2	100.0	7.20E-02	2.30E-01		1.1E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	3/14	21.4	4.00E-04	8.00E-04		1.3E-01	mg/L	NO
2-BUTANONE	2/14	14.3	3.00E-03	2.80E-02		1.9E-01	mg/L	NO
ACETONE	2/14	14.3	4.00E-03	4.10E-02		3.6E-01	mg/L	NO
BENZOIC ACID	1/5	20.0	6.00E-03	6.00E-03		1.4E+01	mg/L	NO
BIS(2-ETHYLHEXYL)PHTHALATE	3/5	60.0	1.00E-03	3.20E-02	4.7E-03	5.6E-02	mg/L	YES
BUTYLBENZYLPHTHALATE	1/5	20.0	1.00E-03	1.00E-03		5.7E-01	mg/L	NO
CHLOROFORM	14/14	100.0	1.00E-03	4.00E-03	2.1E-04	3.3E-02	mg/L	YES
CHLOROMETHANE	1/14	7.1	1.00E-02	1.00E-02	1.9E-03		mg/L	YES
DI-N-BUTYLPHTHALATE	1/5	20.0	2.00E-03	2.00E-03		2.9E-01	mg/L	NO
DI-N-OCTYLPHTHALATE	1/5	20.0	3.00E-03	3.00E-03		9.9E-04	mg/L	YES
METHYLENE CHLORIDE	11/14	78.6	2.00E-03	6.00E-03	5.4E-03	1.6E-01	mg/L	YES
PHENOLS	1/5	20.0	1.00E-03	1.00E-03			mg/L	
TETRACHLOROETHENE	11/14	78.6	2.00E-03	1.70E-02	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	4/14	28.6	4.00E-04	4.00E-03		7.4E-02	mg/L	NO

Sample Station=GW-286 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TRICHLOROETHENE	1/11	9.1	3.00E-03	3.00E-03	1.9E-03		mg/L	YES

Sample Station=GW-287 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TETRACHLOROETHENE	3/15	20.0	7.00E-04	2.00E-03	7.8E-04	1.9E-02	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-288 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NIOBIUM	1/4	25.0	1.30E-02	1.30E-02			mg/L	
1,1-DICHLOROETHANE	1/8	12.5	5.00E-03	5.00E-03		8.1E-02	mg/L	NO
1,2-DICHLOROETHENE	1/4	25.0	3.00E-03	3.00E-03		3.3E-02	mg/L	NO
2-BUTANONE	1/8	12.5	1.40E-02	1.40E-02		1.9E-01	mg/L	NO
4-METHYL-2-PENTANONE	1/8	12.5	9.00E-03	9.00E-03		1.6E-02	mg/L	NO
ACETONE	2/8	25.0	4.00E-03	1.40E-02		3.6E-01	mg/L	NO
CHLOROFORM	2/8	25.0	5.00E-04	1.00E-03	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	1/8	12.5	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	1/8	12.5	2.00E-03	2.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	3/8	37.5	2.00E-03	4.00E-03	5.4E-03	1.6E-01	mg/L	NO
PHENOLS	1/4	25.0	4.00E-03	4.00E-03			mg/L	
TETRACHLOROETHENE	8/9	88.9	9.10E-01	1.60E+00	7.8E-04	1.9E-02	mg/L	YES
TRANS-1,2-DICHLOROETHENE	1/4	25.0	4.00E-03	4.00E-03		7.3E-02	mg/L	NO
TRICHLOROETHENE	9/9	100.0	1.00E-03	1.50E-02	1.9E-03		mg/L	YES

Sample Station=GW-289 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	2/8	25.0	1.20E-02	4.10E-02		3.6E-01	mg/L	NO
CARBON DISULFIDE	1/8	12.5	4.00E-04	4.00E-04		1.0E-01	mg/L	NO
CHLOROBENZENE	1/8	12.5	7.00E-04	7.00E-04		3.9E-03	mg/L	NO
DIMETHYLBENZENE	1/8	12.5	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	1/8	12.5	2.00E-03	2.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	2/8	25.0	1.00E-03	5.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	9/9	100.0	5.70E-01	1.30E+00	7.8E-04	1.9E-02	mg/L	YES
TRANS-1,2-DICHLOROETHENE	1/4	25.0	1.00E-02	1.00E-02		7.3E-02	mg/L	NO
TRICHLOROETHENE	6/8	75.0	5.00E-03	8.00E-03	1.9E-03		mg/L	YES

Sample Station=GW-290 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	5/5	100.0	4.30E-01	8.80E-01		3.3E-01	mg/L	YES
NIOBIUM	1/4	25.0	1.70E-02	1.70E-02			mg/L	
2-BUTANONE	1/9	11.1	6.00E-03	6.00E-03		1.9E-01	mg/L	NO
4-METHYL-2-PENTANONE	1/9	11.1	2.00E-03	2.00E-03		1.6E-02	mg/L	NO
ACETONE	2/9	22.2	5.00E-03	8.00E-03		3.6E-01	mg/L	NO
DIMETHYLBENZENE	1/9	11.1	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	1/9	11.1	2.00E-03	2.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	2/9	22.2	1.00E-03	4.00E-03	5.4E-03	1.6E-01	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-290 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
PHENOLS	3/4	75.0	4.00E-03	1.71E-02			mg/L	
TETRACHLOROETHENE	5/9	55.6	2.00E-03	7.00E-03	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	1/9	11.1	2.00E-03	2.00E-03	1.9E-03		mg/L	YES

Sample Station=GW-291 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	6/6	100.0	2.10E+00	5.10E+00		3.3E-01	mg/L	YES
COPPER	6/6	100.0	1.50E-02	6.60E+00			mg/L	
NIOBIUM	1/4	25.0	1.40E-02	1.40E-02			mg/L	
ZINC	6/6	100.0	2.20E-02	4.30E-01		1.1E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	5/9	55.6	2.00E-03	4.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	1/9	11.1	7.00E-04	7.00E-04		8.1E-02	mg/L	NO
1,2-DICHLOROETHENE	2/6	33.3	8.00E-03	1.10E-02		3.3E-02	mg/L	NO
2-BUTANONE	1/9	11.1	1.90E-02	1.90E-02		1.9E-01	mg/L	NO
4-METHYL-2-PENTANONE	1/9	11.1	1.00E-03	1.00E-03		1.6E-02	mg/L	NO
ACETONE	2/9	22.2	3.30E-02	1.10E-01		3.6E-01	mg/L	NO
CHLOROFORM	2/9	22.2	8.00E-04	9.00E-04	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	1/9	11.1	1.00E-03	1.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	1/9	11.1	2.00E-03	2.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	1/9	11.1	4.00E-03	4.00E-03	5.4E-03	1.6E-01	mg/L	NO
PHENOLS	2/4	50.0	1.00E-03	2.00E-03			mg/L	
TETRACHLOROETHENE	9/9	100.0	2.40E-01	6.70E-01	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	1/9	11.1	8.00E-04	8.00E-04		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	2/3	66.7	7.00E-03	1.00E-02		7.3E-02	mg/L	NO
TRICHLOROETHENE	9/9	100.0	4.30E-02	1.10E-01	1.9E-03		mg/L	YES
CESIUM-137	1/1	100.0	1.10E+01	1.10E+01	1.5E+00		pCi/L	YES
THORIUM-230	1/1	100.0	5.00E-01	5.00E-01	1.3E+00		pCi/L	NO
TRITIUM	1/1	100.0	6.20E+02	6.20E+02	5.8E+02		pCi/L	YES
URANIUM-234	1/1	100.0	1.50E-01	1.50E-01	1.1E+00		pCi/L	NO

Sample Station=GW-306 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	6/6	100.0	7.00E+00	1.20E+01		5.8E+00	mg/L	YES
1,1,1-TRICHLOROETHANE	5/6	83.3	2.00E-03	3.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	1/6	16.7	1.00E-03	1.00E-03		8.1E-02	mg/L	NO
1,2-DICHLOROETHENE	5/6	83.3	8.00E-03	1.60E-02		3.3E-02	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-306 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
4-METHYL-2-PENTANONE	1/6	16.7	8.00E-03	8.00E-03		1.6E-02	mg/L	NO
CARBON TETRACHLORIDE	5/6	83.3	1.00E-03	3.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	3/6	50.0	4.00E-03	4.00E-03	2.1E-04	3.3E-02	mg/L	YES
TETRACHLOROETHENE	1/6	16.7	7.00E-04	7.00E-04	7.8E-04	1.9E-02	mg/L	NO
TRICHLOROETHENE	6/6	100.0	6.50E-02	8.30E-02	1.9E-03		mg/L	YES

Sample Station=GW-307 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
COPPER	4/5	80.0	5.10E-03	3.40E-02			mg/L	
NITRATE (AS N)	5/5	100.0	1.10E+01	2.10E+01		5.8E+00	mg/L	YES
ZINC	5/5	100.0	8.70E-03	7.40E-02		1.1E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	6/6	100.0	2.00E-03	3.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	5/6	83.3	3.00E-03	4.00E-03		8.1E-02	mg/L	NO
1,2-DICHLOROETHENE	5/6	83.3	1.50E-02	2.30E-02		3.3E-02	mg/L	NO
ACETONE	1/6	16.7	4.00E-03	4.00E-03		3.6E-01	mg/L	NO
CARBON TETRACHLORIDE	4/6	66.7	2.00E-03	4.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	4/6	66.7	5.00E-03	6.00E-03	2.1E-04	3.3E-02	mg/L	YES
TETRACHLOROETHENE	5/6	83.3	1.00E-03	2.00E-03	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	6/6	100.0	3.70E-02	6.70E-02	1.9E-03		mg/L	YES

Sample Station=GW-308 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
COPPER	5/5	100.0	1.80E-02	8.00E-02			mg/L	
NITRATE (AS N)	5/5	100.0	8.00E+00	1.90E+01		5.8E+00	mg/L	YES
ZINC	5/5	100.0	2.10E-02	5.00E-02		1.1E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	4/6	66.7	2.00E-03	3.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	4/6	66.7	2.00E-03	3.00E-03		8.1E-02	mg/L	NO
1,2-DICHLOROETHENE	5/6	83.3	1.10E-02	2.40E-02		3.3E-02	mg/L	NO
CARBON TETRACHLORIDE	3/6	50.0	1.00E-03	4.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	3/6	50.0	4.00E-03	5.00E-03	2.1E-04	3.3E-02	mg/L	YES
TETRACHLOROETHENE	4/6	66.7	7.00E-04	1.00E-03	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	6/6	100.0	3.00E-02	5.40E-02	1.9E-03		mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-309 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
MANGANESE	11/11	100.0	2.40E+00	3.80E+00		4.8E-01	mg/L	YES
NITRATE (AS N)	11/11	100.0	1.05E+01	2.30E+01		5.8E+00	mg/L	YES
1,2-DICHLOROETHENE	10/11	90.9	3.00E-03	2.30E-02		3.3E-02	mg/L	NO
METHYLENE CHLORIDE	1/11	9.1	6.00E-04	6.00E-04	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	7/11	63.6	1.00E-03	2.00E-03	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	11/11	100.0	3.00E-03	2.50E-02	1.9E-03		mg/L	YES
VINYL ACETATE	1/11	9.1	2.00E-03	2.00E-03		4.1E-02	mg/L	NO

Sample Station=GW-310 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	6/6	100.0	1.30E-01	1.80E-01		3.3E-01	mg/L	NO
NITRATE (AS N)	6/6	100.0	5.00E+00	4.80E+01		5.8E+00	mg/L	YES
1,2-DICHLOROETHENE	6/6	100.0	9.00E-03	3.40E-02		3.3E-02	mg/L	YES
CHLOROFORM	1/6	16.7	7.00E-04	7.00E-04	2.1E-04	3.3E-02	mg/L	YES
TETRACHLOROETHENE	5/6	83.3	1.00E-03	4.00E-03	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	6/6	100.0	1.70E-02	5.20E-02	1.9E-03		mg/L	YES

Sample Station=GW-311 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	1/14	7.1	5.00E-03	5.00E-03		3.6E-01	mg/L	NO
CARBON TETRACHLORIDE	13/14	92.9	7.00E-04	4.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	12/14	85.7	8.00E-04	2.00E-03	2.1E-04	3.3E-02	mg/L	YES
TRICHLOROETHENE	14/14	100.0	1.00E-02	3.80E-02	1.9E-03		mg/L	YES

Sample Station=GW-312 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,2-DICHLOROETHENE	2/14	14.3	1.00E-03	1.00E-03		3.3E-02	mg/L	NO
4-METHYL-2-PENTANONE	1/14	7.1	5.00E-03	5.00E-03		1.6E-02	mg/L	NO
ACETONE	1/14	7.1	1.30E-02	1.30E-02		3.6E-01	mg/L	NO
CARBON TETRACHLORIDE	1/14	7.1	1.00E-03	1.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	9/14	64.3	5.00E-04	2.00E-03	2.1E-04	3.3E-02	mg/L	YES
TRICHLOROETHENE	14/14	100.0	1.00E-02	8.30E-02	1.9E-03		mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-313 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,2-DICHLOROETHENE	9/11	81.8	3.00E-03	1.20E-01		3.3E-02	mg/L	YES
ACETONE	1/11	9.1	1.20E-02	1.20E-02		3.6E-01	mg/L	NO
CHLOROFORM	1/11	9.1	2.00E-03	2.00E-03	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	1/11	9.1	9.00E-04	9.00E-04	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	11/11	100.0	8.00E-04	1.80E-02	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	10/11	90.9	1.00E-03	1.00E-02	1.9E-03		mg/L	YES

Sample Station=GW-314 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,2-DICHLOROETHENE	10/11	90.9	3.00E-03	1.40E-01		3.3E-02	mg/L	YES
ACETONE	1/11	9.1	5.00E-03	5.00E-03		3.6E-01	mg/L	NO
TETRACHLOROETHENE	10/11	90.9	5.00E-03	2.40E-02	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	10/11	90.9	2.00E-03	1.00E-02	1.9E-03		mg/L	YES

Sample Station=GW-315 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	20/20	100.0	2.00E+00	3.41E+01		5.8E+00	mg/L	YES
1,2-DICHLOROETHENE	17/20	85.0	2.00E-03	4.50E-02		3.3E-02	mg/L	YES
BROMODICHLOROMETHANE	6/20	30.0	1.00E-03	4.00E-03	1.4E-03	7.2E-02	mg/L	YES
CHLOROFORM	11/20	55.0	7.00E-04	1.10E-02	2.1E-04	3.3E-02	mg/L	YES
TETRACHLOROETHENE	19/20	95.0	5.00E-03	5.50E-02	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	19/20	95.0	1.00E-03	2.20E-02	1.9E-03		mg/L	YES

Sample Station=GW-316 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
4-METHYL-2-PENTANONE	1/16	6.3	4.00E-03	4.00E-03		1.6E-02	mg/L	NO
ACETONE	2/16	12.5	1.00E-03	2.20E-02		3.6E-01	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-317 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
2-BUTANONE	1/20	5.0	4.00E-03	4.00E-03		1.9E-01	mg/L	NO
ACETONE	1/20	5.0	5.00E-03	5.00E-03		3.6E-01	mg/L	NO
TRICHLOROETHENE	1/20	5.0	2.00E-03	2.00E-03	1.9E-03		mg/L	YES

Sample Station=GW-323 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
2-BUTANONE	1/16	6.3	3.00E-03	3.00E-03		1.9E-01	mg/L	NO
METHYLENE CHLORIDE	1/16	6.3	9.00E-04	9.00E-04	5.4E-03	1.6E-01	mg/L	NO
TRICHLOROETHENE	1/16	6.3	7.00E-04	7.00E-04	1.9E-03		mg/L	NO

Sample Station=GW-324 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
METHYLENE CHLORIDE	1/11	9.1	1.00E-03	1.00E-03	5.4E-03	1.6E-01	mg/L	NO

Sample Station=GW-325 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ZINC	7/8	87.5	2.40E-02	9.50E-02		1.1E+00	mg/L	NO
CHLOROBENZENE	1/11	9.1	6.00E-04	6.00E-04		3.9E-03	mg/L	NO
METHYLENE CHLORIDE	1/11	9.1	1.00E-03	1.00E-03	5.4E-03	1.6E-01	mg/L	NO

Sample Station=GW-342 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	1/11	9.1	1.20E-02	1.20E-02		3.6E-01	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-343 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	2/11	18.2	5.00E-03	6.00E-03		3.6E-01	mg/L	NO

Sample Station=GW-345 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	4/4	100.0	1.60E-02	5.30E-02		3.3E-01	mg/L	NO
CHLORIDE	5/5	100.0	4.80E+00	1.50E+01			mg/L	
NITRATE (AS N)	5/5	100.0	1.90E+00	1.86E+02		5.8E+00	mg/L	YES
STRONTIUM	4/4	100.0	3.00E-02	1.70E-01		2.2E+00	mg/L	NO
CHLOROFORM	2/11	18.2	2.00E-03	2.00E-03	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	2/11	18.2	3.00E-03	5.00E-03	5.4E-03	1.6E-01	mg/L	NO

Sample Station=GW-346 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BARIUM	4/4	100.0	1.60E+00	2.20E+00		2.5E-01	mg/L	YES
CHLORIDE	5/5	100.0	7.00E+00	6.50E+01			mg/L	
NITRATE (AS N)	5/5	100.0	8.06E+02	1.00E+03		5.8E+00	mg/L	YES
2-BUTANONE	1/7	14.3	2.00E-03	2.00E-03		1.9E-01	mg/L	NO
ACETONE	1/7	14.3	3.00E-03	3.00E-03		3.6E-01	mg/L	NO
METHYLENE CHLORIDE	1/7	14.3	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
TOLUENE	1/7	14.3	4.00E-04	4.00E-04		7.4E-02	mg/L	NO

Sample Station=GW-347 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	1/18	5.6	8.00E-03	8.00E-03		3.6E-01	mg/L	NO
DIMETHYLBENZENE	1/18	5.6	3.00E-03	3.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	1/18	5.6	1.00E-03	1.00E-03		1.2E-01	mg/L	NO
TOLUENE	1/18	5.6	5.00E-04	5.00E-04		7.4E-02	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-348 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CHLORIDE	18/18	100.0	7.70E+00	1.00E+01			mg/L	
NITRATE (AS N)	17/17	100.0	4.00E+00	1.40E+01		5.8E+00	mg/L	YES
STRONTIUM	18/18	100.0	8.70E-02	1.00E-01		2.2E+00	mg/L	NO
TETRACHLOROETHENE	2/18	11.1	4.00E-04	9.00E-04	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	3/18	16.7	5.00E-04	6.00E-03	1.9E-03		mg/L	YES

Sample Station=GW-364 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	15/15	100.0	1.50E-01	2.40E+01			mg/L	
BERYLLIUM	8/15	53.3	4.60E-04	1.40E-03	1.6E-05	1.5E-02	mg/L	YES
LEAD	10/16	62.5	8.40E-03	4.30E-02		1.5E-02	mg/L	YES
SILICON	5/5	100.0	6.30E+00	2.20E+01			mg/L	
1,1,1-TRICHLOROETHANE	14/16	87.5	1.00E-03	3.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	15/16	93.8	2.00E-03	6.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	14/16	87.5	2.00E-03	9.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	13/16	81.3	4.00E-03	1.20E-02		3.3E-02	mg/L	NO
TETRACHLOROETHENE	1/16	6.3	3.00E-04	3.00E-04	7.8E-04	1.9E-02	mg/L	NO
TRICHLOROETHENE	16/16	100.0	6.00E-03	2.10E-02	1.9E-03		mg/L	YES
VINYL ACETATE	1/16	6.3	2.00E-03	2.00E-03		4.1E-02	mg/L	NO

Sample Station=GW-365 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	15/15	100.0	1.50E-01	2.60E-01		3.3E-01	mg/L	NO
1,1,1-TRICHLOROETHANE	16/16	100.0	2.00E-03	1.30E-02		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	15/16	93.8	3.00E-03	7.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	16/16	100.0	7.00E-03	3.60E-02	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	15/16	93.8	1.20E-02	6.90E-02		3.3E-02	mg/L	YES
ACETONE	2/16	12.5	7.00E-03	1.30E-02		3.6E-01	mg/L	NO
BENZENE	1/16	6.3	1.00E-03	1.00E-03	4.9E-04		mg/L	YES
CHLOROETHANE	1/16	6.3	2.00E-03	2.00E-03		2.1E+00	mg/L	NO
CHLOROFORM	1/16	6.3	1.00E-03	1.00E-03	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	1/16	6.3	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	11/16	68.8	9.00E-04	4.00E-03	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	16/16	100.0	1.50E-02	8.90E-02	1.9E-03		mg/L	YES
VINYL CHLORIDE	3/16	18.8	2.00E-03	3.00E-03	2.5E-05		mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-366 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
SILICON	5/5	100.0	6.30E+00	1.60E+01			mg/L	
ZINC	10/10	100.0	2.60E-03	5.20E-01		1.1E+00	mg/L	NO
ACETONE	3/11	27.3	5.00E-03	1.50E-02		3.6E-01	mg/L	NO
BENZENE	1/11	9.1	1.00E-03	1.00E-03	4.9E-04		mg/L	YES
METHYLENE CHLORIDE	1/11	9.1	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
TRICHLOROETHENE	7/11	63.6	5.00E-04	2.00E-03	1.9E-03		mg/L	YES

Sample Station=GW-367 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	6/6	100.0	3.00E+00	4.90E+00		5.8E+00	mg/L	NO
STRONTIUM	5/5	100.0	1.00E-01	1.10E-01		2.2E+00	mg/L	NO
ACETONE	1/6	16.7	5.00E-03	5.00E-03		3.6E-01	mg/L	NO
BENZENE	1/6	16.7	8.00E-04	8.00E-04	4.9E-04		mg/L	YES
BROMOFORM	1/6	16.7	1.00E-03	1.00E-03	1.1E-02	7.2E-02	mg/L	NO
METHYLENE CHLORIDE	1/6	16.7	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
TRICHLOROETHENE	6/6	100.0	1.60E-02	2.30E-02	1.9E-03		mg/L	YES

Sample Station=GW-368 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,1-TRICHLOROETHANE	3/7	42.9	7.00E-04	1.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHENE	2/7	28.6	7.00E-04	8.00E-04	1.3E-05	3.2E-02	mg/L	YES
ACETONE	1/7	14.3	1.10E-02	1.10E-02		3.6E-01	mg/L	NO
CARBON TETRACHLORIDE	6/7	85.7	1.00E-03	7.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	4/7	57.1	9.00E-04	2.00E-03	2.1E-04	3.3E-02	mg/L	YES
ETHYLBENZENE	1/7	14.3	8.00E-04	8.00E-04		1.2E-01	mg/L	NO
TETRACHLOROETHENE	2/7	28.6	6.00E-04	6.00E-04	7.8E-04	1.9E-02	mg/L	NO
TOLUENE	1/7	14.3	3.00E-04	3.00E-04		7.4E-02	mg/L	NO
TRICHLOROETHENE	7/7	100.0	9.20E-02	1.30E-01	1.9E-03		mg/L	YES

Sample Station=GW-369 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	5/5	100.0	6.90E+00	1.50E+01		5.8E+00	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-369 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,2-DICHLOROETHENE	1/6	16.7	2.60E-02	2.60E-02		3.3E-02	mg/L	NO
ACETONE	1/6	16.7	4.00E-03	4.00E-03		3.6E-01	mg/L	NO
CARBON TETRACHLORIDE	5/6	83.3	1.00E-03	3.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	3/6	50.0	8.00E-04	1.00E-03	2.1E-04	3.3E-02	mg/L	YES
TRICHLOROETHENE	6/6	100.0	3.20E-02	9.60E-02	1.9E-03		mg/L	YES

Sample Station=GW-370 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	2/20	10.0	3.00E-03	9.00E-03		3.6E-01	mg/L	NO

Sample Station=GW-371 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	10/10	100.0	3.80E-02	6.80E-02		3.3E-01	mg/L	NO
ACETONE	2/11	18.2	4.00E-03	5.00E-03		3.6E-01	mg/L	NO
CHLOROFORM	1/11	9.1	6.00E-04	6.00E-04	2.1E-04	3.3E-02	mg/L	YES

Sample Station=GW-373 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	1/20	5.0	1.90E-02	1.90E-02		3.6E-01	mg/L	NO

Sample Station=GW-374 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CHLOROFORM	1/7	14.3	3.00E-04	3.00E-04	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	1/7	14.3	9.00E-04	9.00E-04	5.4E-03	1.6E-01	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-375 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	1/7	14.3	1.50E-02	1.50E-02		3.6E-01	mg/L	NO
CHLOROFORM	1/7	14.3	3.00E-04	3.00E-04	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	1/7	14.3	1.00E-03	1.00E-03	5.4E-03	1.6E-01	mg/L	NO
TRICHLOROETHENE	1/7	14.3	2.00E-03	2.00E-03	1.9E-03		mg/L	YES

Sample Station=GW-376 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	1/2	50.0	2.00E-03	2.00E-03		3.6E-01	mg/L	NO
TETRACHLOROETHENE	1/2	50.0	2.00E-03	2.00E-03	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	1/2	50.0	1.00E-03	1.00E-03	1.9E-03		mg/L	NO

Sample Station=GW-502 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
2-BUTANONE	1/4	25.0	5.00E-03	5.00E-03		1.9E-01	mg/L	NO
4-METHYL-2-PENTANONE	1/4	25.0	1.00E-03	1.00E-03		1.6E-02	mg/L	NO
ACETONE	1/4	25.0	4.00E-03	4.00E-03		3.6E-01	mg/L	NO
BENZENE	1/4	25.0	2.00E-03	2.00E-03	4.9E-04		mg/L	YES
METHYLENE CHLORIDE	1/4	25.0	1.00E-03	1.00E-03	5.4E-03	1.6E-01	mg/L	NO
TOLUENE	1/4	25.0	2.00E-03	2.00E-03		7.4E-02	mg/L	NO

Sample Station=GW-520 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
COPPER	4/4	100.0	6.00E-03	1.70E-02			mg/L	
LEAD	4/4	100.0	6.30E-03	5.70E-02		1.5E-02	mg/L	YES
1,1,2,2-TETRACHLOROETHANE	1/10	10.0	1.00E-03	1.00E-03	7.1E-05		mg/L	YES
2-HEXANONE	1/10	10.0	3.00E-03	3.00E-03			mg/L	
4-METHYL-2-PENTANONE	1/10	10.0	4.00E-03	4.00E-03		1.6E-02	mg/L	NO
ACETONE	3/10	30.0	5.00E-03	1.50E-02		3.6E-01	mg/L	NO
CHLOROFORM	1/10	10.0	9.00E-04	9.00E-04	2.1E-04	3.3E-02	mg/L	YES
TOLUENE	3/10	30.0	6.00E-04	1.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	4/10	40.0	6.00E-04	2.00E-03	1.9E-03		mg/L	YES
VINYL ACETATE	1/10	10.0	2.00E-03	2.00E-03		4.1E-02	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-526 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BARIUM	13/13	100.0	6.60E+00	1.10E+01		2.5E-01	mg/L	YES
COPPER	4/5	80.0	3.10E-02	4.60E-01			mg/L	
NITRATE (AS N)	13/13	100.0	6.57E+02	1.12E+03		5.8E+00	mg/L	YES
STRONTIUM	12/12	100.0	8.50E+00	1.40E+01		2.2E+00	mg/L	YES
ZINC	10/10	100.0	1.40E-02	4.50E-01		1.1E+00	mg/L	NO
1,2-DICHLOROETHENE	1/16	6.3	1.00E-03	1.00E-03		3.3E-02	mg/L	NO
ACETONE	1/16	6.3	6.00E-03	6.00E-03		3.6E-01	mg/L	NO
CHLOROFORM	1/16	6.3	2.00E-03	2.00E-03	2.1E-04	3.3E-02	mg/L	YES
TRICHLOROETHENE	1/16	6.3	6.00E-03	6.00E-03	1.9E-03		mg/L	YES

Sample Station=GW-531 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BERYLLIUM	1/1	100.0	4.90E-04	4.90E-04	1.6E-05	1.5E-02	mg/L	YES
LEAD	1/1	100.0	3.10E-02	3.10E-02		1.5E-02	mg/L	YES
1,1,1-TRICHLOROETHANE	1/6	16.7	5.00E-04	5.00E-04		1.3E-01	mg/L	NO
BENZENE	1/6	16.7	9.00E-04	9.00E-04	4.9E-04		mg/L	YES
METHYLENE CHLORIDE	1/6	16.7	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO

Sample Station=GW-532 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,1-TRICHLOROETHANE	1/6	16.7	5.00E-04	5.00E-04		1.3E-01	mg/L	NO
BENZENE	1/6	16.7	9.00E-04	9.00E-04	4.9E-04		mg/L	YES
METHYLENE CHLORIDE	1/6	16.7	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
PHENOL	1/1	100.0	2.00E-03	2.00E-03		2.2E+00	mg/L	NO

Sample Station=GW-533 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BENZENE	1/3	33.3	9.00E-04	9.00E-04	4.9E-04		mg/L	YES
METHYLENE CHLORIDE	1/3	33.3	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-534 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	3/3	100.0	2.00E-02	4.90E-02		3.3E-01	mg/L	NO

Sample Station=GW-535 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	1/6	16.7	1.00E-03	1.00E-03		3.6E-01	mg/L	NO
BENZENE	1/6	16.7	9.00E-04	9.00E-04	4.9E-04		mg/L	YES
METHYLENE CHLORIDE	1/6	16.7	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	1/6	16.7	1.00E-03	1.00E-03	7.8E-04	1.9E-02	mg/L	YES

Sample Station=GW-536 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	1/2	50.0	2.00E-03	2.00E-03		3.6E-01	mg/L	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/2	50.0	1.70E-02	1.70E-02	4.7E-03	5.6E-02	mg/L	YES

Sample Station=GW-537 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
COPPER	6/11	54.5	1.30E-02	3.20E-02			mg/L	
NITRATE (AS N)	18/18	100.0	5.25E+02	1.13E+03		5.8E+00	mg/L	YES
ACETONE	1/20	5.0	9.00E-03	9.00E-03		3.6E-01	mg/L	NO
CHLOROFORM	8/20	40.0	6.00E-04	1.00E-03	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	1/20	5.0	1.00E-03	1.00E-03	5.4E-03	1.6E-01	mg/L	NO
RADIUM (TOTAL ALPHA)	1/1	100.0	1.20E+00	1.20E+00	1.6E-01		pCi/L	YES
TECHNETIUM-99	1/1	100.0	1.30E+03	1.30E+03	3.4E+01		pCi/L	YES
THORIUM-230	1/1	100.0	5.90E-01	5.90E-01	1.3E+00		pCi/L	NO
URANIUM-234	1/1	100.0	1.50E+00	1.50E+00	1.1E+00		pCi/L	YES
URANIUM-238	1/1	100.0	5.20E-01	5.20E-01	7.7E-01		pCi/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-538 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	3/3	100.0	7.80E-01	1.00E+01			mg/L	
VANADIUM	2/3	66.7	5.10E-03	1.20E-02		2.1E-02	mg/L	NO
BENZENE	1/3	33.3	9.00E-04	9.00E-04	4.9E-04		mg/L	YES
METHYLENE CHLORIDE	1/3	33.3	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO

Sample Station=GW-601 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	17/17	100.0	1.60E+01	4.16E+01		5.8E+00	mg/L	YES
1,1,1-TRICHLOROETHANE	6/17	35.3	5.00E-04	1.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHENE	7/17	41.2	7.00E-04	1.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	6/17	35.3	1.00E-03	2.00E-03		3.3E-02	mg/L	NO
2-BUTANONE	1/17	5.9	5.00E-03	5.00E-03		1.9E-01	mg/L	NO
ACETONE	2/17	11.8	1.50E-02	5.10E-02		3.6E-01	mg/L	NO
CARBON TETRACHLORIDE	15/17	88.2	2.00E-03	5.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	8/17	47.1	6.00E-04	1.00E-03	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	1/17	5.9	4.00E-03	4.00E-03		5.8E+00	mg/L	NO
METHYLENE CHLORIDE	2/17	11.8	6.00E-04	4.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	10/17	58.8	1.00E-03	2.00E-03	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	17/17	100.0	9.80E-02	1.80E-01	1.9E-03		mg/L	YES

Sample Station=GW-602 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
SULFATE	10/10	100.0	2.23E+02	3.51E+02			mg/L	
TRICHLOROETHENE	1/11	9.1	9.00E-04	9.00E-04	1.9E-03		mg/L	NO
VINYL ACETATE	1/11	9.1	2.00E-03	2.00E-03		4.1E-02	mg/L	NO

Sample Station=GW-613 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CESIUM-137	1/1	100.0	9.70E+00	9.70E+00	1.5E+00		pCi/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-614 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	1/14	7.1	8.00E-03	8.00E-03		3.6E-01	mg/L	NO

Sample Station=GW-615 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BARIUM	7/7	100.0	3.10E+02	3.80E+02		2.5E-01	mg/L	YES
BORON	7/7	100.0	7.60E-01	4.40E+00		3.3E-01	mg/L	YES
CADMIUM	8/8	100.0	7.40E-03	2.00E-01		1.5E-03	mg/L	YES
CHLORIDE	3/3	100.0	4.70E+01	7.10E+01			mg/L	
COBALT	4/4	100.0	1.30E-01	7.70E-01			mg/L	
COPPER	3/3	100.0	4.10E-01	1.60E+00			mg/L	
MANGANESE	7/7	100.0	1.80E+01	2.40E+01		4.8E-01	mg/L	YES
NICKEL	1/1	100.0	2.50E-01	2.50E-01		7.2E-02	mg/L	YES
NITRATE (AS N)	8/8	100.0	7.72E+03	1.34E+04		5.8E+00	mg/L	YES
STRONTIUM	7/7	100.0	2.90E+02	3.40E+02		2.2E+00	mg/L	YES
SULFATE	1/1	100.0	2.20E+03	2.20E+03			mg/L	
TOTAL URANIUM	8/8	100.0	3.70E-01	6.53E-01		1.1E-02	mg/L	YES
ZINC	4/4	100.0	1.50E-01	2.00E+01		1.1E+00	mg/L	YES
2-BUTANONE	3/10	30.0	2.50E-02	3.20E-02		1.9E-01	mg/L	NO
ACETONE	10/10	100.0	7.30E-02	2.30E-01		3.6E-01	mg/L	NO
CARBON DISULFIDE	1/10	10.0	1.00E-03	1.00E-03		1.0E-01	mg/L	NO
METHYLENE CHLORIDE	5/10	50.0	4.00E-03	6.00E-03	5.4E-03	1.6E-01	mg/L	YES
TETRACHLOROETHENE	3/10	30.0	1.00E-03	1.00E-03	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	1/10	10.0	4.00E-03	4.00E-03	1.9E-03		mg/L	YES
CESIUM-137	1/1	100.0	6.00E+00	6.00E+00	1.5E+00		pCi/L	YES
STRONTIUM-90	1/1	100.0	3.60E+00	3.60E+00	8.5E-01		pCi/L	YES
TECHNETIUM-99	1/1	100.0	5.00E+01	5.00E+01	3.4E+01		pCi/L	YES
THORIUM-230	1/1	100.0	4.10E-01	4.10E-01	1.3E+00		pCi/L	NO
TRITIUM	1/1	100.0	6.20E+02	6.20E+02	5.8E+02		pCi/L	YES
URANIUM-234	1/1	100.0	8.00E+01	8.00E+01	1.1E+00		pCi/L	YES
URANIUM-235	1/1	100.0	3.60E+00	3.60E+00	1.0E+00		pCi/L	YES
URANIUM-238	1/1	100.0	1.90E+02	1.90E+02	7.7E-01		pCi/L	YES

Sample Station=GW-616 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	8/8	100.0	2.02E+02	3.20E+02		5.8E+00	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-621 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CHROMIUM	17/18	94.4	2.90E-02	2.50E-01		1.6E-02	mg/L	YES
NICKEL	17/17	100.0	3.80E-02	1.60E-01		7.2E-02	mg/L	YES
NITRATE (AS N)	18/18	100.0	4.00E+00	1.80E+01		5.8E+00	mg/L	YES
TOTAL URANIUM	15/17	88.2	2.00E-03	1.80E-02		1.1E-02	mg/L	YES
1,2-DICHLOROETHENE	1/18	5.6	1.00E-03	1.00E-03		3.3E-02	mg/L	NO
ACETONE	1/18	5.6	4.00E-03	4.00E-03		3.6E-01	mg/L	NO
BENZENE	1/18	5.6	3.00E-04	3.00E-04	4.9E-04		mg/L	NO
CARBON TETRACHLORIDE	1/18	5.6	2.00E-03	2.00E-03	2.1E-04	2.4E-03	mg/L	YES
METHYLENE CHLORIDE	1/18	5.6	9.00E-04	9.00E-04	5.4E-03	1.6E-01	mg/L	NO
TRICHLOROETHENE	1/18	5.6	2.00E-03	2.00E-03	1.9E-03		mg/L	YES

Sample Station=GW-622 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,1-TRICHLOROETHANE	4/11	36.4	7.00E-04	1.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	4/11	36.4	8.00E-04	1.00E-03		8.1E-02	mg/L	NO
1,2-DICHLOROETHENE	1/11	9.1	7.00E-04	7.00E-04		3.3E-02	mg/L	NO
ACETONE	1/11	9.1	1.60E-02	1.60E-02		3.6E-01	mg/L	NO

Sample Station=GW-623 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
VANADIUM	4/7	57.1	6.30E-03	1.00E-02		2.1E-02	mg/L	NO
1,1,1-TRICHLOROETHANE	7/8	87.5	8.60E-02	6.10E-01		1.3E-01	mg/L	YES
1,1,2-TRICHLOROETHANE	1/4	25.0	8.00E-03	8.00E-03	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	8/8	100.0	1.10E-02	4.20E+00		8.1E-02	mg/L	YES
1,1-DICHLOROETHENE	5/6	83.3	3.30E-02	6.60E-01	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	2/4	50.0	3.00E-03	8.00E-03	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	3/4	75.0	2.10E-02	5.80E-01		3.3E-02	mg/L	YES
4-METHYL-2-PENTANONE	1/4	25.0	4.00E-03	4.00E-03		1.6E-02	mg/L	NO
ACETONE	2/4	50.0	1.80E-02	1.30E-01		3.6E-01	mg/L	NO
BENZENE	2/4	50.0	3.00E-03	7.00E-03	4.9E-04		mg/L	YES
CARBON TETRACHLORIDE	1/4	25.0	1.30E-02	1.30E-02	2.1E-04	2.4E-03	mg/L	YES
CHLOROETHANE	3/4	75.0	1.00E-03	3.30E-02		2.1E+00	mg/L	NO
CHLOROFORM	1/5	20.0	3.80E-02	3.80E-02	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	2/4	50.0	5.70E-02	1.30E-01		5.8E+00	mg/L	NO
ETHYLBENZENE	2/4	50.0	1.30E-02	3.30E-02		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	2/5	40.0	6.10E-02	3.40E-01	5.4E-03	1.6E-01	mg/L	YES
TETRACHLOROETHENE	8/8	100.0	1.00E-03	2.90E+01	7.8E-04	1.9E-02	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-623 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TOLUENE	3/5	60.0	4.00E-03	6.70E-01		7.4E-02	mg/L	YES
TRICHLOROETHENE	8/8	100.0	3.00E-03	2.40E+01	1.9E-03		mg/L	YES
VINYL CHLORIDE	3/4	75.0	1.10E-02	1.50E-01	2.5E-05		mg/L	YES
THORIUM-230	1/1	100.0	5.10E-01	5.10E-01	1.3E+00		pCi/L	NO
URANIUM-234	1/1	100.0	1.70E+00	1.70E+00	1.1E+00		pCi/L	YES
URANIUM-235	1/1	100.0	1.50E-01	1.50E-01	1.0E+00		pCi/L	NO
URANIUM-238	1/1	100.0	7.90E-01	7.90E-01	7.7E-01		pCi/L	YES

Sample Station=GW-624 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,1-TRICHLOROETHANE	5/5	100.0	6.00E-03	6.20E-02		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	5/5	100.0	2.20E-02	2.70E-01		8.1E-02	mg/L	YES
1,1-DICHLOROETHENE	5/5	100.0	6.00E-03	7.60E-02	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	2/3	66.7	4.00E-03	1.10E-02	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	5/5	100.0	3.30E-01	5.40E+00		3.3E-02	mg/L	YES
BENZENE	3/4	75.0	4.00E-03	2.10E-02	4.9E-04		mg/L	YES
CHLOROETHANE	1/3	33.3	6.00E-03	6.00E-03		2.1E+00	mg/L	NO
CHLOROFORM	2/4	50.0	1.20E-02	1.80E-02	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	1/3	33.3	1.00E-03	1.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	5/5	100.0	7.10E-02	7.90E-01	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	5/5	100.0	6.80E-02	6.90E-01	1.9E-03		mg/L	YES
VINYL CHLORIDE	5/5	100.0	2.90E-02	9.70E-01	2.5E-05		mg/L	YES
THORIUM-228	1/1	100.0	3.80E-01	3.80E-01	2.1E-01		pCi/L	YES
THORIUM-232	1/1	100.0	3.80E-01	3.80E-01	1.5E+00		pCi/L	NO
URANIUM-234	1/1	100.0	6.00E-01	6.00E-01	1.1E+00		pCi/L	NO
URANIUM-238	1/1	100.0	4.60E-01	4.60E-01	7.7E-01		pCi/L	NO

Sample Station=GW-626 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,1-TRICHLOROETHANE	14/16	87.5	6.00E-04	2.90E-01		1.3E-01	mg/L	YES
1,1-DICHLOROETHANE	13/16	81.3	2.00E-03	5.10E-02		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	13/16	81.3	2.00E-03	3.40E-01	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	6/13	46.2	8.00E-04	5.00E-03	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	16/16	100.0	5.00E-03	1.40E+00		3.3E-02	mg/L	YES
4-METHYL-2-PENTANONE	1/15	6.7	2.00E-02	2.00E-02		1.6E-02	mg/L	YES
ACETONE	4/15	26.7	5.00E-03	7.50E-02		3.6E-01	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-626 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BENZENE	1/13	7.7	3.00E-03	3.00E-03	4.9E-04		mg/L	YES
BROMODICHLOROMETHANE	1/13	7.7	2.00E-03	2.00E-03	1.4E-03	7.2E-02	mg/L	YES
CARBON TETRACHLORIDE	1/13	7.7	5.00E-02	5.00E-02	2.1E-04	2.4E-03	mg/L	YES
CHLOROETHANE	1/14	7.1	1.00E-02	1.00E-02		2.1E+00	mg/L	NO
CHLOROFORM	3/13	23.1	9.00E-04	5.00E-03	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	1/13	7.7	5.10E-02	5.10E-02		5.8E+00	mg/L	NO
ETHYLBENZENE	1/13	7.7	1.30E-02	1.30E-02		1.2E-01	mg/L	NO
PHENOLS	1/5	20.0	9.40E-02	9.40E-02			mg/L	
TETRACHLOROETHENE	16/16	100.0	1.00E-03	7.30E-01	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	1/13	7.7	4.00E-03	4.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	16/16	100.0	2.00E-03	8.90E-01	1.9E-03		mg/L	YES
VINYL CHLORIDE	3/16	18.8	4.70E-02	1.20E-01	2.5E-05		mg/L	YES

Sample Station=GW-627 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1-DICHLOROETHANE	14/20	70.0	1.00E-03	6.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	1/20	5.0	1.00E-03	1.00E-03	1.3E-05	3.2E-02	mg/L	YES
ACETONE	2/20	10.0	6.00E-03	1.60E-02		3.6E-01	mg/L	NO
BENZENE	1/20	5.0	8.00E-04	8.00E-04	4.9E-04		mg/L	YES
METHYLENE CHLORIDE	1/20	5.0	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
PHENOLS	1/5	20.0	5.00E-02	5.00E-02			mg/L	
TETRACHLOROETHENE	19/20	95.0	1.00E-03	7.40E-02	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	14/20	70.0	2.00E-03	1.00E-02	1.9E-03		mg/L	YES
VINYL CHLORIDE	1/20	5.0	8.00E-04	8.00E-04	2.5E-05		mg/L	YES

Sample Station=GW-629 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1-DICHLOROETHANE	4/5	80.0	2.00E-03	8.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	1/5	20.0	1.00E-03	1.00E-03	1.3E-05	3.2E-02	mg/L	YES
ACETONE	1/5	20.0	2.20E-02	2.20E-02		3.6E-01	mg/L	NO
BENZENE	1/5	20.0	2.00E-03	2.00E-03	4.9E-04		mg/L	YES
METHYLENE CHLORIDE	1/5	20.0	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	3/5	60.0	8.00E-03	1.10E-01	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	1/5	20.0	2.00E-03	2.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	3/5	60.0	3.00E-03	1.20E-02	1.9E-03		mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-630 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,1-TRICHLOROETHANE	1/10	10.0	5.00E-04	5.00E-04		1.3E-01	mg/L	NO
BENZENE	1/10	10.0	9.00E-04	9.00E-04	4.9E-04		mg/L	YES
METHYLENE CHLORIDE	1/10	10.0	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
TRICHLOROETHENE	1/10	10.0	1.00E-03	1.00E-03	1.9E-03		mg/L	NO

Sample Station=GW-636 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	12/12	100.0	1.70E-01	4.30E-01		3.3E-01	mg/L	YES

Sample Station=GW-637 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TOLUENE	1/16	6.3	1.00E-03	1.00E-03		7.4E-02	mg/L	NO

Sample Station=GW-639 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	1/13	7.7	5.00E-03	5.00E-03		3.6E-01	mg/L	NO
BENZENE	1/13	7.7	9.00E-04	9.00E-04	4.9E-04		mg/L	YES
METHYLENE CHLORIDE	1/13	7.7	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO

Sample Station=GW-640 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ETHYLBENZENE	1/13	7.7	1.00E-03	1.00E-03		1.2E-01	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-641 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BENZENE	1/13	7.7	8.00E-04	8.00E-04	4.9E-04		mg/L	YES
ETHYLBENZENE	1/13	7.7	1.00E-03	1.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	1/13	7.7	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO

Sample Station=GW-643 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
DIMETHYLBENZENE	1/12	8.3	2.00E-03	2.00E-03		5.8E+00	mg/L	NO

Sample Station=GW-644 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CHLORIDE	9/10	90.0	2.00E+00	3.00E+00			mg/L	

Sample Station=GW-645 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
STRONTIUM	7/7	100.0	2.60E-01	3.60E-01		2.2E+00	mg/L	NO
VANADIUM	4/7	57.1	5.10E-03	9.60E-02		2.1E-02	mg/L	YES
2-BUTANONE	1/7	14.3	1.30E-02	1.30E-02		1.9E-01	mg/L	NO

Sample Station=GW-646 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
SULFATE	6/6	100.0	2.71E+02	4.74E+02			mg/L	

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-647 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TOLUENE	1/12	8.3	4.00E-04	4.00E-04		7.4E-02	mg/L	NO

Sample Station=GW-649 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
DIMETHYLBENZENE	1/7	14.3	3.00E-03	3.00E-03		5.8E+00	mg/L	NO

Sample Station=GW-651 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	10/10	100.0	2.40E-02	7.00E-02		3.3E-01	mg/L	NO

Sample Station=GW-652 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TRICHLOROETHENE	1/16	6.3	9.00E-03	9.00E-03	1.9E-03		mg/L	YES

Sample Station=GW-653 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,1-TRICHLOROETHANE	1/16	6.3	7.00E-04	7.00E-04		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	1/16	6.3	2.00E-03	2.00E-03		8.1E-02	mg/L	NO
1,2-DICHLOROETHENE	15/16	93.8	3.00E-03	2.00E-02		3.3E-02	mg/L	NO
TETRACHLOROETHENE	15/16	93.8	2.00E-03	5.00E-03	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	5/16	31.3	6.00E-04	2.00E-03	1.9E-03		mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-654 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	16/16	100.0	2.00E-02	1.40E-01		3.3E-01	mg/L	NO
FLUORIDE	16/16	100.0	2.00E-01	6.00E-01		2.2E-01	mg/L	YES

Sample Station=GW-655 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
2-BUTANONE	1/12	8.3	1.10E-02	1.10E-02		1.9E-01	mg/L	NO
4-METHYL-2-PENTANONE	1/12	8.3	2.00E-03	2.00E-03		1.6E-02	mg/L	NO

Sample Station=GW-683 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	13/13	100.0	1.10E-02	6.60E-01		3.3E-01	mg/L	YES
NITRATE (AS N)	12/13	92.3	5.00E-01	3.20E+01		5.8E+00	mg/L	YES
STRONTIUM	13/13	100.0	2.50E-02	2.00E-01		2.2E+00	mg/L	NO
TOTAL URANIUM	13/13	100.0	4.00E-03	1.10E-01		1.1E-02	mg/L	YES
1,2-DICHLOROETHENE	1/13	7.7	1.00E-03	1.00E-03		3.3E-02	mg/L	NO
BENZENE	1/13	7.7	3.00E-04	3.00E-04	4.9E-04		mg/L	NO
ETHYLBENZENE	1/13	7.7	1.00E-03	1.00E-03		1.2E-01	mg/L	NO
TRICHLOROETHENE	1/13	7.7	1.00E-03	1.00E-03	1.9E-03		mg/L	NO

Sample Station=GW-684 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	12/12	100.0	2.70E-02	1.40E+00		3.3E-01	mg/L	YES
NITRATE (AS N)	12/12	100.0	4.10E+00	1.89E+01		5.8E+00	mg/L	YES
STRONTIUM	12/12	100.0	8.20E-02	2.00E-01		2.2E+00	mg/L	NO
TOTAL URANIUM	12/12	100.0	1.90E-02	1.14E-01		1.1E-02	mg/L	YES
1,2-DICHLOROETHENE	1/13	7.7	1.00E-03	1.00E-03		3.3E-02	mg/L	NO
METHYLENE CHLORIDE	1/13	7.7	1.00E-03	1.00E-03	5.4E-03	1.6E-01	mg/L	NO
TRICHLOROETHENE	2/13	15.4	7.00E-04	1.00E-03	1.9E-03		mg/L	NO
TECHNETIUM-99	1/1	100.0	2.80E+01	2.80E+01	3.4E+01		pCi/L	NO
THORIUM-230	1/1	100.0	1.70E-01	1.70E-01	1.3E+00		pCi/L	NO
URANIUM-234	1/1	100.0	7.40E+00	7.40E+00	1.1E+00		pCi/L	YES
URANIUM-238	1/1	100.0	1.40E+01	1.40E+01	7.7E-01		pCi/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-685 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,2-DICHLOROETHENE	10/13	76.9	1.00E-03	3.00E-03		3.3E-02	mg/L	NO
TETRACHLOROETHENE	1/13	7.7	5.00E-04	5.00E-04	7.8E-04	1.9E-02	mg/L	NO
TRICHLOROETHENE	3/13	23.1	3.00E-04	6.00E-04	1.9E-03		mg/L	NO

Sample Station=GW-694 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	13/13	100.0	3.80E-02	5.30E-01		3.3E-01	mg/L	YES
NITRATE (AS N)	13/13	100.0	7.90E+00	4.89E+01		5.8E+00	mg/L	YES
TOTAL URANIUM	13/13	100.0	4.70E-02	3.00E-01		1.1E-02	mg/L	YES
1,1,1-TRICHLOROETHANE	2/13	15.4	5.00E-04	2.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	1/13	7.7	1.00E-03	1.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	4/13	30.8	1.00E-03	4.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	11/13	84.6	7.00E-03	3.80E-02		3.3E-02	mg/L	YES
ACETONE	1/12	8.3	1.80E-01	1.80E-01		3.6E-01	mg/L	NO
BENZENE	1/13	7.7	9.00E-04	9.00E-04	4.9E-04		mg/L	YES
CARBON TETRACHLORIDE	1/13	7.7	9.00E-04	9.00E-04	2.1E-04	2.4E-03	mg/L	YES
CHLOROBENZENE	1/13	7.7	1.00E-03	1.00E-03		3.9E-03	mg/L	NO
TETRACHLOROETHENE	1/13	7.7	2.00E-03	2.00E-03	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	12/13	92.3	6.00E-03	4.10E-02	1.9E-03		mg/L	YES

Sample Station=GW-695 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1-DICHLOROETHENE	1/13	7.7	5.00E-04	5.00E-04	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	4/13	30.8	2.00E-03	2.00E-03		3.3E-02	mg/L	NO
ACETONE	1/13	7.7	4.20E-02	4.20E-02		3.6E-01	mg/L	NO
TRICHLOROETHENE	10/13	76.9	2.00E-03	4.00E-03	1.9E-03		mg/L	YES

Sample Station=GW-703 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	13/13	100.0	5.67E+00	2.38E+01		5.8E+00	mg/L	YES
1,1,1-TRICHLOROETHANE	2/13	15.4	5.00E-04	9.00E-04		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	1/13	7.7	5.00E-04	5.00E-04		8.1E-02	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-703 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1-DICHLOROETHENE	4/13	30.8	1.00E-03	2.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	10/13	76.9	5.00E-03	1.30E-02		3.3E-02	mg/L	NO
4-METHYL-2-PENTANONE	1/13	7.7	5.00E-03	5.00E-03		1.6E-02	mg/L	NO
CARBON TETRACHLORIDE	1/13	7.7	4.00E-04	4.00E-04	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	2/13	15.4	5.00E-04	5.00E-04	2.1E-04	3.3E-02	mg/L	YES
TRICHLOROETHENE	13/13	100.0	1.50E-02	2.80E-02	1.9E-03		mg/L	YES

Sample Station=GW-704 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,1-TRICHLOROETHANE	10/13	76.9	1.00E-03	2.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	5/13	38.5	1.00E-03	1.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	13/13	100.0	4.00E-03	8.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	11/13	84.6	2.00E-03	4.00E-03		3.3E-02	mg/L	NO
BROMOFORM	1/13	7.7	1.00E-03	1.00E-03	1.1E-02	7.2E-02	mg/L	NO
CARBON TETRACHLORIDE	9/13	69.2	7.00E-04	2.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	2/13	15.4	4.00E-04	4.00E-04	2.1E-04	3.3E-02	mg/L	YES
TETRACHLOROETHENE	1/13	7.7	5.00E-04	5.00E-04	7.8E-04	1.9E-02	mg/L	NO
TRICHLOROETHENE	13/13	100.0	5.50E-02	1.20E-01	1.9E-03		mg/L	YES

Sample Station=GW-705 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CHLORIDE	7/7	100.0	4.30E+01	1.45E+02			mg/L	

Sample Station=GW-706 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	13/13	100.0	2.40E-02	4.30E-01		3.3E-01	mg/L	YES
NITRATE (AS N)	11/13	84.6	1.00E+01	8.42E+01		5.8E+00	mg/L	YES
TOTAL URANIUM	13/13	100.0	2.00E-03	2.30E-01		1.1E-02	mg/L	YES
1,1-DICHLOROETHENE	4/13	30.8	1.00E-03	4.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	10/13	76.9	5.00E-03	3.40E-02		3.3E-02	mg/L	YES
TETRACHLOROETHENE	1/13	7.7	1.00E-03	1.00E-03	7.8E-04	1.9E-02	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-706 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TRICHLOROETHENE	11/13	84.6	3.00E-03	3.00E-02	1.9E-03		mg/L	YES
TECHNETIUM-99	1/1	100.0	3.90E+01	3.90E+01	3.4E+01		pCi/L	YES
THORIUM-230	1/1	100.0	3.20E-01	3.20E-01	1.3E+00		pCi/L	NO
URANIUM-234	1/1	100.0	2.20E+01	2.20E+01	1.1E+00		pCi/L	YES
URANIUM-235	1/1	100.0	8.90E-01	8.90E-01	1.0E+00		pCi/L	NO
URANIUM-238	1/1	100.0	4.20E+01	4.20E+01	7.7E-01		pCi/L	YES

Sample Station=GW-710 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	10/10	100.0	8.60E-02	3.40E-01		3.3E-01	mg/L	YES
CHLORIDE	10/10	100.0	2.95E+02	5.77E+02			mg/L	
STRONTIUM	10/10	100.0	6.30E+00	9.70E+00		2.2E+00	mg/L	YES
SULFATE	10/10	100.0	1.54E+03	2.44E+03			mg/L	
CESIUM-137	1/1	100.0	8.80E+00	8.80E+00	1.5E+00		pCi/L	YES
RADIUM (TOTAL ALPHA)	1/1	100.0	5.40E+00	5.40E+00	1.6E-01		pCi/L	YES
RADIUM-228	1/1	100.0	2.40E+00	2.40E+00	1.9E-01		pCi/L	YES

Sample Station=GW-711 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	9/9	100.0	8.30E-01	1.40E+00		3.3E-01	mg/L	YES
CHLORIDE	9/9	100.0	1.58E+03	2.18E+03			mg/L	
STRONTIUM	9/9	100.0	1.10E+01	1.50E+01		2.2E+00	mg/L	YES
SULFATE	9/9	100.0	1.58E+03	2.83E+03			mg/L	
RADIUM (TOTAL ALPHA)	1/1	100.0	4.30E+00	4.30E+00	1.6E-01		pCi/L	YES
RADIUM-228	1/1	100.0	7.80E+00	7.80E+00	1.9E-01		pCi/L	YES
THORIUM-228	1/1	100.0	9.20E-01	9.20E-01	2.1E-01		pCi/L	YES
THORIUM-230	1/1	100.0	3.80E-01	3.80E-01	1.3E+00		pCi/L	NO

Sample Station=GW-712 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	11/11	100.0	1.10E-01	1.50E-01		3.3E-01	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-712 Medium=GROUNDWATER
(continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
SULFATE	11/11	100.0	1.68E+02	4.18E+02			mg/L	
THORIUM-228	1/1	100.0	2.60E-01	2.60E-01	2.1E-01		pCi/L	YES
THORIUM-230	1/1	100.0	6.50E-01	6.50E-01	1.3E+00		pCi/L	NO
URANIUM-234	1/1	100.0	6.80E-01	6.80E-01	1.1E+00		pCi/L	NO

Sample Station=GW-713 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
2-BUTANONE	1/9	11.1	1.60E-02	1.60E-02		1.9E-01	mg/L	NO
RADIUM (TOTAL ALPHA)	1/1	100.0	1.00E+00	1.00E+00	1.6E-01		pCi/L	YES
URANIUM-234	1/1	100.0	5.80E-01	5.80E-01	1.1E+00		pCi/L	NO

Sample Station=GW-714 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	8/8	100.0	6.60E-02	1.00E-01		3.3E-01	mg/L	NO
CESIUM-137	1/1	100.0	5.60E+00	5.60E+00	1.5E+00		pCi/L	YES
RADIUM (TOTAL ALPHA)	1/1	100.0	8.80E-01	8.80E-01	1.6E-01		pCi/L	YES
TECHNETIUM-99	1/1	100.0	8.00E+00	8.00E+00	3.4E+01		pCi/L	NO
THORIUM-230	1/1	100.0	4.90E-01	4.90E-01	1.3E+00		pCi/L	NO
URANIUM-234	1/1	100.0	1.50E+00	1.50E+00	1.1E+00		pCi/L	YES
URANIUM-238	1/1	100.0	1.00E+00	1.00E+00	7.7E-01		pCi/L	YES

Sample Station=GW-715 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CESIUM-137	1/1	100.0	6.40E+00	6.40E+00	1.5E+00		pCi/L	YES
THORIUM-230	1/1	100.0	4.00E-01	4.00E-01	1.3E+00		pCi/L	NO
URANIUM-238	1/1	100.0	3.40E-01	3.40E-01	7.7E-01		pCi/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-723 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	9/9	100.0	6.39E+00	2.00E+01		5.8E+00	mg/L	YES
1,2-DICHLOROETHENE	1/9	11.1	2.00E-03	2.00E-03		3.3E-02	mg/L	NO
2-BUTANONE	1/9	11.1	1.00E-02	1.00E-02		1.9E-01	mg/L	NO
CARBON TETRACHLORIDE	1/9	11.1	1.00E-03	1.00E-03	2.1E-04	2.4E-03	mg/L	YES
TRICHLOROETHENE	9/9	100.0	3.00E-03	2.20E-02	1.9E-03		mg/L	YES

Sample Station=GW-724 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	9/9	100.0	2.50E+01	6.20E+01		5.8E+00	mg/L	YES
1,2-DICHLOROETHENE	6/9	66.7	2.00E-03	3.00E-03		3.3E-02	mg/L	NO
CARBON TETRACHLORIDE	1/9	11.1	2.00E-03	2.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	1/9	11.1	7.00E-03	7.00E-03	2.1E-04	3.3E-02	mg/L	YES
TETRACHLOROETHENE	7/9	77.8	1.00E-03	3.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	1/9	11.1	1.00E-03	1.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	9/9	100.0	3.00E-03	1.40E-01	1.9E-03		mg/L	YES

Sample Station=GW-725 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	9/9	100.0	3.40E+01	1.06E+02		5.8E+00	mg/L	YES
1,1,1-TRICHLOROETHANE	1/9	11.1	8.00E-04	8.00E-04		1.3E-01	mg/L	NO
1,1-DICHLOROETHENE	1/9	11.1	1.00E-03	1.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	9/9	100.0	1.00E-03	4.00E-03		3.3E-02	mg/L	NO
BENZENE	2/9	22.2	1.00E-03	1.00E-03	4.9E-04		mg/L	YES
CARBON TETRACHLORIDE	1/9	11.1	9.00E-04	9.00E-04	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	1/9	11.1	1.00E-03	1.00E-03	2.1E-04	3.3E-02	mg/L	YES
TETRACHLOROETHENE	4/9	44.4	8.00E-04	2.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	1/9	11.1	2.00E-03	2.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	9/9	100.0	1.90E-02	8.20E-02	1.9E-03		mg/L	YES

Sample Station=GW-736 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	9/9	100.0	3.40E+01	6.10E+01		5.8E+00	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-736 Medium=GROUNDWATER
(continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,1-TRICHLOROETHANE	1/9	11.1	1.00E-03	1.00E-03		1.3E-01	mg/L	NO
1,1,2-TRICHLOROETHANE	1/9	11.1	1.00E-03	1.00E-03	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	1/9	11.1	1.00E-03	1.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	2/9	22.2	1.00E-03	2.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	9/9	100.0	2.00E-03	9.00E-03		3.3E-02	mg/L	NO
CARBON DISULFIDE	1/9	11.1	2.00E-03	2.00E-03		1.0E-01	mg/L	NO
CARBON TETRACHLORIDE	2/9	22.2	1.00E-03	2.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROBENZENE	1/9	11.1	1.00E-03	1.00E-03		3.9E-03	mg/L	NO
CHLOROFORM	3/9	33.3	2.00E-03	2.00E-03	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	1/9	11.1	5.00E-03	5.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	1/9	11.1	2.00E-03	2.00E-03		1.2E-01	mg/L	NO
STYRENE	1/9	11.1	1.00E-03	1.00E-03		1.1E-01	mg/L	NO
TETRACHLOROETHENE	7/9	77.8	1.00E-03	7.00E-03	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	9/9	100.0	4.00E-03	2.10E-02	1.9E-03		mg/L	YES

Sample Station=GW-737 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	9/9	100.0	3.40E+01	6.10E+01		5.8E+00	mg/L	YES
1,1,1-TRICHLOROETHANE	1/9	11.1	1.00E-03	1.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	1/9	11.1	1.00E-03	1.00E-03		8.1E-02	mg/L	NO
1,2-DICHLOROETHENE	9/9	100.0	2.00E-03	9.00E-03		3.3E-02	mg/L	NO
2-HEXANONE	1/9	11.1	3.00E-03	3.00E-03			mg/L	
CARBON TETRACHLORIDE	2/9	22.2	1.00E-03	1.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	5/9	55.6	1.00E-03	2.00E-03	2.1E-04	3.3E-02	mg/L	YES
TETRACHLOROETHENE	8/9	88.9	2.00E-03	4.00E-03	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	9/9	100.0	4.00E-03	2.10E-02	1.9E-03		mg/L	YES
VINYL ACETATE	1/9	11.1	1.00E-03	1.00E-03		4.1E-02	mg/L	NO

Sample Station=GW-738 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	9/9	100.0	1.50E+00	4.04E+01		5.8E+00	mg/L	YES
1,1,1-TRICHLOROETHANE	4/9	44.4	7.00E-04	1.00E-03		1.3E-01	mg/L	NO
1,2-DICHLOROETHENE	8/9	88.9	1.00E-03	4.00E-03		3.3E-02	mg/L	NO
CARBON TETRACHLORIDE	6/9	66.7	1.00E-03	2.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	7/9	77.8	1.00E-03	2.00E-03	2.1E-04	3.3E-02	mg/L	YES
TETRACHLOROETHENE	1/9	11.1	8.00E-04	8.00E-04	7.8E-04	1.9E-02	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-738 Medium=GROUNDWATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TRICHLOROETHENE	9/9	100.0	2.00E-02	9.60E-02	1.9E-03		mg/L	YES

Sample Station=GW-739 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	9/9	100.0	4.17E+00	8.76E+00		5.8E+00	mg/L	YES
1,1,1-TRICHLOROETHANE	1/9	11.1	7.00E-04	7.00E-04		1.3E-01	mg/L	NO
1,2-DICHLOROETHENE	7/9	77.8	1.00E-03	2.00E-03		3.3E-02	mg/L	NO
CARBON TETRACHLORIDE	5/9	55.6	1.00E-03	2.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	1/9	11.1	1.00E-03	1.00E-03	2.1E-04	3.3E-02	mg/L	YES
TRICHLOROETHENE	9/9	100.0	3.20E-02	5.80E-02	1.9E-03		mg/L	YES
VINYL ACETATE	1/9	11.1	1.00E-03	1.00E-03		4.1E-02	mg/L	NO

Sample Station=GW-740 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	9/9	100.0	3.05E+00	4.80E+00		5.8E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	3/9	33.3	1.00E-03	1.00E-03		1.3E-01	mg/L	NO
1,2-DICHLOROETHENE	9/9	100.0	2.00E-03	4.00E-03		3.3E-02	mg/L	NO
ACETONE	2/9	22.2	8.60E-02	9.50E-02		3.6E-01	mg/L	NO
CARBON TETRACHLORIDE	4/9	44.4	1.00E-03	3.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROFORM	7/9	77.8	1.00E-03	2.00E-03	2.1E-04	3.3E-02	mg/L	YES
TRICHLOROETHENE	9/9	100.0	2.80E-02	7.70E-02	1.9E-03		mg/L	YES

Sample Station=GW-794 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	8/8	100.0	3.00E-02	1.00E-01		3.3E-01	mg/L	NO
1,2-DICHLOROETHENE	1/9	11.1	1.00E-03	1.00E-03		3.3E-02	mg/L	NO
CESIUM-137	1/1	100.0	4.60E+00	4.60E+00	1.5E+00		pCi/L	YES
THORIUM-230	1/1	100.0	3.50E-01	3.50E-01	1.3E+00		pCi/L	NO
URANIUM-234	1/1	100.0	2.60E-01	2.60E-01	1.1E+00		pCi/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-795 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	1/9	11.1	1.00E-03	1.00E-03		3.6E-01	mg/L	NO

Sample Station=GW-800 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	7/7	100.0	1.90E-02	1.10E-01		3.3E-01	mg/L	NO
STRONTIUM	7/7	100.0	9.30E-02	3.10E-01		2.2E+00	mg/L	NO

Sample Station=SEEP C-WEST TOE Medium=LEACHATE

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/2	50.0	3.00E-01	3.00E-01			mg/L	
BARIUM	2/2	100.0	3.80E-01	5.24E-01		2.5E-01	mg/L	YES
BERYLLIUM	1/2	50.0	3.00E-03	3.00E-03	1.6E-05	1.5E-02	mg/L	YES
BORON	2/2	100.0	5.60E+01	6.33E+01		3.3E-01	mg/L	YES
CALCIUM	2/2	100.0	1.16E+02	1.20E+02			mg/L	
COBALT	1/2	50.0	2.00E-02	2.00E-02			mg/L	
IRON	2/2	100.0	1.50E+01	8.41E+01			mg/L	
LITHIUM	2/2	100.0	1.28E+01	1.48E+01			mg/L	
MAGNESIUM	2/2	100.0	2.10E+01	2.12E+01			mg/L	
MANGANESE	2/2	100.0	8.83E+00	1.01E+01		4.8E-01	mg/L	YES
MERCURY	1/2	50.0	3.00E-04	3.00E-04		1.1E-03	mg/L	NO
MOLYBDENUM	1/2	50.0	3.00E-02	3.00E-02		1.8E-02	mg/L	YES
PHOSPHORUS	1/2	50.0	1.10E+00	1.10E+00			mg/L	
POTASSIUM	1/2	50.0	1.00E+01	1.00E+01			mg/L	
SODIUM	2/2	100.0	1.90E+01	2.14E+01			mg/L	
STRONTIUM	2/2	100.0	3.60E-01	3.62E-01		2.2E+00	mg/L	NO
TOTAL URANIUM	2/2	100.0	3.40E-02	4.40E-02		1.1E-02	mg/L	YES
1,1,1-TRICHLOROETHANE	2/2	100.0	3.00E-03	2.00E-02		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	2/2	100.0	6.80E-02	1.30E-01		8.1E-02	mg/L	YES
1,1-DICHLOROETHENE	1/2	50.0	8.00E-03	8.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2,4-TRICHLOROBENZENE	1/1	100.0	5.00E-03	5.00E-03		1.7E-02	mg/L	NO
1,2-DICHLORO-1,1,2-TRIFLUOROETHANE	1/1	100.0	2.70E-02	2.70E-02			mg/L	
1,2-DICHLOROETHANE	2/2	100.0	2.00E-03	7.00E-03	1.6E-04		mg/L	YES
1,3,5-CYCLOHEPTATRIENE	1/1	100.0	4.00E-03	4.00E-03			mg/L	
1,3-DICHLOROBENZENE	1/2	50.0	4.00E-03	4.00E-03			mg/L	
1,4-DICHLOROBENZENE	2/2	100.0	1.10E-02	1.40E-02	3.0E-03	1.7E-01	mg/L	YES
1,4-DIOXANE	1/1	100.0	1.90E-01	1.90E-01	7.7E-03		mg/L	YES
2,4-DIMETHYLPHENOL	1/1	100.0	5.20E-02	5.20E-02		4.8E-02	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=SEEP C-WEST TOE Medium=LEACHATE (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
2-METHYL-2,4-PENTANEDIOL	1/1	100.0	2.70E-01	2.70E-01			mg/L	
3,5-DIMETHYLPHENOL	1/1	100.0	7.90E-02	7.90E-02			mg/L	
4-HYDROXY-4-METHYL-2-PENTANONE	1/1	100.0	1.20E-01	1.20E-01			mg/L	
ACETIC ACID, ETHYL ESTER	1/1	100.0	4.10E-02	4.10E-02		3.3E+00	mg/L	NO
ACETONE	1/1	100.0	2.10E-02	2.10E-02		3.6E-01	mg/L	NO
BENZENE	2/2	100.0	3.00E-03	3.90E-02	4.9E-04		mg/L	YES
BIS(2-BUTOXYETHYL)ETHER	1/1	100.0	9.20E-02	9.20E-02			mg/L	
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	7.00E-03	7.00E-03	4.7E-03	5.6E-02	mg/L	YES
CHLOROETHANE	2/2	100.0	5.80E-01	8.90E-01		2.1E+00	mg/L	NO
CIS-1,2-DICHLOROETHENE	2/2	100.0	2.80E-02	1.90E-01		3.6E-02	mg/L	YES
DICHLOROACETIC ACID	1/1	100.0	5.00E-03	5.00E-03			mg/L	
ETHANOL, 2-CHLORO-, PHOSPHATE (3:1)	1/1	100.0	5.60E-02	5.60E-02			mg/L	
HEXADECANOIC ACID	1/1	100.0	3.10E-02	3.10E-02			mg/L	
METHYLENE CHLORIDE	2/2	100.0	8.00E-03	4.70E-02	5.4E-03	1.6E-01	mg/L	YES
N,N,4-TRIMETHYL-BENZENESULFONAMIDE	1/1	100.0	3.70E-02	3.70E-02			mg/L	
NAPHTHALENE	1/1	100.0	3.00E-03	3.00E-03		1.1E-01	mg/L	NO
POLYCHLORINATED BIPHENYL	2/2	100.0	4.90E-03	1.80E-02	5.7E-06		mg/L	YES
TETRACHLOROETHENE	1/2	50.0	8.00E-03	8.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	2/2	100.0	2.00E-03	5.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	2/2	100.0	1.00E-03	2.00E-03		7.3E-02	mg/L	NO
TRICHLOROETHENE	1/2	50.0	2.30E-02	2.30E-02	1.9E-03		mg/L	YES
VINYL CHLORIDE	2/2	100.0	9.00E-03	5.60E-02	2.5E-05		mg/L	YES
NEPTUNIUM-237	1/1	100.0	5.20E-01	5.20E-01	1.6E-01		pCi/L	YES
RADIUM (TOTAL ALPHA)	1/1	100.0	6.50E-01	6.50E-01	1.6E-01		pCi/L	YES
TECHNETIUM-99	1/1	100.0	1.10E+01	1.10E+01	3.4E+01		pCi/L	NO
TRITIUM	1/1	100.0	2.40E+03	2.40E+03	5.8E+02		pCi/L	YES
URANIUM-234	1/1	100.0	3.90E+00	3.90E+00	1.1E+00		pCi/L	YES
URANIUM-235	1/1	100.0	3.40E-01	3.40E-01	1.0E+00		pCi/L	NO
URANIUM-238	1/1	100.0	6.10E+00	6.10E+00	7.7E-01		pCi/L	YES

Sample Station=SEEP1 Medium=LEACHATE

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,1,1-TRICHLOROETHANE	1/1	100.0	5.00E-02	5.00E-02		1.3E-01	mg/L	NO
1,1,2-TRICHLOROETHANE	1/1	100.0	3.00E-03	3.00E-03	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	1/1	100.0	4.00E-01	4.00E-01		8.1E-02	mg/L	YES
1,1-DICHLOROETHENE	1/1	100.0	1.30E-02	1.30E-02	1.3E-05	3.2E-02	mg/L	YES
1,2,4-TRICHLOROBENZENE	1/1	100.0	7.00E-03	7.00E-03		1.7E-02	mg/L	NO
1,2-DICHLOROBENZENE	1/1	100.0	1.00E-03	1.00E-03		3.6E-02	mg/L	NO
1,2-DICHLOROETHANE	1/1	100.0	7.00E-03	7.00E-03	1.6E-04		mg/L	YES
2,4-DIMETHYLPHENOL	1/1	100.0	2.10E-01	2.10E-01		4.8E-02	mg/L	YES
2,4-DINITROTOLUENE	1/1	100.0	1.00E-03	1.00E-03	1.2E-04	7.2E-03	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=SEEP1 Medium=LEACHATE (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
2,6-DINITROTOLUENE	1/1	100.0	2.00E-03	2.00E-03	1.2E-04	3.6E-03	mg/L	YES
4-BROMOPHENYL PHENYL ETHER	1/1	100.0	1.00E-03	1.00E-03			mg/L	
BENZENE	1/1	100.0	1.90E-02	1.90E-02	4.9E-04		mg/L	YES
BENZIDINE	1/1	100.0	5.00E-03	5.00E-03	3.7E-07	1.1E-02	mg/L	YES
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	3.30E-02	3.30E-02	4.7E-03	5.6E-02	mg/L	YES
CHLOROFORM	1/1	100.0	4.00E-03	4.00E-03	2.1E-04	3.3E-02	mg/L	YES
CIS-1,2-DICHLOROETHENE	1/1	100.0	4.90E+00	4.90E+00		3.6E-02	mg/L	YES
DI-N-BUTYLPHTHALATE	1/1	100.0	2.00E-03	2.00E-03		2.9E-01	mg/L	NO
DI-N-OCTYLPHTHALATE	1/1	100.0	4.00E-03	4.00E-03		9.9E-04	mg/L	YES
DIBROMOCHLOROMETHANE	1/1	100.0	4.00E-03	4.00E-03	1.0E-03	7.2E-02	mg/L	YES
PENTACHLOROPHENOL	1/1	100.0	6.00E-03	6.00E-03	2.8E-04	4.3E-02	mg/L	YES
PHENOL	1/1	100.0	1.00E-03	1.00E-03		2.2E+00	mg/L	NO
POLYCHLORINATED BIPHENYL	1/1	100.0	3.20E-01	3.20E-01	5.7E-06		mg/L	YES
TOLUENE	1/1	100.0	8.00E-03	8.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	1/1	100.0	2.20E-02	2.20E-02		7.3E-02	mg/L	NO
TRICHLOROETHENE	1/1	100.0	2.00E-03	2.00E-03	1.9E-03		mg/L	YES
VINYL CHLORIDE	1/1	100.0	9.90E-01	9.90E-01	2.5E-05		mg/L	YES
CESIUM-137	1/1	100.0	6.10E+00	6.10E+00	1.5E+00		pCi/L	YES
NEPTUNIUM-237	1/1	100.0	7.50E-01	7.50E-01	1.6E-01		pCi/L	YES
TECHNETIUM-99	1/1	100.0	2.30E+01	2.30E+01	3.4E+01		pCi/L	NO
THORIUM-230	1/1	100.0	3.20E-01	3.20E-01	1.3E+00		pCi/L	NO
URANIUM-234	1/1	100.0	6.30E+00	6.30E+00	1.1E+00		pCi/L	YES
URANIUM-238	1/1	100.0	4.70E+00	4.70E+00	7.7E-01		pCi/L	YES

Sample Station=SEEP2 Medium=LEACHATE

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/2	50.0	1.59E+02	1.59E+02			mg/L	
ARSENIC	1/2	50.0	8.00E-01	8.00E-01	5.6E-05	1.1E-03	mg/L	YES
BARIUM	2/2	100.0	1.10E-01	2.89E+00		2.5E-01	mg/L	YES
BERYLLIUM	1/2	50.0	1.11E+00	1.11E+00	1.6E-05	1.5E-02	mg/L	YES
BORON	2/2	100.0	1.21E+01	1.75E+01		3.3E-01	mg/L	YES
CALCIUM	2/2	100.0	9.20E+01	5.31E+02			mg/L	
CERIUM	1/2	50.0	1.22E+00	1.22E+00			mg/L	
CHROMIUM	1/2	50.0	2.80E-01	2.80E-01		1.6E-02	mg/L	YES
COBALT	1/2	50.0	2.10E-01	2.10E-01			mg/L	
COPPER	1/2	50.0	6.40E-01	6.40E-01			mg/L	
IRON	1/2	50.0	1.29E+03	1.29E+03			mg/L	
LEAD	1/2	50.0	8.00E-01	8.00E-01		1.5E-02	mg/L	YES
LITHIUM	2/2	100.0	9.00E+00	1.19E+01			mg/L	
MAGNESIUM	2/2	100.0	1.50E+01	5.09E+01			mg/L	
MANGANESE	2/2	100.0	2.70E-01	1.87E+01		4.8E-01	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=SEEP2 Medium=LEACHATE (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
MOLYBDENUM	1/2	50.0	7.00E-02	7.00E-02		1.8E-02	mg/L	YES
NICKEL	1/2	50.0	3.60E-01	3.60E-01		7.2E-02	mg/L	YES
PHOSPHORUS	1/2	50.0	9.10E+00	9.10E+00			mg/L	
POTASSIUM	1/2	50.0	1.80E+01	1.80E+01			mg/L	
SODIUM	2/2	100.0	4.00E+00	5.10E+00			mg/L	
STRONTIUM	2/2	100.0	4.10E-01	9.54E-01		2.2E+00	mg/L	NO
THORIUM	1/2	50.0	1.10E-01	1.10E-01			mg/L	
TITANIUM	1/2	50.0	1.02E+00	1.02E+00			mg/L	
TOTAL URANIUM	2/2	100.0	1.45E+00	1.49E+00		1.1E-02	mg/L	YES
VANADIUM	1/2	50.0	8.90E-01	8.90E-01		2.1E-02	mg/L	YES
ZINC	1/2	50.0	3.20E+00	3.20E+00		1.1E+00	mg/L	YES
ZIRCONIUM	1/2	50.0	1.60E-01	1.60E-01			mg/L	
1,1,1-TRICHLOROETHANE	2/2	100.0	1.00E-03	5.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	2/2	100.0	3.10E-02	8.10E-02		8.1E-02	mg/L	YES
1,2-DICHLOROETHANE	2/2	100.0	1.00E-03	2.00E-03	1.6E-04		mg/L	YES
1,3,5-CYCLOHEPTATRIENE	1/1	100.0	5.00E-03	5.00E-03			mg/L	
1,4-DIOXANE	1/1	100.0	1.80E-01	1.80E-01	7.7E-03		mg/L	YES
2,4-DIMETHYLPHENOL	1/1	100.0	6.00E-03	6.00E-03		4.8E-02	mg/L	NO
4-HYDROXY-4-METHYL-2-PENTANONE	1/1	100.0	8.00E-02	8.00E-02			mg/L	
ACETONE	2/2	100.0	1.60E-02	1.90E-02		3.6E-01	mg/L	NO
BENZENE	1/2	50.0	4.00E-03	4.00E-03	4.9E-04		mg/L	YES
BIS(2-BUTOXYETHYL)ETHER	1/1	100.0	3.20E-02	3.20E-02			mg/L	
CHLOROETHANE	2/2	100.0	1.60E-01	6.40E-01		2.1E+00	mg/L	NO
CIS-1,2-DICHLOROETHENE	2/2	100.0	2.00E-02	3.10E-02		3.6E-02	mg/L	NO
DICHLOROACETIC ACID	2/2	100.0	4.00E-03	5.00E-03			mg/L	
HEXADECANOIC ACID	1/1	100.0	1.40E-02	1.40E-02			mg/L	
METHYLENE CHLORIDE	2/2	100.0	2.00E-02	5.60E-02	5.4E-03	1.6E-01	mg/L	YES
TOLUENE	2/2	100.0	1.00E-03	7.00E-03		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	1/2	50.0	2.00E-03	2.00E-03		7.3E-02	mg/L	NO
VINYL CHLORIDE	2/2	100.0	3.00E-03	1.00E-02	2.5E-05		mg/L	YES
NEPTUNIUM-237	1/1	100.0	8.50E-01	8.50E-01	1.6E-01		pCi/L	YES
TECHNETIUM-99	1/1	100.0	1.10E+02	1.10E+02	3.4E+01		pCi/L	YES
TRITIUM	1/1	100.0	4.20E+03	4.20E+03	5.8E+02		pCi/L	YES
URANIUM-234	1/1	100.0	5.80E+01	5.80E+01	1.1E+00		pCi/L	YES
URANIUM-235	1/1	100.0	3.90E+00	3.90E+00	1.0E+00		pCi/L	YES
URANIUM-238	1/1	100.0	3.50E+02	3.50E+02	7.7E-01		pCi/L	YES

Sample Station=SEEPS 3&4 Medium=LEACHATE

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	2/2	100.0	6.00E+00	1.70E+01			mg/L	
BARIUM	2/2	100.0	1.28E+00	2.22E+00		2.5E-01	mg/L	YES

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

---------- Sample Station=SEEPS 3&4 Medium=LEACHATE ----------
(continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BERYLLIUM	2/2	100.0	2.00E-02	3.30E-02	1.6E-05	1.5E-02	mg/L	YES
BORON	2/2	100.0	1.21E+02	1.26E+02		3.3E-01	mg/L	YES
CALCIUM	2/2	100.0	6.70E+01	6.74E+01			mg/L	
CERIUM	1/2	50.0	8.00E-02	8.00E-02			mg/L	
COBALT	1/2	50.0	6.00E-02	6.00E-02			mg/L	
COPPER	1/2	50.0	4.00E-02	4.00E-02			mg/L	
IRON	2/2	100.0	1.07E+02	3.50E+02			mg/L	
LITHIUM	2/2	100.0	3.17E+01	3.24E+01			mg/L	
MAGNESIUM	2/2	100.0	2.30E+01	2.31E+01			mg/L	
MANGANESE	2/2	100.0	1.06E+01	1.35E+01		4.8E-01	mg/L	YES
MOLYBDENUM	1/2	50.0	1.40E-01	1.40E-01		1.8E-02	mg/L	YES
NICKEL	1/2	50.0	5.00E-02	5.00E-02		7.2E-02	mg/L	NO
PHOSPHORUS	2/2	100.0	4.00E+00	1.09E+01			mg/L	
POTASSIUM	1/2	50.0	1.80E+01	1.80E+01			mg/L	
SODIUM	2/2	100.0	3.40E+01	3.40E+01			mg/L	
STRONTIUM	2/2	100.0	3.40E-01	3.64E-01		2.2E+00	mg/L	NO
TITANIUM	1/2	50.0	1.70E-01	1.70E-01			mg/L	
TOTAL URANIUM	2/2	100.0	1.00E-02	1.00E-02		1.1E-02	mg/L	NO
VANADIUM	1/2	50.0	6.00E-02	6.00E-02		2.1E-02	mg/L	YES
ZINC	1/2	50.0	2.70E-01	2.70E-01		1.1E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	2/2	100.0	6.20E-02	1.20E-01		1.3E-01	mg/L	NO
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	2/2	100.0	5.50E-02	7.90E-02		5.9E+00	mg/L	NO
1,1,2-TRICHLOROETHANE	1/2	50.0	1.00E-03	1.00E-03	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	2/2	100.0	1.70E-01	4.10E-01		8.1E-02	mg/L	YES
1,1-DICHLOROETHENE	2/2	100.0	1.50E-02	3.00E-02	1.3E-05	3.2E-02	mg/L	YES
1,1-THIOBIS ETHANE	1/1	100.0	2.60E-02	2.60E-02			mg/L	
1,2-DICHLORO-1,1,2-TRIFLUOROETHANE	2/2	100.0	3.90E-02	7.30E-02			mg/L	
1,2-DICHLOROETHANE	2/2	100.0	6.00E-03	8.00E-03	1.6E-04		mg/L	YES
1,3-DICHLOROBENZENE	2/2	100.0	6.00E-03	6.00E-03			mg/L	
1,4-DICHLOROBENZENE	2/2	100.0	2.10E-02	2.60E-02	3.0E-03	1.7E-01	mg/L	YES
1,4-DIOXANE	1/1	100.0	2.00E-01	2.00E-01	7.7E-03		mg/L	YES
2,2,3,4-TETRAMETHYL-PENTANE	1/1	100.0	8.40E-02	8.40E-02			mg/L	
2,4,6-TRIMETHYL OCTANE	1/1	100.0	3.80E-02	3.80E-02			mg/L	
2-METHYL-2,4-PENTANEDIOL	1/1	100.0	1.10E-01	1.10E-01			mg/L	
3-(1,1-DIMETHYLETHYL)PHENOL	1/1	100.0	4.00E-02	4.00E-02			mg/L	
3-CHLORO-1-BUTYNE	1/1	100.0	4.00E-03	4.00E-03			mg/L	
4-(1,1-DIMETHYLETHYL)BENZOIC ACID	1/1	100.0	4.60E-02	4.60E-02			mg/L	
4-HYDROXY-4-METHYL-2-PENTANONE	1/1	100.0	7.80E-02	7.80E-02			mg/L	
ACETIC ACID, ETHYL ESTER	1/1	100.0	1.50E-01	1.50E-01		3.3E+00	mg/L	NO
ACETONE	1/1	100.0	3.00E-02	3.00E-02		3.6E-01	mg/L	NO
BENZENE	2/2	100.0	1.60E-02	5.30E-02	4.9E-04		mg/L	YES
BIS(2-BUTOXYETHYL)ETHER	1/1	100.0	2.49E-01	2.49E-01			mg/L	
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	6.00E-03	6.00E-03	4.7E-03	5.6E-02	mg/L	YES
CHLOROETHANE	2/2	100.0	7.00E-01	1.77E+00		2.1E+00	mg/L	NO
CIS-1,2-DICHLOROETHENE	2/2	100.0	3.80E-01	9.20E-01		3.6E-02	mg/L	YES
DIMETHYLBENZENE	1/1	100.0	5.00E-03	5.00E-03		5.8E+00	mg/L	NO

Table F.10a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for each sampling location)

Sample Station=SEEPS 3&4 Medium=LEACHATE (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ETHYLBENZENE	1/2	50.0	2.00E-03	2.00E-03		1.2E-01	mg/L	NO
HEXADECANOIC ACID	1/1	100.0	2.90E-02	2.90E-02			mg/L	
METHYLENE CHLORIDE	2/2	100.0	1.50E-02	3.30E-02	5.4E-03	1.6E-01	mg/L	YES
PHOSPHORIC ACID, TRIBUTYL ESTER	1/1	100.0	4.00E-02	4.00E-02			mg/L	
POLYCHLORINATED BIPHENYL	2/2	100.0	2.60E-03	9.50E-03	5.7E-06		mg/L	YES
TETRACHLOROETHENE	2/2	100.0	9.00E-03	1.80E-02	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	2/2	100.0	7.00E-03	2.00E-02		7.4E-02	mg/L	NO
TRANS-1,2-DICHLOROETHENE	2/2	100.0	3.00E-03	8.00E-03		7.3E-02	mg/L	NO
TRICHLOROETHENE	2/2	100.0	6.00E-03	2.10E-02	1.9E-03		mg/L	YES
VINYL CHLORIDE	2/2	100.0	8.40E-02	1.80E-01	2.5E-05		mg/L	YES
URANIUM-234 (calc.)	2/2	100.0	3.43E+00	3.43E+00	1.1E+00		pCi/L	YES
URANIUM-235 (calc.)	2/2	100.0	1.56E-01	1.56E-01	1.0E+00		pCi/L	NO
URANIUM-238 (calc.)	2/2	100.0	3.34E+00	3.34E+00	7.7E-01		pCi/L	YES

Sample Station=SL1-01 Medium=GROUNDWATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	6.68E+00	6.68E+00			mg/L	
BERYLLIUM	1/1	100.0	4.80E-04	4.80E-04	1.6E-05	1.5E-02	mg/L	YES
COBALT	1/1	100.0	2.30E-02	2.30E-02			mg/L	
MANGANESE	1/1	100.0	7.58E+00	7.58E+00		4.8E-01	mg/L	YES
MERCURY	1/1	100.0	3.40E-04	3.40E-04		1.1E-03	mg/L	NO
NICKEL	1/1	100.0	3.18E-02	3.18E-02		7.2E-02	mg/L	NO
SULFATE	1/1	100.0	6.70E+01	6.70E+01			mg/L	
VANADIUM	1/1	100.0	7.40E-03	7.40E-03		2.1E-02	mg/L	NO
ACETONE	1/1	100.0	1.50E-02	1.50E-02		3.6E-01	mg/L	NO
DI-N-BUTYLPHTHALATE	1/1	100.0	1.00E-03	1.00E-03		2.9E-01	mg/L	NO
POTASSIUM-40	1/1	100.0	1.70E+02	1.70E+02	3.8E+00		pCi/L	YES
THORIUM-230	1/1	100.0	1.10E+00	1.10E+00	1.3E+00		pCi/L	NO
URANIUM-234	1/1	100.0	1.10E+02	1.10E+02	1.1E+00		pCi/L	YES
URANIUM-235	1/1	100.0	4.60E+00	4.60E+00	1.0E+00		pCi/L	YES
URANIUM-238	1/1	100.0	1.60E+02	1.60E+02	7.7E-01		pCi/L	YES

Table F.10b. Data summary (and PRG Summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for Picket well aggregates)

Aggregate=PICKET-A

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	73/74	98.6	1.10E-02	1.40E+00		3.3E-01	mg/L	YES
CHLORIDE	76/76	100.0	3.00E+00	3.41E+02			mg/L	
LEAD	22/69	31.9	4.30E-03	7.30E-02		1.5E-02	mg/L	YES
NITRATE (AS N)	52/76	68.4	2.00E-01	3.20E+01		5.8E+00	mg/L	YES
STRONTIUM	76/76	100.0	2.50E-02	2.20E-01		2.2E+00	mg/L	NO
TOTAL URANIUM	64/74	86.5	1.00E-03	1.14E-01		1.1E-02	mg/L	YES
1,1,1-TRICHLOROETHANE	1/77	1.3	7.00E-04	7.00E-04		1.3E-01	mg/L	NO
1,2-DICHLOROETHENE	15/77	19.5	1.00E-03	4.00E-03		3.3E-02	mg/L	NO
ACETONE	4/77	5.2	5.00E-03	2.60E-02		3.6E-01	mg/L	NO
BENZENE	1/77	1.3	3.00E-04	3.00E-04	4.9E-04		mg/L	NO
CHLOROFORM	2/77	2.6	9.00E-04	2.00E-03	2.1E-04	3.3E-02	mg/L	YES
ETHYLBENZENE	1/77	1.3	1.00E-03	1.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	9/77	11.7	1.00E-03	2.30E-02	5.4E-03	1.6E-01	mg/L	YES
TETRACHLOROETHENE	2/77	2.6	5.00E-04	5.00E-04	7.8E-04	1.9E-02	mg/L	NO
TOLUENE	2/77	2.6	2.00E-03	2.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	7/77	9.1	3.00E-04	1.00E-03	1.9E-03		mg/L	NO
VINYL ACETATE	3/77	3.9	2.00E-03	2.00E-03		4.1E-02	mg/L	NO
TECHNETIUM-99	1/1	100.0	2.80E+01	2.80E+01	3.4E+01		pCi/L	NO
THORIUM-230	1/1	100.0	1.70E-01	1.70E-01	1.3E+00		pCi/L	NO
URANIUM-234	1/1	100.0	7.40E+00	7.40E+00	1.1E+00		pCi/L	YES
URANIUM-238	1/1	100.0	1.40E+01	1.40E+01	7.7E-01		pCi/L	YES

Aggregate=PICKET-B

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	79/80	98.8	8.80E-03	1.20E+00		3.3E-01	mg/L	YES
CHROMIUM	21/71	29.6	1.20E-02	2.50E-01		1.6E-02	mg/L	YES
NICKEL	30/80	37.5	1.00E-02	1.60E-01		7.2E-02	mg/L	YES
NITRATE (AS N)	79/81	97.5	2.30E-01	8.42E+01		5.8E+00	mg/L	YES
TOTAL URANIUM	70/77	90.9	1.00E-03	3.00E-01		1.1E-02	mg/L	YES
1,1,1-TRICHLOROETHANE	14/83	16.9	5.00E-04	2.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	7/83	8.4	5.00E-04	1.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	26/83	31.3	5.00E-04	8.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	47/83	56.6	1.00E-03	3.80E-02		3.3E-02	mg/L	YES
4-METHYL-2-PENTANONE	1/83	1.2	5.00E-03	5.00E-03		1.6E-02	mg/L	NO
ACETONE	3/82	3.7	4.00E-03	1.80E-01		3.6E-01	mg/L	NO
BENZENE	2/83	2.4	3.00E-04	9.00E-04	4.9E-04		mg/L	YES
BROMOFORM	1/83	1.2	1.00E-03	1.00E-03	1.1E-02	7.2E-02	mg/L	NO
CARBON TETRACHLORIDE	12/83	14.5	4.00E-04	2.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROBENZENE	1/83	1.2	1.00E-03	1.00E-03		3.9E-03	mg/L	NO
CHLOROFORM	4/82	4.9	4.00E-04	5.00E-04	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	1/83	1.2	9.00E-04	9.00E-04	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	3/83	3.6	5.00E-04	2.00E-03	7.8E-04	1.9E-02	mg/L	YES

Table F.10b. Data summary (and PRG Summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for Picket well aggregates)

Aggregate=PICKET-B (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
TRICHLOROETHENE	60/83	72.3	2.00E-03	1.20E-01	1.9E-03		mg/L	YES
TECHNETIUM-99	1/1	100.0	3.90E+01	3.90E+01	3.4E+01		pCi/L	YES
THORIUM-230	1/1	100.0	3.20E-01	3.20E-01	1.3E+00		pCi/L	NO
URANIUM-234	1/1	100.0	2.20E+01	2.20E+01	1.1E+00		pCi/L	YES
URANIUM-235	1/1	100.0	8.90E-01	8.90E-01	1.0E+00		pCi/L	NO
URANIUM-238	1/1	100.0	4.20E+01	4.20E+01	7.7E-01		pCi/L	YES

Aggregate=PICKET-C

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	91/91	100.0	5.80E-01	1.06E+02		5.8E+00	mg/L	YES
1,1,1-TRICHLOROETHANE	24/92	26.1	7.00E-04	2.00E-03		1.3E-01	mg/L	NO
1,1,2-TRICHLOROETHANE	1/92	1.1	1.00E-03	1.00E-03	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	2/92	2.2	1.00E-03	1.00E-03		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	3/92	3.3	1.00E-03	2.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	78/92	84.8	1.00E-03	9.80E-02		3.3E-02	mg/L	YES
2-BUTANONE	1/92	1.1	1.00E-02	1.00E-02		1.9E-01	mg/L	NO
2-HEXANONE	1/92	1.1	3.00E-03	3.00E-03			mg/L	
ACETONE	3/92	3.3	3.00E-02	9.50E-02		3.6E-01	mg/L	NO
BENZENE	2/92	2.2	1.00E-03	1.00E-03	4.9E-04		mg/L	YES
CARBON DISULFIDE	1/92	1.1	2.00E-03	2.00E-03		1.0E-01	mg/L	NO
CARBON TETRACHLORIDE	40/92	43.5	9.00E-04	5.00E-03	2.1E-04	2.4E-03	mg/L	YES
CHLOROBENZENE	1/92	1.1	1.00E-03	1.00E-03		3.9E-03	mg/L	NO
CHLOROFORM	37/92	40.2	1.00E-03	7.00E-03	2.1E-04	3.3E-02	mg/L	YES
DIMETHYLBENZENE	1/92	1.1	5.00E-03	5.00E-03		5.8E+00	mg/L	NO
ETHYLBENZENE	1/92	1.1	2.00E-03	2.00E-03		1.2E-01	mg/L	NO
METHYLENE CHLORIDE	1/92	1.1	1.00E-03	1.00E-03	5.4E-03	1.6E-01	mg/L	NO
STYRENE	1/92	1.1	1.00E-03	1.00E-03		1.1E-01	mg/L	NO
TETRACHLOROETHENE	37/92	40.2	8.00E-04	7.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	2/91	2.2	1.00E-03	2.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	92/92	100.0	3.00E-03	1.40E-01	1.9E-03		mg/L	YES
VINYL ACETATE	3/92	3.3	1.00E-03	3.00E-03		4.1E-02	mg/L	NO

Aggregate=PICKET-W

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	52/52	100.0	2.50E-02	1.40E+00		3.3E-01	mg/L	YES
CHLORIDE	52/52	100.0	7.90E+00	2.18E+03			mg/L	

Table F.10b. Data summary (and PRG Summary) for site-related contaminants in Bear Creek Valley
Medium: GROUNDWATER (for Picket well aggregates)

Aggregate=PICKET-W
(continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
STRONTIUM	52/52	100.0	6.50E-02	1.50E+01		2.2E+00	mg/L	YES
SULFATE	52/52	100.0	6.00E+00	2.83E+03			mg/L	
2-BUTANONE	1/58	1.7	1.60E-02	1.60E-02		1.9E-01	mg/L	NO
CESIUM-137	3/6	50.0	5.60E+00	8.80E+00	1.5E+00		pCi/L	YES
RADIUM (TOTAL ALPHA)	4/6	66.7	8.80E-01	5.40E+00	1.6E-01		pCi/L	YES
RADIUM-228	2/6	33.3	2.40E+00	7.80E+00	1.9E-01		pCi/L	YES
TECHNETIUM-99	1/6	16.7	8.00E+00	8.00E+00	3.4E+01		pCi/L	NO
THORIUM-228	2/6	33.3	2.60E-01	9.20E-01	2.1E-01		pCi/L	YES
THORIUM-230	4/6	66.7	3.80E-01	6.50E-01	1.3E+00		pCi/L	NO
URANIUM-234	3/6	50.0	5.80E-01	1.50E+00	1.1E+00		pCi/L	YES
URANIUM-238	2/6	33.3	3.40E-01	1.00E+00	7.7E-01		pCi/L	YES

Table F.11a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: SURFACE WATER (for each sampling location)

Sample Station=BCK 0.63 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ANTIMONY	1/1	100.0	5.70E-02	5.70E-02		1.3E-03	mg/L	YES
ARSENIC	1/1	100.0	6.00E-02	6.00E-02	5.6E-05	1.1E-03	mg/L	YES
BERYLLIUM	2/14	14.3	4.30E-04	6.20E-03	1.6E-05	1.5E-02	mg/L	YES
BORON	14/14	100.0	4.80E-02	3.10E-01		3.3E-01	mg/L	NO
CHLORIDE	13/13	100.0	2.00E+00	1.30E+01			mg/L	
COPPER	3/14	21.4	5.60E-03	1.10E-02			mg/L	
FLUORIDE	9/14	64.3	1.00E-01	2.00E-01		2.2E-01	mg/L	NO
NITRATE (AS N)	14/14	100.0	1.31E+00	9.90E+00		5.8E+00	mg/L	YES
STRONTIUM	14/14	100.0	4.50E-02	1.30E-01		2.2E+00	mg/L	NO
TOTAL URANIUM	14/14	100.0	1.50E-02	5.90E-02		1.1E-02	mg/L	YES

Sample Station=BCK 11.97 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ARSENIC	1/1	100.0	5.60E-02	5.60E-02	5.6E-05	1.1E-03	mg/L	YES
BARIUM	10/10	100.0	1.20E-01	6.30E-01		2.5E-01	mg/L	YES
BORON	10/10	100.0	3.60E-02	1.20E-01		3.3E-01	mg/L	NO
CADMIUM	5/8	62.5	2.10E-03	8.60E-03		1.5E-03	mg/L	YES
CHLORIDE	10/10	100.0	1.90E+01	8.10E+01			mg/L	
COPPER	4/10	40.0	4.30E-03	1.20E-02			mg/L	
FLUORIDE	10/10	100.0	4.00E-01	1.30E+00		2.2E-01	mg/L	YES
NICKEL	9/10	90.0	1.60E-02	5.10E-02		7.2E-02	mg/L	NO
NITRATE (AS N)	10/10	100.0	2.12E+01	2.39E+02		5.8E+00	mg/L	YES
SELENIUM	1/1	100.0	7.10E-02	7.10E-02		1.8E-02	mg/L	YES
SILVER	2/10	20.0	6.10E-03	6.80E-03		1.8E-02	mg/L	NO
STRONTIUM	10/10	100.0	1.90E-01	9.70E-01		2.2E+00	mg/L	NO
SULFATE	10/10	100.0	2.90E+01	7.00E+01			mg/L	
TOTAL URANIUM	10/10	100.0	8.50E-02	3.24E-01		1.1E-02	mg/L	YES
1,1,1-TRICHLOROETHANE	1/10	10.0	4.00E-04	4.00E-04		1.3E-01	mg/L	NO

Sample Station=BCK 12.36 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	17/21	81.0	8.88E-02	1.78E+01			mg/L	
BARIUM	21/21	100.0	1.05E-01	6.25E-01		2.5E-01	mg/L	YES
BERYLLIUM	3/21	14.3	3.30E-04	9.90E-04	1.6E-05	1.5E-02	mg/L	YES
CHLORIDE	20/21	95.2	1.85E+01	1.33E+02			mg/L	
CYANIDE	1/21	4.8	2.12E-02	2.12E-02		6.6E-02	mg/L	NO
FLUORIDE	21/21	100.0	2.00E-01	1.30E+00		2.2E-01	mg/L	YES

Table F.11a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: SURFACE WATER (for each sampling location)

Sample Station=BCK 12.36 Medium=SURFACE WATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
MERCURY	7/21	33.3	1.10E-04	5.50E-04		1.1E-03	mg/L	NO
NICKEL	20/21	95.2	1.24E-02	9.21E-02		7.2E-02	mg/L	YES
NITRATE (AS N)	21/21	100.0	2.90E+00	1.71E+02		5.8E+00	mg/L	YES
SULFATE	20/21	95.2	1.35E+01	8.45E+01			mg/L	
THALLIUM	1/20	5.0	4.10E-03	4.10E-03			mg/L	
VANADIUM	4/21	19.0	5.60E-03	3.19E-02		2.1E-02	mg/L	YES
ZINC	13/21	61.9	4.30E-03	1.36E-01		1.1E+00	mg/L	NO
1,2-DICHLOROETHENE	1/21	4.8	1.00E-03	1.00E-03		3.3E-02	mg/L	NO
2-BUTANONE	1/21	4.8	9.00E-03	9.00E-03		1.9E-01	mg/L	NO
2-HEXANONE	2/21	9.5	3.00E-03	8.00E-03			mg/L	
4-METHYL-2-PENTANONE	2/21	9.5	3.00E-03	7.00E-03		1.6E-02	mg/L	NO
ACETONE	3/14	21.4	4.00E-03	1.40E-02		3.6E-01	mg/L	NO
CARBON DISULFIDE	1/21	4.8	1.00E-03	1.00E-03		1.0E-01	mg/L	NO
METHYLENE CHLORIDE	2/21	9.5	2.00E-03	5.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	18/21	85.7	1.00E-03	6.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	1/21	4.8	1.00E-03	1.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	1/21	4.8	1.00E-03	1.00E-03	1.9E-03		mg/L	NO
STRONTIUM-90	7/10	70.0	1.05E+00	2.15E+00	8.5E-01		pCi/L	YES
TECHNETIUM-99	8/8	100.0	1.39E+02	4.77E+02	3.4E+01		pCi/L	YES
THORIUM-228	4/9	44.4	1.32E-01	2.50E-01	2.1E-01		pCi/L	YES
THORIUM-230	3/9	33.3	1.36E-01	2.30E-01	1.3E+00		pCi/L	NO
THORIUM-232	3/9	33.3	1.26E-01	1.32E-01	1.5E+00		pCi/L	NO
URANIUM-233/234	20/21	95.2	5.13E+00	5.40E+01	1.1E+00		pCi/L	YES
URANIUM-235	15/21	71.4	1.04E+00	4.32E+00	1.0E+00		pCi/L	YES
URANIUM-238	20/21	95.2	8.72E+00	1.35E+02	7.7E-01		pCi/L	YES

Sample Station=BCK 4.55 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BERYLLIUM	1/70	1.4	7.20E-03	7.20E-03	1.6E-05	1.5E-02	mg/L	YES
BORON	70/70	100.0	9.00E-03	2.90E-01		3.3E-01	mg/L	NO
CHLORIDE	69/70	98.6	2.00E+00	1.50E+01			mg/L	
COPPER	2/70	2.9	4.60E-03	1.40E-02			mg/L	
FLUORIDE	64/70	91.4	1.00E-02	6.60E-01		2.2E-01	mg/L	YES
GALLIUM	1/56	1.8	2.00E-02	2.00E-02			mg/L	
MERCURY	1/67	1.5	3.00E-04	3.00E-04		1.1E-03	mg/L	NO
NITRATE (AS N)	192/192	100.0	2.80E-01	5.00E+02		5.8E+00	mg/L	YES
SILVER	1/70	1.4	6.10E-03	6.10E-03		1.8E-02	mg/L	NO
STRONTIUM	70/70	100.0	3.40E-02	1.49E-01		2.2E+00	mg/L	NO
THALLIUM	1/56	1.8	3.00E-02	3.00E-02			mg/L	
TITANIUM	16/56	28.6	1.00E-02	5.00E-02			mg/L	
TOTAL URANIUM	13/14	92.9	1.90E-02	6.70E-02		1.1E-02	mg/L	YES

Table F.11a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: SURFACE WATER (for each sampling location)

Sample Station=BCK 4.55 Medium=SURFACE WATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	1/14	7.1	1.00E-03	1.00E-03		3.6E-01	mg/L	NO
CESIUM-137	1/1	100.0	7.50E+00	7.50E+00	1.5E+00		pCi/L	YES
THORIUM-230	1/1	100.0	3.40E-01	3.40E-01	1.3E+00		pCi/L	NO
URANIUM-233/234	1/1	100.0	3.20E+00	3.20E+00	1.1E+00		pCi/L	YES
URANIUM-238	1/1	100.0	7.10E+00	7.10E+00	7.7E-01		pCi/L	YES

Sample Station=BCK 9.40 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	26/35	74.3	3.10E-02	2.98E+01			mg/L	
BERYLLIUM	1/35	2.9	1.50E-03	1.50E-03	1.6E-05	1.5E-02	mg/L	YES
BORON	13/13	100.0	1.00E-01	4.10E+00		3.3E-01	mg/L	YES
CHLORIDE	34/34	100.0	5.60E+00	3.44E+01			mg/L	
FLUORIDE	35/35	100.0	1.20E-01	4.00E-01		2.2E-01	mg/L	YES
LITHIUM	7/7	100.0	2.82E-02	9.10E-02			mg/L	
MERCURY	3/32	9.4	1.60E-04	2.10E-04		1.1E-03	mg/L	NO
NICKEL	6/35	17.1	3.70E-03	2.13E-02		7.2E-02	mg/L	NO
NITRATE (AS N)	35/35	100.0	0.00E+00	4.62E+01		5.8E+00	mg/L	YES
STRONTIUM	13/13	100.0	7.90E-02	2.20E-01		2.2E+00	mg/L	NO
TOTAL URANIUM	13/13	100.0	5.20E-02	1.52E-01		1.1E-02	mg/L	YES
VANADIUM	6/35	17.1	5.10E-03	5.75E-02		2.1E-02	mg/L	YES
ZINC	19/35	54.3	2.90E-03	2.23E-01		1.1E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	1/35	2.9	4.00E-04	4.00E-04		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	3/35	8.6	1.00E-03	2.00E-03		8.1E-02	mg/L	NO
1,2-DICHLOROETHENE	34/35	97.1	1.00E-03	2.80E-02		3.3E-02	mg/L	NO
2-BUTANONE	2/35	5.7	8.00E-03	2.40E-02		1.9E-01	mg/L	NO
4-METHYL-2-PENTANONE	1/35	2.9	8.60E-02	8.60E-02		1.6E-02	mg/L	YES
ACETONE	2/28	7.1	6.00E-03	6.00E-03		3.6E-01	mg/L	NO
METHYLENE CHLORIDE	3/35	8.6	3.00E-03	4.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	14/35	40.0	5.00E-04	4.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	1/35	2.9	1.00E-03	1.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	7/35	20.0	6.00E-04	2.00E-03	1.9E-03		mg/L	YES
TECHNETIUM-99	2/8	25.0	4.60E+01	1.10E+02	3.4E+01		pCi/L	YES
THORIUM-228	1/4	25.0	1.26E-01	1.26E-01	2.1E-01		pCi/L	NO
THORIUM-230	2/4	50.0	2.00E-01	5.10E-01	1.3E+00		pCi/L	NO
URANIUM-233/234	22/23	95.7	7.57E+00	2.92E+01	1.1E+00		pCi/L	YES
URANIUM-235	7/23	30.4	3.50E-01	1.69E+00	1.0E+00		pCi/L	YES
URANIUM-238	22/23	95.7	1.87E+01	6.45E+01	7.7E-01		pCi/L	YES

Table F.11a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: SURFACE WATER (for each sampling location)

Sample Station=BCK S3 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CHLORIDE	1/1	100.0	1.22E+03	1.22E+03			mg/L	
FLUORIDE	1/1	100.0	4.30E-01	4.30E-01		2.2E-01	mg/L	YES
MERCURY	1/1	100.0	2.50E-04	2.50E-04		1.1E-03	mg/L	NO
NITRATE (AS N)	1/1	100.0	2.20E+00	2.20E+00		5.8E+00	mg/L	NO
SULFATE	1/1	100.0	6.88E+01	6.88E+01			mg/L	
THORIUM-228	1/1	100.0	1.03E-01	1.03E-01	2.1E-01		pCi/L	NO
URANIUM-233/234	1/1	100.0	5.28E+01	5.28E+01	1.1E+00		pCi/L	YES
URANIUM-235	1/1	100.0	4.66E+00	4.66E+00	1.0E+00		pCi/L	YES
URANIUM-238	1/1	100.0	1.27E+02	1.27E+02	7.7E-01		pCi/L	YES

Sample Station=NT1 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BARIUM	6/6	100.0	8.40E-02	1.10E+00		2.5E-01	mg/L	YES
BORON	6/6	100.0	4.10E-02	1.20E-01		3.3E-01	mg/L	NO
CADMIUM	3/4	75.0	1.70E-02	2.40E-02		1.5E-03	mg/L	YES
CHLORIDE	6/6	100.0	9.90E+00	4.40E+01			mg/L	
FLUORIDE	6/6	100.0	1.00E-01	1.80E+00		2.2E-01	mg/L	YES
NICKEL	5/6	83.3	4.80E-02	1.20E-01		7.2E-02	mg/L	YES
NITRATE (AS N)	6/6	100.0	3.10E+01	2.86E+02		5.8E+00	mg/L	YES
STRONTIUM	6/6	100.0	3.30E-01	1.00E+00		2.2E+00	mg/L	NO
SULFATE	6/6	100.0	1.99E+01	7.40E+01			mg/L	
TOTAL URANIUM	6/6	100.0	1.20E-02	1.85E-01		1.1E-02	mg/L	YES
ACETONE	1/6	16.7	3.00E-03	3.00E-03		3.6E-01	mg/L	NO
TETRACHLOROETHENE	6/6	100.0	1.00E-03	6.00E-03	7.8E-04	1.9E-02	mg/L	YES

Sample Station=NT2 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	18/21	85.7	6.13E-02	7.75E+00			mg/L	
BARIUM	21/21	100.0	5.96E-02	6.82E-01		2.5E-01	mg/L	YES
CHLORIDE	21/21	100.0	1.20E+00	1.00E+01			mg/L	
CYANIDE	2/21	9.5	1.01E-02	1.48E-02		6.6E-02	mg/L	NO
FLUORIDE	8/21	38.1	1.00E-01	1.40E-01		2.2E-01	mg/L	NO
NITRATE (AS N)	21/21	100.0	2.90E+00	2.11E+02		5.8E+00	mg/L	YES
2-BUTANONE	1/21	4.8	1.00E-02	1.00E-02		1.9E-01	mg/L	NO
4-METHYL-2-PENTANONE	1/21	4.8	3.00E-03	3.00E-03		1.6E-02	mg/L	NO
ACETONE	1/14	7.1	4.00E-03	4.00E-03		3.6E-01	mg/L	NO
CARBON DISULFIDE	1/21	4.8	2.00E-03	2.00E-03		1.0E-01	mg/L	NO

Table F.11a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: SURFACE WATER (for each sampling location)

Sample Station=NT2 Medium=SURFACE WATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
METHYLENE CHLORIDE	1/21	4.8	1.00E-03	1.00E-03	5.4E-03	1.6E-01	mg/L	NO
TOLUENE	1/21	4.8	1.00E-03	1.00E-03		7.4E-02	mg/L	NO
TECHNETIUM-99	2/2	100.0	1.21E+02	2.90E+02	3.4E+01		pCi/L	YES
URANIUM-233/234	1/21	4.8	2.47E+01	2.47E+01	1.1E+00		pCi/L	YES
URANIUM-238	1/21	4.8	4.95E+01	4.95E+01	7.7E-01		pCi/L	YES

Sample Station=NT3 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CHLORIDE	21/21	100.0	1.00E+00	5.80E+00			mg/L	
FLUORIDE	21/21	100.0	2.80E-01	2.60E+00		2.2E-01	mg/L	YES
LITHIUM	7/7	100.0	5.69E-02	1.75E-01			mg/L	
MERCURY	10/21	47.6	2.20E-04	5.30E-04		1.1E-03	mg/L	NO
NITRATE (AS N)	7/21	33.3	1.20E-01	1.20E+00		5.8E+00	mg/L	NO
SULFATE	20/21	95.2	9.90E+00	1.14E+02			mg/L	
2-BUTANONE	1/20	5.0	8.00E-03	8.00E-03		1.9E-01	mg/L	NO
2-HEXANONE	1/20	5.0	6.00E-03	6.00E-03			mg/L	
4-METHYL-2-PENTANONE	1/20	5.0	6.00E-03	6.00E-03		1.6E-02	mg/L	NO
ACETONE	2/13	15.4	2.00E-03	4.00E-03		3.6E-01	mg/L	NO
CHLOROMETHANE	1/13	7.7	7.00E-03	7.00E-03	1.9E-03		mg/L	YES
TOLUENE	1/20	5.0	2.00E-03	2.00E-03		7.4E-02	mg/L	NO
STRONTIUM-90	3/11	27.3	1.01E+00	1.94E+00	8.5E-01		pCi/L	YES
THORIUM-228	4/11	36.4	1.04E-01	3.10E-01	2.1E-01		pCi/L	YES
THORIUM-230	6/11	54.5	1.36E-01	1.95E+01	1.3E+00		pCi/L	YES
THORIUM-232	7/11	63.6	1.03E-01	1.79E+00	1.5E+00		pCi/L	YES
URANIUM-233/234	20/21	95.2	3.42E+01	4.55E+02	1.1E+00		pCi/L	YES
URANIUM-235	19/21	90.5	1.27E+00	2.74E+01	1.0E+00		pCi/L	YES
URANIUM-238	20/21	95.2	6.40E+01	9.96E+02	7.7E-01		pCi/L	YES

Sample Station=NT4 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CHLORIDE	12/12	100.0	2.80E+00	5.20E+00			mg/L	
CYANIDE	1/12	8.3	1.31E-02	1.31E-02		6.6E-02	mg/L	NO
FLUORIDE	8/12	66.7	1.10E-01	1.40E-01		2.2E-01	mg/L	NO
NITRATE (AS N)	2/12	16.7	1.80E-01	3.00E-01		5.8E+00	mg/L	NO
1,2-DICHLOROETHENE	1/12	8.3	2.00E-03	2.00E-03		3.3E-02	mg/L	NO
URANIUM-233/234	1/12	8.3	1.77E+00	1.77E+00	1.1E+00		pCi/L	YES

Table F.11a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: SURFACE WATER (for each sampling location)

Sample Station=NT4 Medium=SURFACE WATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
URANIUM-238	1/12	8.3	2.51E+00	2.51E+00	7.7E-01		pCi/L	YES

Sample Station=NT5 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CHLORIDE	13/13	100.0	1.60E+00	1.52E+01			mg/L	
FLUORIDE	4/13	30.8	1.10E-01	3.50E-01		2.2E-01	mg/L	YES
NITRATE (AS N)	7/13	53.8	0.00E+00	1.22E+01		5.8E+00	mg/L	YES
1,2-DICHLOROETHENE	1/13	7.7	5.00E-03	5.00E-03		3.3E-02	mg/L	NO
METHYLENE CHLORIDE	1/13	7.7	4.00E-03	4.00E-03	5.4E-03	1.6E-01	mg/L	NO
TOLUENE	1/13	7.7	2.00E-03	2.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	1/13	7.7	7.00E-03	7.00E-03	1.9E-03		mg/L	YES

Sample Station=NT6 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CHLORIDE	21/21	100.0	2.20E+00	7.50E+00			mg/L	
FLUORIDE	12/21	57.1	1.10E-01	2.00E-01		2.2E-01	mg/L	NO
MERCURY	3/21	14.3	2.50E-04	3.80E-04		1.1E-03	mg/L	NO
NITRATE (AS N)	12/21	57.1	1.10E-01	2.48E+01		5.8E+00	mg/L	YES
1,1,1-TRICHLOROETHANE	2/21	9.5	1.00E-03	1.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	5/21	23.8	1.00E-03	2.00E-03		8.1E-02	mg/L	NO
1,2-DICHLOROETHENE	10/21	47.6	1.00E-03	3.00E-03		3.3E-02	mg/L	NO
2-BUTANONE	2/21	9.5	5.00E-03	6.00E-03		1.9E-01	mg/L	NO
CARBON DISULFIDE	1/21	4.8	3.00E-03	3.00E-03		1.0E-01	mg/L	NO
CHLOROBENZENE	1/21	4.8	1.00E-03	1.00E-03		3.9E-03	mg/L	NO
METHYLENE CHLORIDE	1/21	4.8	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	4/21	19.0	1.00E-03	2.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	1/21	4.8	1.00E-03	1.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	5/21	23.8	1.00E-03	2.00E-03	1.9E-03		mg/L	YES
THORIUM-228	1/3	33.3	1.50E-01	1.50E-01	2.1E-01		pCi/L	NO
URANIUM-233/234	21/21	100.0	1.20E+00	6.66E+00	1.1E+00		pCi/L	YES
URANIUM-235	1/21	4.8	1.72E+00	1.72E+00	1.0E+00		pCi/L	YES
URANIUM-238	21/21	100.0	1.81E+00	1.46E+01	7.7E-01		pCi/L	YES

Table F.11a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: SURFACE WATER (for each sampling location)

Sample Station=NT7 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	12/21	57.1	4.09E-02	3.01E+01			mg/L	
BERYLLIUM	2/21	9.5	4.10E-04	1.30E-03	1.6E-05	1.5E-02	mg/L	YES
CHLORIDE	21/21	100.0	3.40E+00	3.63E+01			mg/L	
COPPER	1/21	4.8	3.06E-02	3.06E-02			mg/L	
CYANIDE	1/21	4.8	1.39E-02	1.39E-02		6.6E-02	mg/L	NO
FLUORIDE	14/21	66.7	1.00E-01	3.30E-01		2.2E-01	mg/L	YES
MERCURY	3/21	14.3	1.10E-04	4.30E-04		1.1E-03	mg/L	NO
NICKEL	5/21	23.8	3.10E-03	2.20E-02		7.2E-02	mg/L	NO
NITRATE (AS N)	21/21	100.0	1.30E-01	1.91E+01		5.8E+00	mg/L	YES
SULFATE	19/21	90.5	6.10E+00	7.88E+01			mg/L	
VANADIUM	6/21	28.6	9.00E-03	6.98E-02		2.1E-02	mg/L	YES
ZINC	8/21	38.1	7.30E-03	1.32E-01		1.1E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	21/21	100.0	3.00E-03	3.50E-02		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	21/21	100.0	3.00E-03	2.50E-02		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	20/21	95.2	2.00E-03	1.60E-02	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	3/14	21.4	1.00E-03	2.00E-03	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	21/21	100.0	3.30E-02	2.90E-01		3.3E-02	mg/L	YES
BENZENE	5/21	23.8	1.00E-03	2.00E-03	4.9E-04		mg/L	YES
CARBON DISULFIDE	1/21	4.8	6.00E-03	6.00E-03		1.0E-01	mg/L	NO
CHLOROFORM	20/21	95.2	1.00E-03	8.00E-03	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	4/21	19.0	1.00E-03	4.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	21/21	100.0	1.60E-02	1.20E-01	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	1/21	4.8	1.00E-03	1.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	21/21	100.0	8.00E-03	8.20E-02	1.9E-03		mg/L	YES
TRICHLOROFLUOROMETHANE	3/21	14.3	4.00E-03	4.00E-03		1.3E-01	mg/L	NO
VINYL CHLORIDE	21/21	100.0	6.00E-03	3.30E-02	2.5E-05		mg/L	YES
PLUTONIUM-238	1/3	33.3	2.23E-01	2.23E-01	1.6E-01		pCi/L	YES
THORIUM-228	1/3	33.3	4.74E-01	4.74E-01	2.1E-01		pCi/L	YES
THORIUM-230	2/3	66.7	1.48E-01	4.11E-01	1.3E+00		pCi/L	NO
THORIUM-232	1/3	33.3	3.80E-01	3.80E-01	1.5E+00		pCi/L	NO
URANIUM-233/234	21/21	100.0	2.22E+00	2.56E+01	1.1E+00		pCi/L	YES
URANIUM-235	4/21	19.0	1.17E+00	1.83E+00	1.0E+00		pCi/L	YES
URANIUM-238	21/21	100.0	3.62E+00	5.07E+01	7.7E-01		pCi/L	YES

Sample Station=NT8 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	5/12	41.7	6.96E-02	8.30E+00			mg/L	
CHLORIDE	12/12	100.0	6.20E+00	1.87E+01			mg/L	
CYANIDE	1/12	8.3	2.15E-02	2.15E-02		6.6E-02	mg/L	NO
FLUORIDE	12/12	100.0	1.20E-01	2.30E-01		2.2E-01	mg/L	YES
LITHIUM	7/7	100.0	1.34E-01	1.88E-01			mg/L	
MERCURY	3/12	25.0	1.30E-04	4.50E-04		1.1E-03	mg/L	NO

Table F.11a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: SURFACE WATER (for each sampling location)

Sample Station=NT8 Medium=SURFACE WATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NITRATE (AS N)	9/12	75.0	1.10E-01	1.60E+00		5.8E+00	mg/L	NO
VANADIUM	3/12	25.0	8.20E-03	2.86E-02		2.1E-02	mg/L	YES
1,1,1-TRICHLOROETHANE	11/11	100.0	5.00E-03	1.10E-02		1.3E-01	mg/L	NO
1,1,2-TRICHLOROETHANE	5/11	45.5	1.00E-03	2.00E-03	2.5E-04	1.4E-02	mg/L	YES
1,1-DICHLOROETHANE	11/11	100.0	1.20E-02	2.70E-02		8.1E-02	mg/L	NO
1,1-DICHLOROETHENE	11/11	100.0	5.00E-03	1.10E-02	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHANE	10/11	90.9	2.00E-03	4.00E-03	1.6E-04		mg/L	YES
1,2-DICHLOROETHENE	11/11	100.0	1.80E-01	4.10E-01		3.3E-02	mg/L	YES
BENZENE	2/11	18.2	1.00E-03	3.00E-03	4.9E-04		mg/L	YES
CHLOROFORM	11/11	100.0	1.00E-03	3.00E-03	2.1E-04	3.3E-02	mg/L	YES
METHYLENE CHLORIDE	2/11	18.2	2.00E-03	3.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	11/11	100.0	2.60E-02	5.80E-02	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	11/11	100.0	1.30E-02	2.90E-02	1.9E-03		mg/L	YES
TRICHLOROFLUOROMETHANE	1/11	9.1	1.00E-03	1.00E-03		1.3E-01	mg/L	NO
VINYL CHLORIDE	11/11	100.0	3.00E-03	2.10E-02	2.5E-05		mg/L	YES
THORIUM-228	1/3	33.3	1.57E-01	1.57E-01	2.1E-01		pCi/L	NO
THORIUM-230	2/3	66.7	2.09E-01	2.59E-01	1.3E+00		pCi/L	NO
THORIUM-232	1/3	33.3	1.73E-01	1.73E-01	1.5E+00		pCi/L	NO
URANIUM-233/234	12/12	100.0	6.60E+00	2.74E+01	1.1E+00		pCi/L	YES
URANIUM-235	2/12	16.7	1.07E+00	1.21E+00	1.0E+00		pCi/L	YES
URANIUM-238	12/12	100.0	2.15E+01	4.96E+01	7.7E-01		pCi/L	YES

Sample Station=SS1 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	20/27	74.1	3.61E-02	3.28E+00			mg/L	
BARIUM	27/27	100.0	5.37E-02	6.60E-01		2.5E-01	mg/L	YES
BORON	14/14	100.0	3.10E-02	9.00E-02		3.3E-01	mg/L	NO
CADMIUM	1/12	8.3	2.40E-02	2.40E-02		1.5E-03	mg/L	YES
CHLORIDE	27/27	100.0	1.40E+01	9.86E+01			mg/L	
FLUORIDE	27/27	100.0	1.00E-01	8.00E-01		2.2E-01	mg/L	YES
LEAD	1/12	8.3	2.60E-02	2.60E-02		1.5E-02	mg/L	YES
MANGANESE	26/27	96.3	1.06E-02	4.00E+00		4.8E-01	mg/L	YES
MERCURY	3/24	12.5	1.20E-04	3.40E-04		1.1E-03	mg/L	NO
NICKEL	1/27	3.7	8.00E-02	8.00E-02		7.2E-02	mg/L	YES
NITRATE (AS N)	27/27	100.0	1.16E+01	1.42E+02		5.8E+00	mg/L	YES
SILVER	1/27	3.7	6.90E-03	6.90E-03		1.8E-02	mg/L	NO
STRONTIUM	14/14	100.0	3.60E-01	6.00E-01		2.2E+00	mg/L	NO
SULFATE	27/27	100.0	1.40E+01	9.90E+01			mg/L	
TOTAL URANIUM	14/14	100.0	1.60E-02	4.70E-02		1.1E-02	mg/L	YES
VANADIUM	2/27	7.4	7.50E-03	1.38E-02		2.1E-02	mg/L	NO
ZINC	16/27	59.3	2.80E-03	6.60E-02		1.1E+00	mg/L	NO

Table F.11a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: SURFACE WATER (for each sampling location)

Sample Station=SS1 Medium=SURFACE WATER (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
1,2-DICHLOROETHENE	2/27	7.4	7.00E-04	2.00E-03		3.3E-02	mg/L	NO
4-METHYL-2-PENTANONE	1/27	3.7	3.00E-03	3.00E-03		1.6E-02	mg/L	NO
ACETONE	2/27	7.4	4.00E-03	9.00E-03		3.6E-01	mg/L	NO
CARBON DISULFIDE	2/27	7.4	1.00E-03	2.00E-03		1.0E-01	mg/L	NO
CHLOROFORM	1/27	3.7	7.00E-04	7.00E-04	2.1E-04	3.3E-02	mg/L	YES
TETRACHLOROETHENE	13/27	48.1	1.00E-03	3.00E-03	7.8E-04	1.9E-02	mg/L	YES
TRICHLOROETHENE	6/27	22.2	6.00E-04	3.00E-03	1.9E-03		mg/L	YES
URANIUM-233/234	13/13	100.0	5.90E+00	1.10E+01	1.1E+00		pCi/L	YES
URANIUM-238	13/13	100.0	5.83E+00	1.04E+01	7.7E-01		pCi/L	YES

Sample Station=SS4 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	19/27	70.4	2.80E-02	2.98E+00			mg/L	
BORON	14/14	100.0	1.50E-02	2.60E-01		3.3E-01	mg/L	NO
CHLORIDE	26/26	100.0	2.30E+00	4.15E+01			mg/L	
FLUORIDE	26/27	96.3	2.00E-01	6.00E-01		2.2E-01	mg/L	YES
MANGANESE	26/27	96.3	7.50E-03	8.09E-01		4.8E-01	mg/L	YES
NICKEL	3/27	11.1	3.00E-03	2.20E-02		7.2E-02	mg/L	NO
NITRATE (AS N)	26/27	96.3	3.12E+00	6.76E+01		5.8E+00	mg/L	YES
SILVER	1/27	3.7	6.50E-03	6.50E-03		1.8E-02	mg/L	NO
STRONTIUM	14/14	100.0	9.30E-02	4.20E-01		2.2E+00	mg/L	NO
SULFATE	26/27	96.3	1.13E+01	4.50E+01			mg/L	
TOTAL URANIUM	14/14	100.0	4.00E-02	2.85E-01		1.1E-02	mg/L	YES
1,1,1-TRICHLOROETHANE	2/27	7.4	1.00E-03	1.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHENE	3/27	11.1	2.00E-03	3.00E-03	1.3E-05	3.2E-02	mg/L	YES
1,2-DICHLOROETHENE	21/27	77.8	1.00E-03	2.10E-02		3.3E-02	mg/L	NO
CARBON DISULFIDE	1/27	3.7	2.00E-03	2.00E-03		1.0E-01	mg/L	NO
TRICHLOROETHENE	26/27	96.3	3.00E-03	2.30E-02	1.9E-03		mg/L	YES
NEPTUNIUM-237	1/1	100.0	3.20E-01	3.20E-01	1.6E-01		pCi/L	YES
RADIUM (TOTAL ALPHA)	1/1	100.0	6.50E-01	6.50E-01	1.6E-01		pCi/L	YES
TECHNETIUM-99	3/4	75.0	1.02E+02	2.20E+02	3.4E+01		pCi/L	YES
THORIUM-230	2/4	50.0	1.14E-01	7.20E-01	1.3E+00		pCi/L	NO
URANIUM-233/234	14/14	100.0	6.76E+00	3.73E+01	1.1E+00		pCi/L	YES
URANIUM-235	11/14	78.6	1.04E+00	3.62E+00	1.0E+00		pCi/L	YES
URANIUM-238	14/14	100.0	1.22E+01	8.26E+01	7.7E-01		pCi/L	YES

Table F.11a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: SURFACE WATER (for each sampling location)

Sample Station=SS5 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	13/14	92.9	1.70E-02	1.80E-01		3.3E-01	mg/L	NO
CHLORIDE	26/26	100.0	3.00E+00	2.39E+01			mg/L	
LEAD	1/12	8.3	1.20E-02	1.20E-02		1.5E-02	mg/L	NO
NITRATE (AS N)	26/27	96.3	6.50E-01	2.70E+01		5.8E+00	mg/L	YES
STRONTIUM	14/14	100.0	2.50E-02	2.00E-01		2.2E+00	mg/L	NO
SULFATE	27/27	100.0	4.00E+00	2.90E+01			mg/L	
TOTAL URANIUM	14/14	100.0	5.00E-03	1.17E-01		1.1E-02	mg/L	YES
1,2-DICHLOROETHENE	8/27	29.6	9.00E-04	2.00E-03		3.3E-02	mg/L	NO
4-METHYL-2-PENTANONE	1/27	3.7	4.00E-03	4.00E-03		1.6E-02	mg/L	NO
ACETONE	2/27	7.4	2.00E-03	6.00E-03		3.6E-01	mg/L	NO
CARBON DISULFIDE	1/27	3.7	1.00E-03	1.00E-03		1.0E-01	mg/L	NO
METHYLENE CHLORIDE	2/27	7.4	3.00E-03	4.00E-03	5.4E-03	1.6E-01	mg/L	NO
TRICHLOROETHENE	6/27	22.2	9.00E-04	2.00E-03	1.9E-03		mg/L	YES
CESIUM-137	1/1	100.0	7.90E+00	7.90E+00	1.5E+00		pCi/L	YES
NEPTUNIUM-237	1/1	100.0	3.00E-01	3.00E-01	1.6E-01		pCi/L	YES
TECHNETIUM-99	1/1	100.0	4.60E+01	4.60E+01	3.4E+01		pCi/L	YES
THORIUM-230	2/4	50.0	2.13E-01	5.90E-01	1.3E+00		pCi/L	NO
URANIUM-233/234	14/14	100.0	5.90E+00	2.66E+01	1.1E+00		pCi/L	YES
URANIUM-235	4/14	28.6	5.10E-01	2.98E+00	1.0E+00		pCi/L	YES
URANIUM-238	14/14	100.0	9.90E+00	5.84E+01	7.7E-01		pCi/L	YES

Sample Station=SS6-E Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	18/24	75.0	2.50E-02	3.77E+00			mg/L	
COPPER	2/24	8.3	4.60E-03	4.90E-02			mg/L	
MANGANESE	23/24	95.8	4.40E-03	3.52E-01		4.8E-01	mg/L	NO
NITRATE (AS N)	12/23	52.2	1.50E-01	6.60E+00		5.8E+00	mg/L	YES
SILVER	1/24	4.2	7.10E-03	7.10E-03		1.8E-02	mg/L	NO
VANADIUM	2/24	8.3	3.00E-03	9.00E-03		2.1E-02	mg/L	NO
ZINC	12/24	50.0	9.00E-03	7.80E-02		1.1E+00	mg/L	NO
2-HEXANONE	1/24	4.2	3.00E-03	3.00E-03			mg/L	
METHYLENE CHLORIDE	2/24	8.3	2.00E-03	4.00E-03	5.4E-03	1.6E-01	mg/L	NO
URANIUM-233/234	6/12	50.0	1.02E+00	1.34E+00	1.1E+00		pCi/L	YES
URANIUM-238	8/12	66.7	1.11E+00	2.07E+00	7.7E-01		pCi/L	YES

Table F.11a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: SURFACE WATER (for each sampling location)

Sample Station=SS6-W Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
THORIUM-230	1/1	100.0	3.80E-01	3.80E-01	1.3E+00		pCi/L	NO
URANIUM-233/234	2/2	100.0	1.10E+00	1.30E+00	1.1E+00		pCi/L	YES
URANIUM-238	2/2	100.0	1.70E+00	1.70E+00	7.7E-01		pCi/L	YES

Sample Station=SS7 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CESIUM-137	1/1	100.0	6.80E+00	6.80E+00	1.5E+00		pCi/L	YES
THORIUM-230	1/1	100.0	5.30E-01	5.30E-01	1.3E+00		pCi/L	NO
URANIUM-233/234	1/1	100.0	2.50E-01	2.50E-01	1.1E+00		pCi/L	NO
URANIUM-238	1/1	100.0	2.20E-01	2.20E-01	7.7E-01		pCi/L	NO

Sample Station=SS8 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BORON	11/12	91.7	8.10E-03	3.60E-02		3.3E-01	mg/L	NO
SILVER	1/25	4.0	7.90E-03	7.90E-03		1.8E-02	mg/L	NO
VANADIUM	2/25	8.0	2.30E-03	4.60E-03		2.1E-02	mg/L	NO
ACETONE	1/24	4.2	7.00E-03	7.00E-03		3.6E-01	mg/L	NO

Sample Station=SW-01 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ACETONE	1/1	100.0	9.00E-03	9.00E-03		3.6E-01	mg/L	NO
METHYLENE CHLORIDE	1/1	100.0	1.00E-03	1.00E-03	5.4E-03	1.6E-01	mg/L	NO
POTASSIUM-40	1/1	100.0	1.30E+02	1.30E+02	3.8E+00		pCi/L	YES
THORIUM-228	1/1	100.0	4.80E-01	4.80E-01	2.1E-01		pCi/L	YES
THORIUM-230	1/1	100.0	5.70E-01	5.70E-01	1.3E+00		pCi/L	NO
URANIUM-233/234	1/1	100.0	8.20E+00	8.20E+00	1.1E+00		pCi/L	YES
URANIUM-238	1/1	100.0	5.40E+01	5.40E+01	7.7E-01		pCi/L	YES

Table F.11a. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Medium: SURFACE WATER (for each sampling location)

Sample Station=SW-02 Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BERYLLIUM	1/1	100.0	8.60E-03	8.60E-03	1.6E-05	1.5E-02	mg/L	YES
CHLORIDE	1/1	100.0	7.40E+00	7.40E+00			mg/L	
FLUORIDE	1/1	100.0	8.70E-01	8.70E-01		2.2E-01	mg/L	YES
1,1,1-TRICHLOROETHANE	1/1	100.0	2.00E-03	2.00E-03		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	1/1	100.0	9.00E-03	9.00E-03		8.1E-02	mg/L	NO
1,2-DICHLOROETHENE	1/1	100.0	4.00E-03	4.00E-03		3.3E-02	mg/L	NO
ACETONE	1/1	100.0	7.00E-03	7.00E-03		3.6E-01	mg/L	NO
CHLOROETHANE	1/1	100.0	9.30E-02	9.30E-02		2.1E+00	mg/L	NO
METHYLENE CHLORIDE	1/1	100.0	2.00E-03	2.00E-03	5.4E-03	1.6E-01	mg/L	NO
THALLIUM-208	1/1	100.0	2.10E+01	2.10E+01	2.7E+03		pCi/L	NO
THORIUM-230	1/1	100.0	5.10E-01	5.10E-01	1.3E+00		pCi/L	NO
THORIUM-232	1/1	100.0	3.20E-01	3.20E-01	1.5E+00		pCi/L	NO
URANIUM-233/234	1/1	100.0	5.60E+01	5.60E+01	1.1E+00		pCi/L	YES
URANIUM-235	1/1	100.0	6.20E+00	6.20E+00	1.0E+00		pCi/L	YES
URANIUM-238	1/1	100.0	4.40E+02	4.40E+02	7.7E-01		pCi/L	YES

Table F.11b. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: BCK-9.40/SS-5 SURFACE WATER AGGREGATE

Medium=SURFACE WATER

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	43/62	69.4	3.10E-02	2.98E+01			mg/L	
BERYLLIUM	2/62	3.2	3.00E-04	1.50E-03	1.6E-05	1.5E-02	mg/L	YES
BORON	26/27	96.3	1.70E-02	4.10E+00		3.3E-01	mg/L	YES
CHLORIDE	60/60	100.0	3.00E+00	3.44E+01			mg/L	
FLUORIDE	59/62	95.2	1.00E-01	4.40E-01		2.2E-01	mg/L	YES
LEAD	1/23	4.3	1.20E-02	1.20E-02		1.5E-02	mg/L	NO
LITHIUM	14/14	100.0	8.50E-03	9.10E-02			mg/L	
MERCURY	3/56	5.4	1.60E-04	2.10E-04		1.1E-03	mg/L	NO
NICKEL	7/62	11.3	3.70E-03	2.13E-02		7.2E-02	mg/L	NO
NITRATE (AS N)	61/62	98.4	0.00E+00	4.62E+01		5.8E+00	mg/L	YES
STRONTIUM	27/27	100.0	2.50E-02	2.20E-01		2.2E+00	mg/L	NO
SULFATE	60/62	96.8	4.00E+00	2.96E+01			mg/L	
TOTAL URANIUM	27/27	100.0	5.00E-03	1.52E-01		1.1E-02	mg/L	YES
VANADIUM	7/62	11.3	3.70E-03	5.75E-02		2.1E-02	mg/L	YES
ZINC	32/62	51.6	2.40E-03	2.23E-01		1.1E+00	mg/L	NO
1,1,1-TRICHLOROETHANE	1/62	1.6	4.00E-04	4.00E-04		1.3E-01	mg/L	NO
1,1-DICHLOROETHANE	3/62	4.8	1.00E-03	2.00E-03		8.1E-02	mg/L	NO
1,2-DICHLOROETHENE	42/62	67.7	9.00E-04	2.80E-02		3.3E-02	mg/L	NO
2-BUTANONE	2/62	3.2	8.00E-03	2.40E-02		1.9E-01	mg/L	NO
4-METHYL-2-PENTANONE	2/62	3.2	4.00E-03	8.60E-02		1.6E-02	mg/L	YES
ACETONE	4/55	7.3	2.00E-03	6.00E-03		3.6E-01	mg/L	NO
CARBON DISULFIDE	1/62	1.6	1.00E-03	1.00E-03		1.0E-01	mg/L	NO
METHYLENE CHLORIDE	5/62	8.1	3.00E-03	4.00E-03	5.4E-03	1.6E-01	mg/L	NO
TETRACHLOROETHENE	14/62	22.6	5.00E-04	4.00E-03	7.8E-04	1.9E-02	mg/L	YES
TOLUENE	1/62	1.6	1.00E-03	1.00E-03		7.4E-02	mg/L	NO
TRICHLOROETHENE	13/62	21.0	6.00E-04	2.00E-03	1.9E-03		mg/L	YES
CESIUM-137	1/2	50.0	7.90E+00	7.90E+00	1.5E+00		pCi/L	YES
NEPTUNIUM-237	1/2	50.0	3.00E-01	3.00E-01	1.6E-01		pCi/L	YES
TECHNETIUM-99	3/12	25.0	4.60E+01	1.10E+02	3.4E+01		pCi/L	YES
THORIUM-228	1/8	12.5	1.26E-01	1.26E-01	2.1E-01		pCi/L	NO
THORIUM-230	4/8	50.0	2.00E-01	5.90E-01	1.3E+00		pCi/L	NO
URANIUM-234	36/37	97.3	5.90E+00	2.92E+01	1.1E+00		pCi/L	YES
URANIUM-235	11/37	29.7	3.50E-01	2.98E+00	1.0E+00		pCi/L	YES
URANIUM-238	36/37	97.3	9.90E+00	6.45E+01	7.7E-01		pCi/L	YES

Table F.12. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: TRANSECT-BY-TRANSECT (Soil from creek floodplain)

Location=TRANSECT-01 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CADMIUM	2/4	50.0	2.90E+00	9.30E+00	6.0E+03	7.8E+00	mg/kg	YES
COPPER	4/4	100.0	8.30E+00	4.27E+01			mg/kg	
LEAD	4/4	100.0	3.96E+01	5.23E+01		4.0E+02	mg/kg	NO
LITHIUM	4/4	100.0	4.20E+00	4.10E+01			mg/kg	
MERCURY	3/3	100.0	4.30E-01	7.30E+00		2.3E+00	mg/kg	YES
SELENIUM	4/4	100.0	2.00E+00	2.50E+00		3.9E+01	mg/kg	NO
2,4,5-T	1/4	25.0	6.10E-03	6.10E-03		7.8E+01	mg/kg	NO
2,4-D	2/4	50.0	1.30E-02	3.60E-02		7.8E+01	mg/kg	NO
4,4'-DDD	1/4	25.0	8.30E-04	8.30E-04	2.7E+00		mg/kg	NO
4,4'-DDE	2/4	50.0	6.80E-04	4.20E-03	1.9E+00		mg/kg	NO
4,4'-DDT	1/4	25.0	3.40E-04	3.40E-04	1.9E+00	3.9E+00	mg/kg	NO
ALPHA-CHLORDANE	4/4	100.0	1.40E-04	6.90E-03	4.9E-01	4.7E-01	mg/kg	NO
BENZO(A)ANTHRACENE	2/4	50.0	6.10E-02	1.50E-01	8.6E-01		mg/kg	NO
BENZO(A)PYRENE	2/4	50.0	5.10E-02	1.00E-01	8.6E-02		mg/kg	YES
BENZO(B)FLUORANTHENE	2/4	50.0	6.10E-02	1.90E-01	8.6E-01		mg/kg	NO
BENZO(K)FLUORANTHENE	2/4	50.0	3.70E-02	1.60E-01	8.6E+00		mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	3/4	75.0	1.50E-01	4.20E-01	3.2E+01	1.6E+02	mg/kg	NO
CHRYSENE	2/4	50.0	6.50E-02	1.40E-01	8.6E+01		mg/kg	NO
DELTA-BHC	2/4	50.0	1.40E-04	1.90E-04			mg/kg	
DI-N-BUTYLPHTHALATE	2/4	50.0	2.00E-01	2.60E-01		7.8E+02	mg/kg	NO
DIELDRIN	2/4	50.0	9.50E-04	4.10E-03	4.0E-02	3.9E-01	mg/kg	NO
ENDOSULFAN I	2/4	50.0	1.50E-04	7.60E-04			mg/kg	
ENDOSULFAN II	1/4	25.0	3.00E-03	3.00E-03			mg/kg	
ENDOSULFAN SULFATE	2/4	50.0	2.60E-04	1.70E-03			mg/kg	
ENDRIN ALDEHYDE	4/4	100.0	6.70E-04	6.50E-03			mg/kg	
FLUORANTHENE	3/4	75.0	4.20E-02	1.80E-01		3.1E+02	mg/kg	NO
GAMMA-CHLORDANE	4/4	100.0	8.70E-05	7.10E-04	4.9E-01	4.7E-01	mg/kg	NO
METHOXYCHLOR	2/4	50.0	5.30E-04	3.70E-03		3.9E+01	mg/kg	NO
PCB-1254	2/4	50.0	1.90E-01	7.80E-01		1.6E-01	mg/kg	YES
PCB-1260	2/4	50.0	3.50E-02	2.00E-01	8.3E-02		mg/kg	YES
PHENANTHRENE	1/4	25.0	8.50E-02	8.50E-02			mg/kg	
PYRENE	3/4	75.0	4.40E-02	1.90E-01		2.3E+02	mg/kg	NO
SILVEX	2/4	50.0	1.70E-03	2.30E-03		6.3E+01	mg/kg	NO
AMERICIUM-241	1/4	25.0	8.00E-02	8.00E-02	2.2E+00		pCi/g	NO
CURIUM-243	2/4	50.0	7.00E-02	1.90E-01	2.4E-01		pCi/g	NO
TECHNETIUM-99	2/4	50.0	2.25E+00	1.08E+01	5.7E+02		pCi/g	NO
URANIUM-234	4/4	100.0	4.64E+00	4.41E+01	1.8E+01		pCi/g	YES
URANIUM-235	4/4	100.0	1.10E-01	2.66E+00	1.6E-01		pCi/g	YES
URANIUM-238	4/4	100.0	2.39E+00	6.70E+01	7.8E-01		pCi/g	YES

Table F.12. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: TRANSECT-BY-TRANSECT (Soil from creek floodplain)

Location=TRANSECT-02 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CADMIUM	1/2	50.0	9.60E-01	9.60E-01	6.0E+03	7.8E+00	mg/kg	NO
MERCURY	2/2	100.0	4.10E-01	1.60E+00		2.3E+00	mg/kg	NO
SELENIUM	2/2	100.0	2.20E+00	3.20E+00		3.9E+01	mg/kg	NO
THALLIUM	1/2	50.0	1.90E+00	1.90E+00			mg/kg	
2,4,5-T	2/2	100.0	9.90E-03	1.30E-02		7.8E+01	mg/kg	NO
2,4-D	2/2	100.0	5.80E-02	1.20E-01		7.8E+01	mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	2/2	100.0	4.00E-02	5.30E-02	3.2E+01	1.6E+02	mg/kg	NO
ENDRIN ALDEHYDE	1/2	50.0	4.70E-04	4.70E-04			mg/kg	
FLUORANTHENE	1/2	50.0	8.50E-02	8.50E-02		3.1E+02	mg/kg	NO
PCB-1260	1/2	50.0	2.80E-02	2.80E-02	8.3E-02		mg/kg	NO
PHENANTHRENE	1/2	50.0	6.00E-02	6.00E-02			mg/kg	
PYRENE	1/2	50.0	5.40E-02	5.40E-02		2.3E+02	mg/kg	NO
SILVEX	2/2	100.0	9.50E-03	1.20E-02		6.3E+01	mg/kg	NO
AMERICIUM-241	1/2	50.0	6.00E-02	6.00E-02	2.2E+00		pCi/g	NO
TECHNETIUM-99	1/2	50.0	8.38E+00	8.38E+00	5.7E+02		pCi/g	NO
URANIUM-234	2/2	100.0	1.28E+00	4.07E+00	1.8E+01		pCi/g	NO
URANIUM-235	2/2	100.0	8.00E-02	2.50E-01	1.6E-01		pCi/g	YES
URANIUM-238	2/2	100.0	1.44E+00	5.45E+00	7.8E-01		pCi/g	YES

Location=TRANSECT-03 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CADMIUM	4/4	100.0	8.60E+00	1.11E+01	6.0E+03	7.8E+00	mg/kg	YES
LITHIUM	4/4	100.0	2.16E+01	3.34E+01			mg/kg	
MERCURY	4/4	100.0	1.60E+00	2.50E+00		2.3E+00	mg/kg	YES
NICKEL	4/4	100.0	3.50E+01	6.28E+01		1.6E+02	mg/kg	NO
SELENIUM	4/4	100.0	1.60E+00	2.10E+00		3.9E+01	mg/kg	NO
2,4,5-T	3/4	75.0	9.00E-04	7.90E-03		7.8E+01	mg/kg	NO
2,4-D	1/4	25.0	2.70E-02	2.70E-02		7.8E+01	mg/kg	NO
4,4'-DDE	3/4	75.0	5.10E-04	1.30E-03	1.9E+00		mg/kg	NO
4,4'-DDT	3/4	75.0	1.70E-04	7.10E-04	1.9E+00	3.9E+00	mg/kg	NO
ALPHA-CHLORDANE	4/4	100.0	1.00E-03	2.60E-03	4.9E-01	4.7E-01	mg/kg	NO
BENZO(A)ANTHRACENE	3/4	75.0	9.40E-02	1.30E-01	8.6E-01		mg/kg	NO
BENZO(A)PYRENE	2/4	50.0	9.20E-02	9.70E-02	8.6E-02		mg/kg	YES
BENZO(B)FLUORANTHENE	4/4	100.0	5.40E-02	1.80E-01	8.6E-01		mg/kg	NO
BENZO(K)FLUORANTHENE	4/4	100.0	4.30E-02	1.50E-01	8.6E+00		mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	3/4	75.0	4.40E-02	7.90E-02	3.2E+01	1.6E+02	mg/kg	NO
CHRYSENE	3/4	75.0	1.20E-01	1.50E-01	8.6E+01		mg/kg	NO
DI-N-BUTYLPHTHALATE	4/4	100.0	9.80E-02	1.60E-01		7.8E+02	mg/kg	NO
DIELDRIN	3/4	75.0	4.70E-04	1.60E-03	4.0E-02	3.9E-01	mg/kg	NO
ENDOSULFAN SULFATE	1/4	25.0	3.40E-04	3.40E-04			mg/kg	
ENDRIN ALDEHYDE	4/4	100.0	2.00E-03	5.00E-03			mg/kg	
FLUORANTHENE	4/4	100.0	4.30E-02	1.70E-01		3.1E+02	mg/kg	NO

Table F.12. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: TRANSECT-BY-TRANSECT (Soil from creek floodplain)

Location=TRANSECT-03 Medium=SOIL (creek floodplain) (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
GAMMA-CHLORDANE	1/4	25.0	2.10E-03	2.10E-03	4.9E-01	4.7E-01	mg/kg	NO
INDENO(1,2,3-CD)PYRENE	1/4	25.0	5.50E-02	5.50E-02	8.6E-01		mg/kg	NO
METHOXYCHLOR	4/4	100.0	6.80E-04	7.40E-03		3.9E+01	mg/kg	NO
PCB-1254	1/4	25.0	1.30E-01	1.30E-01		1.6E-01	mg/kg	NO
PCB-1260	4/4	100.0	8.20E-02	1.70E-01	8.3E-02		mg/kg	YES
PHENANTHRENE	3/4	75.0	7.60E-02	8.60E-02			mg/kg	
PYRENE	4/4	100.0	4.40E-02	1.70E-01		2.3E+02	mg/kg	NO
AMERICIUM-241	4/4	100.0	5.00E-02	1.30E-01	2.2E+00		pCi/g	NO
TECHNETIUM-99	3/4	75.0	2.61E+00	1.20E+01	5.7E+02		pCi/g	NO
URANIUM-234	4/4	100.0	1.96E+01	3.28E+01	1.8E+01		pCi/g	YES
URANIUM-235	4/4	100.0	1.34E+00	1.89E+00	1.6E-01		pCi/g	YES
URANIUM-238	4/4	100.0	3.70E+01	5.19E+01	7.8E-01		pCi/g	YES

Location=TRANSECT-04 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BERYLLIUM	4/4	100.0	9.20E-01	3.00E+00	6.3E-02	3.9E+01	mg/kg	YES
LITHIUM	4/4	100.0	1.51E+01	5.52E+01			mg/kg	
MERCURY	2/2	100.0	2.00E-01	4.30E-01		2.3E+00	mg/kg	NO
SELENIUM	4/4	100.0	1.50E+00	2.70E+00		3.9E+01	mg/kg	NO
2,4,5-T	2/4	50.0	2.90E-03	6.50E-03		7.8E+01	mg/kg	NO
4,4'-DDE	2/4	50.0	4.50E-03	7.00E-03	1.9E+00		mg/kg	NO
ALDRIN	1/4	25.0	2.20E-04	2.20E-04	3.8E-02	2.3E-01	mg/kg	NO
ALPHA-BHC	1/4	25.0	3.60E-05	3.60E-05	1.0E-01		mg/kg	NO
ALPHA-CHLORDANE	2/4	50.0	4.80E-03	5.90E-03	4.9E-01	4.7E-01	mg/kg	NO
BETA-BHC	1/4	25.0	5.60E-04	5.60E-04	3.5E-01		mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	3/4	75.0	7.20E-02	1.20E-01	3.2E+01	1.6E+02	mg/kg	NO
DELTA-BHC	2/4	50.0	7.20E-05	4.10E-04			mg/kg	
DIELDRIN	2/4	50.0	1.20E-03	3.40E-03	4.0E-02	3.9E-01	mg/kg	NO
DIETHYLPHTHALATE	1/4	25.0	5.70E-02	5.70E-02		6.3E+03	mg/kg	NO
ENDRIN ALDEHYDE	2/4	50.0	1.20E-02	2.30E-02			mg/kg	
GAMMA-BHC	2/4	50.0	4.40E-05	7.10E-05	4.9E-01	2.3E+00	mg/kg	NO
GAMMA-CHLORDANE	2/4	50.0	1.20E-03	1.60E-03	4.9E-01	4.7E-01	mg/kg	NO
PCB-1260	4/4	100.0	8.00E-01	1.70E+00	8.3E-02		mg/kg	YES
SILVEX	2/4	50.0	2.50E-03	5.10E-03		6.3E+01	mg/kg	NO
TECHNETIUM-99	3/4	75.0	4.43E+00	6.45E+00	5.7E+02		pCi/g	NO
URANIUM-234	4/4	100.0	9.01E+00	2.49E+01	1.8E+01		pCi/g	YES
URANIUM-235	4/4	100.0	9.20E-01	2.04E+00	1.6E-01		pCi/g	YES
URANIUM-238	4/4	100.0	3.03E+01	9.44E+01	7.8E-01		pCi/g	YES

Table F.12. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: TRANSECT-BY-TRANSECT (Soil from creek floodplain)

Location=TRANSECT-05 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CADMIUM	2/2	100.0	1.90E-01	5.10E-01	6.0E+03	7.8E+00	mg/kg	NO
SELENIUM	2/2	100.0	1.30E+00	1.70E+00		3.9E+01	mg/kg	NO
2,4,5-T	2/2	100.0	1.00E-03	1.90E-03		7.8E+01	mg/kg	NO
2,4-D	2/2	100.0	8.30E-03	1.90E-02		7.8E+01	mg/kg	NO
4,4'-DDD	1/1	100.0	8.20E-04	8.20E-04	2.7E+00		mg/kg	NO
4,4'-DDE	1/1	100.0	8.40E-05	8.40E-05	1.9E+00		mg/kg	NO
4,4'-DDT	1/1	100.0	1.60E-03	1.60E-03	1.9E+00	3.9E+00	mg/kg	NO
ALPHA-CHLORDANE	1/1	100.0	2.40E-04	2.40E-04	4.9E-01	4.7E-01	mg/kg	NO
DI-N-BUTYLPHTHALATE	2/2	100.0	7.60E-02	1.50E-01		7.8E+02	mg/kg	NO
GAMMA-CHLORDANE	1/1	100.0	1.30E-04	1.30E-04	4.9E-01	4.7E-01	mg/kg	NO
SILVEX	1/2	50.0	1.80E-03	1.80E-03		6.3E+01	mg/kg	NO

Location=TRANSECT-06 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CADMIUM	4/6	66.7	2.80E-01	1.40E+00	6.0E+03	7.8E+00	mg/kg	NO
MERCURY	3/3	100.0	1.70E-01	6.70E-01		2.3E+00	mg/kg	NO
SELENIUM	3/6	50.0	1.20E+00	1.60E+00		3.9E+01	mg/kg	NO
2,4,5-T	2/6	33.3	5.90E-03	8.30E-03		7.8E+01	mg/kg	NO
2,4-D	2/6	33.3	6.80E-02	8.30E-02		7.8E+01	mg/kg	NO
4,4'-DDD	2/6	33.3	3.40E-04	5.80E-04	2.7E+00		mg/kg	NO
4,4'-DDE	3/6	50.0	1.70E-04	5.40E-04	1.9E+00		mg/kg	NO
ALPHA-BHC	1/6	16.7	1.00E-04	1.00E-04	1.0E-01		mg/kg	NO
ALPHA-CHLORDANE	3/6	50.0	8.20E-05	1.90E-04	4.9E-01	4.7E-01	mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	3/6	50.0	4.80E-02	1.70E-01	3.2E+01	1.6E+02	mg/kg	NO
DI-N-BUTYLPHTHALATE	2/6	33.3	5.70E-02	7.10E-02		7.8E+02	mg/kg	NO
DIELDRIN	5/6	83.3	1.50E-04	6.20E-03	4.0E-02	3.9E-01	mg/kg	NO
DIETHYLPHTHALATE	1/6	16.7	2.60E-01	2.60E-01		6.3E+03	mg/kg	NO
ENDRIN ALDEHYDE	3/6	50.0	2.70E-04	1.70E-02			mg/kg	
GAMMA-CHLORDANE	1/6	16.7	1.80E-04	1.80E-04	4.9E-01	4.7E-01	mg/kg	NO
HEPTACHLOR EPOXIDE	1/6	16.7	1.60E-03	1.60E-03	7.0E-02	1.0E-01	mg/kg	NO
METHOXYCHLOR	1/6	16.7	6.40E-04	6.40E-04		3.9E+01	mg/kg	NO
PCB-1254	1/6	16.7	1.30E-02	1.30E-02		1.6E-01	mg/kg	NO
PCB-1260	5/6	83.3	1.30E-02	5.10E-01	8.3E-02		mg/kg	YES
SILVEX	1/6	16.7	1.00E-02	1.00E-02		6.3E+01	mg/kg	NO
AMERICIUM-241	2/6	33.3	7.00E-02	1.60E-01	2.2E+00		pCi/g	NO
CURIUM-243	2/6	33.3	7.00E-02	1.40E-01	2.4E-01		pCi/g	NO
URANIUM-234	6/6	100.0	8.70E-01	3.04E+01	1.8E+01		pCi/g	YES
URANIUM-235	5/6	83.3	4.00E-02	1.92E+00	1.6E-01		pCi/g	YES
URANIUM-238	6/6	100.0	1.05E+00	6.07E+01	7.8E-01		pCi/g	YES

Table F.12. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: TRANSECT-BY-TRANSECT (Soil from creek floodplain)

Location=TRANSECT-07 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CADMIUM	3/4	75.0	6.20E-01	3.50E+00	6.0E+03	7.8E+00	mg/kg	NO
MERCURY	4/4	100.0	1.30E-01	9.80E-01		2.3E+00	mg/kg	NO
SELENIUM	4/4	100.0	1.30E+00	1.60E+00		3.9E+01	mg/kg	NO
4,4'-DDE	1/4	25.0	6.70E-05	6.70E-05	1.9E+00		mg/kg	NO
ALPHA-BHC	2/4	50.0	5.40E-05	6.00E-05	1.0E-01		mg/kg	NO
ALPHA-CHLORDANE	1/4	25.0	3.10E-04	3.10E-04	4.9E-01	4.7E-01	mg/kg	NO
BETA-BHC	1/4	25.0	9.80E-04	9.80E-04	3.5E-01		mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/4	25.0	4.10E-02	4.10E-02	3.2E+01	1.6E+02	mg/kg	NO
DELTA-BHC	1/4	25.0	8.50E-05	8.50E-05			mg/kg	
DI-N-BUTYLPHTHALATE	2/4	50.0	5.80E-02	1.20E-01		7.8E+02	mg/kg	NO
DIELDRIN	2/4	50.0	8.80E-05	1.30E-02	4.0E-02	3.9E-01	mg/kg	NO
ENDRIN ALDEHYDE	2/4	50.0	3.00E-04	3.80E-02			mg/kg	
FLUORANTHENE	1/4	25.0	6.80E-02	6.80E-02		3.1E+02	mg/kg	NO
METHOXYCHLOR	1/4	25.0	3.70E-03	3.70E-03		3.9E+01	mg/kg	NO
PCB-1254	1/4	25.0	2.80E-01	2.80E-01		1.6E-01	mg/kg	YES
PCB-1260	4/4	100.0	7.40E-03	1.30E+00	8.3E-02		mg/kg	YES
AMERICIUM-241	2/4	50.0	2.00E-02	8.00E-02	2.2E+00		pCi/g	NO
URANIUM-234	4/4	100.0	1.05E+00	2.95E+01	1.8E+01		pCi/g	YES
URANIUM-235	3/4	75.0	2.20E-01	2.08E+00	1.6E-01		pCi/g	YES
URANIUM-238	4/4	100.0	1.39E+00	5.27E+01	7.8E-01		pCi/g	YES

Location=TRANSECT-08 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
MERCURY	1/1	100.0	4.20E-01	4.20E-01		2.3E+00	mg/kg	NO
SELENIUM	2/2	100.0	1.20E+00	2.00E+00		3.9E+01	mg/kg	NO
2,4,5-T	2/2	100.0	7.90E-03	1.40E-02		7.8E+01	mg/kg	NO
2,4-D	1/2	50.0	5.70E-02	5.70E-02		7.8E+01	mg/kg	NO
4,4'-DDE	1/2	50.0	6.10E-04	6.10E-04	1.9E+00		mg/kg	NO
ALPHA-CHLORDANE	1/2	50.0	5.90E-04	5.90E-04	4.9E-01	4.7E-01	mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	2/2	100.0	3.80E-02	4.00E-02	3.2E+01	1.6E+02	mg/kg	NO
DIELDRIN	2/2	100.0	1.90E-04	5.30E-04	4.0E-02	3.9E-01	mg/kg	NO
ENDRIN ALDEHYDE	1/2	50.0	3.40E-03	3.40E-03			mg/kg	
PCB-1260	2/2	100.0	6.40E-03	1.50E-01	8.3E-02		mg/kg	YES
SILVEX	1/2	50.0	1.50E-02	1.50E-02		6.3E+01	mg/kg	NO
AMERICIUM-241	1/2	50.0	6.00E-02	6.00E-02	2.2E+00		pCi/g	NO
URANIUM-234	2/2	100.0	9.80E-01	4.29E+00	1.8E+01		pCi/g	NO
URANIUM-235	2/2	100.0	2.00E-02	3.30E-01	1.6E-01		pCi/g	YES
URANIUM-238	2/2	100.0	1.16E+00	6.17E+00	7.8E-01		pCi/g	YES

Table F.12. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: TRANSECT-BY-TRANSECT (Soil from creek floodplain)

Location=TRANSECT-09 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
2,4,5-T	2/2	100.0	5.60E-03	1.10E-02		7.8E+01	mg/kg	NO
2,4-D	1/2	50.0	9.50E-02	9.50E-02		7.8E+01	mg/kg	NO
4,4'-DDE	1/2	50.0	6.00E-04	6.00E-04	1.9E+00		mg/kg	NO
4,4'-DDT	1/2	50.0	2.20E-04	2.20E-04	1.9E+00	3.9E+00	mg/kg	NO
ALPHA-CHLORDANE	1/2	50.0	3.80E-04	3.80E-04	4.9E-01	4.7E-01	mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/2	50.0	1.60E-01	1.60E-01	3.2E+01	1.6E+02	mg/kg	NO
DIELDRIN	1/2	50.0	3.20E-04	3.20E-04	4.0E-02	3.9E-01	mg/kg	NO
ENDOSULFAN II	2/2	100.0	4.60E-04	7.60E-04			mg/kg	
ENDOSULFAN SULFATE	1/2	50.0	9.80E-04	9.80E-04			mg/kg	
ENDRIN	1/2	50.0	4.10E-04	4.10E-04		8.0E-01	mg/kg	NO
PCB-1260	1/2	50.0	3.00E-02	3.00E-02	8.3E-02		mg/kg	NO
SILVEX	1/2	50.0	7.50E-03	7.50E-03		6.3E+01	mg/kg	NO
URANIUM-238	2/2	100.0	1.02E+00	2.69E+00	7.8E-01		pCi/g	YES

Location=TRANSECT-10 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CADMIUM	2/3	66.7	2.90E-01	3.70E-01	6.0E+03	7.8E+00	mg/kg	NO
CYANIDE	1/3	33.3	1.10E+00	1.10E+00		1.6E+02	mg/kg	NO
SELENIUM	2/3	66.7	1.40E+00	1.40E+00		3.9E+01	mg/kg	NO
2,4-D	3/3	100.0	5.70E-03	3.50E-02		7.8E+01	mg/kg	NO
ALPHA-CHLORDANE	2/3	66.7	3.40E-04	3.40E-03	4.9E-01	4.7E-01	mg/kg	NO
DI-N-BUTYLPHTHALATE	2/3	66.7	9.20E-02	1.60E-01		7.8E+02	mg/kg	NO
DIELDRIN	2/3	66.7	1.30E-04	2.30E-03	4.0E-02	3.9E-01	mg/kg	NO
ENDOSULFAN SULFATE	1/3	33.3	2.30E-04	2.30E-04			mg/kg	
ENDRIN ALDEHYDE	2/3	66.7	2.00E-03	2.10E-02			mg/kg	
FLUORANTHENE	1/3	33.3	4.60E-02	4.60E-02		3.1E+02	mg/kg	NO
GAMMA-CHLORDANE	1/3	33.3	2.00E-04	2.00E-04	4.9E-01	4.7E-01	mg/kg	NO
HEPTACHLOR EPOXIDE	1/3	33.3	1.00E-04	1.00E-04	7.0E-02	1.0E-01	mg/kg	NO
METHOXYCHLOR	2/3	66.7	3.20E-04	2.00E-03		3.9E+01	mg/kg	NO
PCB-1254	1/3	33.3	3.90E-01	3.90E-01		1.6E-01	mg/kg	YES
PCB-1260	2/3	66.7	5.70E-02	6.10E-01	8.3E-02		mg/kg	YES
SILVEX	1/3	33.3	4.50E-03	4.50E-03		6.3E+01	mg/kg	NO
URANIUM-234	3/3	100.0	7.60E-01	7.24E+00	1.8E+01		pCi/g	NO
URANIUM-235	3/3	100.0	4.00E-02	3.90E-01	1.6E-01		pCi/g	YES
URANIUM-238	3/3	100.0	6.90E-01	1.31E+01	7.8E-01		pCi/g	YES

Table F.12. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: TRANSECT-BY-TRANSECT (Soil from creek floodplain)

Location=TRANSECT-11 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
SELENIUM	1/1	100.0	1.60E+00	1.60E+00		3.9E+01	mg/kg	NO
2,4,5-T	1/1	100.0	1.40E-03	1.40E-03		7.8E+01	mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	8.50E-02	8.50E-02	3.2E+01	1.6E+02	mg/kg	NO

Location=TRANSECT-12 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
MERCURY	1/1	100.0	4.70E-01	4.70E-01		2.3E+00	mg/kg	NO
SELENIUM	1/1	100.0	1.70E+00	1.70E+00		3.9E+01	mg/kg	NO
2,4-D	1/1	100.0	7.60E-02	7.60E-02		7.8E+01	mg/kg	NO
BENZO(B)FLUORANTHENE	1/1	100.0	7.20E-02	7.20E-02	8.6E-01		mg/kg	NO
BENZO(K)FLUORANTHENE	1/1	100.0	6.90E-02	6.90E-02	8.6E+00		mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	3.30E-02	3.30E-02	3.2E+01	1.6E+02	mg/kg	NO
CHRYSENE	1/1	100.0	4.40E-02	4.40E-02	8.6E+01		mg/kg	NO
DIELDRIN	1/1	100.0	2.10E-04	2.10E-04	4.0E-02	3.9E-01	mg/kg	NO
ENDOSULFAN I	1/1	100.0	3.00E-04	3.00E-04			mg/kg	
ENDRIN ALDEHYDE	1/1	100.0	1.00E-03	1.00E-03			mg/kg	
FLUORANTHENE	1/1	100.0	1.00E-01	1.00E-01		3.1E+02	mg/kg	NO
PCB-1260	1/1	100.0	4.80E-02	4.80E-02	8.3E-02		mg/kg	NO
PYRENE	1/1	100.0	7.80E-02	7.80E-02		2.3E+02	mg/kg	NO
SILVEX	1/1	100.0	1.00E-02	1.00E-02		6.3E+01	mg/kg	NO
URANIUM-234	1/1	100.0	4.08E+00	4.08E+00	1.8E+01		pCi/g	NO
URANIUM-235	1/1	100.0	4.10E-01	4.10E-01	1.6E-01		pCi/g	YES
URANIUM-238	1/1	100.0	4.32E+00	4.32E+00	7.8E-01		pCi/g	YES

Location=TRANSECT-13 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
MERCURY	1/2	50.0	3.60E-01	3.60E-01		2.3E+00	mg/kg	NO
SELENIUM	2/2	100.0	1.30E+00	1.50E+00		3.9E+01	mg/kg	NO
4,4'-DDT	1/2	50.0	2.30E-04	2.30E-04	1.9E+00	3.9E+00	mg/kg	NO
ALPHA-CHLORDANE	1/2	50.0	4.50E-04	4.50E-04	4.9E-01	4.7E-01	mg/kg	NO
CHLOROFORM	1/2	50.0	6.00E-02	6.00E-02	1.8E+00	7.8E+01	mg/kg	NO
ENDRIN	1/2	50.0	2.00E-04	2.00E-04		8.0E-01	mg/kg	NO
ENDRIN ALDEHYDE	1/2	50.0	9.60E-04	9.60E-04			mg/kg	
ENDRIN KETONE	1/2	50.0	1.00E-04	1.00E-04			mg/kg	
METHOXYCHLOR	1/2	50.0	1.00E-03	1.00E-03		3.9E+01	mg/kg	NO
PCB-1260	1/2	50.0	7.80E-02	7.80E-02	8.3E-02		mg/kg	NO

Table F.12. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: TRANSECT-BY-TRANSECT (Soil from creek floodplain)

---------- Location=TRANSECT/TRENCH-SP04 Medium=SOIL (creek floodplain) ----------

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CADMIUM	1/1	100.0	2.30E+00	2.30E+00	6.0E+03	7.8E+00	mg/kg	NO
MERCURY	1/1	100.0	5.10E-01	5.10E-01		2.3E+00	mg/kg	NO
2,4,5-T	1/1	100.0	1.00E-02	1.00E-02		7.8E+01	mg/kg	NO
BENZO(A)ANTHRACENE	1/1	100.0	7.00E-02	7.00E-02	8.6E-01		mg/kg	NO
BENZO(B)FLUORANTHENE	1/1	100.0	8.80E-02	8.80E-02	8.6E-01		mg/kg	NO
BENZO(K)FLUORANTHENE	1/1	100.0	9.10E-02	9.10E-02	8.6E+00		mg/kg	NO
CHRYSENE	1/1	100.0	5.90E-02	5.90E-02	8.6E+01		mg/kg	NO
FLUORANTHENE	1/1	100.0	1.00E-01	1.00E-01		3.1E+02	mg/kg	NO
PCB-1254	1/1	100.0	5.10E+00	5.10E+00		1.6E-01	mg/kg	YES
PCB-1260	1/1	100.0	3.20E+00	3.20E+00	8.3E-02		mg/kg	YES
PHENANTHRENE	1/1	100.0	8.50E-02	8.50E-02			mg/kg	
PYRENE	1/1	100.0	9.70E-02	9.70E-02		2.3E+02	mg/kg	NO
SILVEX	1/1	100.0	2.00E-03	2.00E-03		6.3E+01	mg/kg	NO
URANIUM-234	1/1	100.0	1.39E+01	1.39E+01	1.8E+01		pCi/g	NO
URANIUM-235	1/1	100.0	6.60E-01	6.60E-01	1.6E-01		pCi/g	YES
URANIUM-238	1/1	100.0	2.18E+01	2.18E+01	7.8E-01		pCi/g	YES

Table F.13. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD01 Medium=SEDIMENT

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	1.79E+04	1.79E+04			mg/kg	
ARSENIC	1/1	100.0	1.74E+01	1.74E+01	4.3E-01	2.3E+00	mg/kg	YES
CADMIUM	1/1	100.0	4.00E+00	4.00E+00	6.0E+03	7.8E+00	mg/kg	NO
CHROMIUM	1/1	100.0	2.84E+01	2.84E+01	8.9E+02	3.9E+01	mg/kg	NO
COPPER	1/1	100.0	3.46E+01	3.46E+01			mg/kg	
LEAD	1/1	100.0	3.19E+01	3.19E+01		4.0E+02	mg/kg	NO
NICKEL	1/1	100.0	2.74E+01	2.74E+01		1.6E+02	mg/kg	NO
SELENIUM	1/1	100.0	3.60E+00	3.60E+00		3.9E+01	mg/kg	NO
VANADIUM	1/1	100.0	6.44E+01	6.44E+01		5.5E+01	mg/kg	YES
ZINC	1/1	100.0	1.15E+02	1.15E+02		2.3E+03	mg/kg	NO
4,4'-DDE	1/1	100.0	1.40E-04	1.40E-04	1.9E+00		mg/kg	NO
4,4'-DDT	1/1	100.0	9.90E-05	9.90E-05	1.9E+00	3.9E+00	mg/kg	NO
ENDOSULFAN SULFATE	1/1	100.0	4.30E-04	4.30E-04			mg/kg	
ENDRIN KETONE	1/1	100.0	5.10E-04	5.10E-04			mg/kg	
GAMMA-CHLORDANE	1/1	100.0	1.80E-04	1.80E-04	4.9E-01	4.7E-01	mg/kg	NO
METHOXYCHLOR	1/1	100.0	3.80E-04	3.80E-04		3.9E+01	mg/kg	NO
URANIUM-234	1/1	100.0	4.68E+00	4.68E+00	1.8E+01		pCi/g	NO
URANIUM-235	1/1	100.0	2.20E-01	2.20E-01	1.6E-01		pCi/g	YES
URANIUM-238	1/1	100.0	7.35E+00	7.35E+00	7.8E-01		pCi/g	YES

Sample Station=SD02 Medium=SEDIMENT

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	2.09E+04	2.09E+04			mg/kg	
ARSENIC	1/1	100.0	1.21E+01	1.21E+01	4.3E-01	2.3E+00	mg/kg	YES
BARIUM	1/1	100.0	5.17E+02	5.17E+02		5.5E+02	mg/kg	NO
BERYLLIUM	1/1	100.0	1.90E+00	1.90E+00	6.3E-02	3.9E+01	mg/kg	YES
CADMIUM	1/1	100.0	2.17E+01	2.17E+01	6.0E+03	7.8E+00	mg/kg	YES
CHROMIUM	1/1	100.0	2.65E+01	2.65E+01	8.9E+02	3.9E+01	mg/kg	NO
COBALT	1/1	100.0	3.71E+01	3.71E+01			mg/kg	
COPPER	1/1	100.0	2.77E+01	2.77E+01			mg/kg	
LEAD	1/1	100.0	3.11E+01	3.11E+01		4.0E+02	mg/kg	NO
LITHIUM	1/1	100.0	3.22E+01	3.22E+01			mg/kg	
MANGANESE	1/1	100.0	5.66E+03	5.66E+03		1.1E+03	mg/kg	YES
MERCURY	1/1	100.0	3.00E+00	3.00E+00		2.3E+00	mg/kg	YES
NICKEL	1/1	100.0	1.60E+02	1.60E+02		1.6E+02	mg/kg	YES
SELENIUM	1/1	100.0	3.90E+00	3.90E+00		3.9E+01	mg/kg	NO
SILVER	1/1	100.0	2.90E-01	2.90E-01		3.9E+01	mg/kg	NO
VANADIUM	1/1	100.0	4.00E+01	4.00E+01		5.5E+01	mg/kg	NO
ZINC	1/1	100.0	2.02E+02	2.02E+02		2.3E+03	mg/kg	NO
4,4'-DDE	1/1	100.0	4.10E-04	4.10E-04	1.9E+00		mg/kg	NO
ALDRIN	1/1	100.0	1.10E-04	1.10E-04	3.8E-02	2.3E-01	mg/kg	NO
ALPHA-CHLORDANE	1/1	100.0	1.30E-04	1.30E-04	4.9E-01	4.7E-01	mg/kg	NO

Table F.13. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD02 Medium=SEDIMENT (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BENZO(A)ANTHRACENE	1/1	100.0	1.80E-01	1.80E-01	8.6E-01		mg/kg	NO
BENZO(A)PYRENE	1/1	100.0	1.90E-01	1.90E-01	8.6E-02		mg/kg	YES
BENZO(B)FLUORANTHENE	1/1	100.0	2.90E-01	2.90E-01	8.6E-01		mg/kg	NO
BENZO(GHI)PERYLENE	1/1	100.0	1.50E-01	1.50E-01			mg/kg	
BENZO(K)FLUORANTHENE	1/1	100.0	3.10E-01	3.10E-01	8.6E+00		mg/kg	NO
BETA-BHC	1/1	100.0	2.90E-04	2.90E-04	3.5E-01		mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	9.20E-01	9.20E-01	3.2E+01	1.6E+02	mg/kg	NO
CHRYSENE	1/1	100.0	1.70E-01	1.70E-01	8.6E+01		mg/kg	NO
ENDRIN ALDEHYDE	1/1	100.0	6.70E-03	6.70E-03			mg/kg	
FLUORANTHENE	1/1	100.0	2.30E-01	2.30E-01		3.1E+02	mg/kg	NO
GAMMA-CHLORDANE	1/1	100.0	6.60E-04	6.60E-04	4.9E-01	4.7E-01	mg/kg	NO
HEPTACHLOR EPOXIDE	1/1	100.0	1.10E-03	1.10E-03	7.0E-02	1.0E-01	mg/kg	NO
INDENO(1,2,3-CD)PYRENE	1/1	100.0	1.30E-01	1.30E-01	8.6E-01		mg/kg	NO
PCB-1260	1/1	100.0	1.20E-01	1.20E-01	8.3E-02		mg/kg	YES
PHENANTHRENE	1/1	100.0	1.00E-01	1.00E-01			mg/kg	
PYRENE	1/1	100.0	2.20E-01	2.20E-01		2.3E+02	mg/kg	NO
AMERICIUM-241	1/1	100.0	6.00E-02	6.00E-02	2.2E+00		pCi/g	NO
TECHNETIUM-99	1/1	100.0	8.74E+00	8.74E+00	5.7E+02		pCi/g	NO
THORIUM-230	1/1	100.0	1.03E+00	1.03E+00	2.1E+01		pCi/g	NO
URANIUM-234	1/1	100.0	1.68E+01	1.68E+01	1.8E+01		pCi/g	NO
URANIUM-235	1/1	100.0	7.30E-01	7.30E-01	1.6E-01		pCi/g	YES
URANIUM-238	1/1	100.0	2.74E+01	2.74E+01	7.8E-01		pCi/g	YES

Sample Station=SD03 Medium=SEDIMENT

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BARIUM	1/1	100.0	2.22E+02	2.22E+02		5.5E+02	mg/kg	NO
MANGANESE	1/1	100.0	1.83E+03	1.83E+03		1.1E+03	mg/kg	YES
NICKEL	1/1	100.0	2.43E+01	2.43E+01		1.6E+02	mg/kg	NO
SELENIUM	1/1	100.0	2.40E+00	2.40E+00		3.9E+01	mg/kg	NO
ZINC	1/1	100.0	7.14E+01	7.14E+01		2.3E+03	mg/kg	NO
2,4,5-T	1/1	100.0	5.00E-02	5.00E-02		7.8E+01	mg/kg	NO
4,4'-DDE	1/1	100.0	3.10E-04	3.10E-04	1.9E+00		mg/kg	NO
4,4'-DDT	1/1	100.0	4.00E-04	4.00E-04	1.9E+00	3.9E+00	mg/kg	NO
ALPHA-BHC	1/1	100.0	5.90E-05	5.90E-05	1.0E-01		mg/kg	NO
DI-N-BUTYLPHTHALATE	1/1	100.0	8.60E-02	8.60E-02		7.8E+02	mg/kg	NO
ENDOSULFAN I	1/1	100.0	9.00E-05	9.00E-05			mg/kg	
ENDOSULFAN SULFATE	1/1	100.0	5.20E-04	5.20E-04			mg/kg	
ENDRIN	1/1	100.0	9.00E-04	9.00E-04		8.0E-01	mg/kg	NO
ENDRIN ALDEHYDE	1/1	100.0	3.10E-04	3.10E-04			mg/kg	
URANIUM-238	1/1	100.0	1.27E+00	1.27E+00	7.8E-01		pCi/g	YES

Table F.13. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

---------- Sample Station=SD04 Medium=SEDIMENT ----------

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	1.40E+04	1.40E+04			mg/kg	
ANTIMONY	1/1	100.0	4.60E+00	4.60E+00		3.1E+00	mg/kg	YES
ARSENIC	1/1	100.0	1.52E+01	1.52E+01	4.3E-01	2.3E+00	mg/kg	YES
BARIUM	1/1	100.0	2.24E+02	2.24E+02		5.5E+02	mg/kg	NO
CADMIUM	1/1	100.0	9.20E+00	9.20E+00	6.0E+03	7.8E+00	mg/kg	YES
CHROMIUM	1/1	100.0	1.04E+03	1.04E+03	8.9E+02	3.9E+01	mg/kg	YES
COBALT	1/1	100.0	2.56E+01	2.56E+01			mg/kg	
COPPER	1/1	100.0	2.41E+02	2.41E+02			mg/kg	
LEAD	1/1	100.0	1.07E+02	1.07E+02		4.0E+02	mg/kg	NO
LITHIUM	1/1	100.0	3.17E+01	3.17E+01			mg/kg	
MANGANESE	1/1	100.0	1.90E+03	1.90E+03		1.1E+03	mg/kg	YES
MERCURY	1/1	100.0	6.90E+00	6.90E+00		2.3E+00	mg/kg	YES
NICKEL	1/1	100.0	9.61E+01	9.61E+01		1.6E+02	mg/kg	NO
SELENIUM	1/1	100.0	5.50E+00	5.50E+00		3.9E+01	mg/kg	NO
SILVER	1/1	100.0	2.80E+00	2.80E+00		3.9E+01	mg/kg	NO
VANADIUM	1/1	100.0	2.49E+02	2.49E+02		5.5E+01	mg/kg	YES
ZINC	1/1	100.0	4.08E+02	4.08E+02		2.3E+03	mg/kg	NO
4,4'-DDE	1/1	100.0	8.30E-04	8.30E-04	1.9E+00		mg/kg	NO
ACENAPHTHENE	1/1	100.0	1.90E-01	1.90E-01		4.7E+02	mg/kg	NO
ANTHRACENE	1/1	100.0	1.10E+00	1.10E+00		2.3E+03	mg/kg	NO
BENZO(A)ANTHRACENE	1/1	100.0	5.80E+00	5.80E+00	8.6E-01		mg/kg	YES
BENZO(A)PYRENE	1/1	100.0	4.80E+00	4.80E+00	8.6E-02		mg/kg	YES
BENZO(B)FLUORANTHENE	1/1	100.0	9.10E+00	9.10E+00	8.6E-01		mg/kg	YES
BENZO(GHI)PERYLENE	1/1	100.0	9.60E-01	9.60E-01			mg/kg	
BENZO(K)FLUORANTHENE	1/1	100.0	8.30E+00	8.30E+00	8.6E+00		mg/kg	NO
CARBAZOLE	1/1	100.0	5.20E-01	5.20E-01	3.2E+01		mg/kg	NO
CHRYSENE	1/1	100.0	5.80E+00	5.80E+00	8.6E+01		mg/kg	NO
DI-N-BUTYLPHTHALATE	1/1	100.0	8.60E-02	8.60E-02		7.8E+02	mg/kg	NO
DIBENZO(A,H)ANTHRACENE	1/1	100.0	3.50E-01	3.50E-01	8.6E-02		mg/kg	YES
DIBENZOFURAN	1/1	100.0	2.00E-01	2.00E-01			mg/kg	
DIELDRIN	1/1	100.0	3.00E-03	3.00E-03	4.0E-02	3.9E-01	mg/kg	NO
ENDOSULFAN II	1/1	100.0	2.00E-02	2.00E-02			mg/kg	
ENDOSULFAN SULFATE	1/1	100.0	4.20E-03	4.20E-03			mg/kg	
FLUORANTHENE	1/1	100.0	1.20E+01	1.20E+01		3.1E+02	mg/kg	NO
FLUORENE	1/1	100.0	2.90E-01	2.90E-01		3.1E+02	mg/kg	NO
GAMMA-BHC	1/1	100.0	3.00E-04	3.00E-04	4.9E-01	2.3E+00	mg/kg	NO
GAMMA-CHLORDANE	1/1	100.0	2.40E-03	2.40E-03	4.9E-01	4.7E-01	mg/kg	NO
INDENO(1,2,3-CD)PYRENE	1/1	100.0	1.60E+00	1.60E+00	8.6E-01		mg/kg	YES
NAPHTHALENE	1/1	100.0	8.80E-02	8.80E-02		2.8E+02	mg/kg	NO
PCB-1254	1/1	100.0	7.10E-01	7.10E-01		1.6E-01	mg/kg	YES
PCB-1260	1/1	100.0	4.70E-01	4.70E-01	8.3E-02		mg/kg	YES
PHENANTHRENE	1/1	100.0	6.90E+00	6.90E+00			mg/kg	
PYRENE	1/1	100.0	8.60E+00	8.60E+00		2.3E+02	mg/kg	NO
URANIUM-234	1/1	100.0	2.54E+01	2.54E+01	1.8E+01		pCi/g	YES
URANIUM-235	1/1	100.0	1.24E+00	1.24E+00	1.6E-01		pCi/g	YES
URANIUM-238	1/1	100.0	3.44E+01	3.44E+01	7.8E-01		pCi/g	YES

Table F.13. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD05 Medium=SEDIMENT

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
SELENIUM	1/1	100.0	2.20E+00	2.20E+00		3.9E+01	mg/kg	NO
4,4'-DDE	1/1	100.0	4.40E-04	4.40E-04	1.9E+00		mg/kg	NO
DI-N-BUTYLPHTHALATE	1/1	100.0	8.50E-02	8.50E-02		7.8E+02	mg/kg	NO
ENDRIN ALDEHYDE	1/1	100.0	5.30E-03	5.30E-03			mg/kg	
GAMMA-CHLORDANE	1/1	100.0	8.30E-04	8.30E-04	4.9E-01	4.7E-01	mg/kg	NO
HEPTACHLOR EPOXIDE	1/1	100.0	3.60E-04	3.60E-04	7.0E-02	1.0E-01	mg/kg	NO
PCB-1260	1/1	100.0	9.80E-02	9.80E-02	8.3E-02		mg/kg	YES
THORIUM-232	1/1	100.0	1.16E+00	1.16E+00	2.4E+01		pCi/g	NO
URANIUM-238	1/1	100.0	2.04E+00	2.04E+00	7.8E-01		pCi/g	YES

Sample Station=SD06 Medium=SEDIMENT

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
SELENIUM	1/1	100.0	2.70E+00	2.70E+00		3.9E+01	mg/kg	NO
ZINC	1/1	100.0	5.49E+01	5.49E+01		2.3E+03	mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	7.40E-02	7.40E-02	3.2E+01	1.6E+02	mg/kg	NO
ENDRIN	1/1	100.0	6.30E-04	6.30E-04		8.0E-01	mg/kg	NO
ENDRIN ALDEHYDE	1/1	100.0	6.10E-04	6.10E-04			mg/kg	
METHOXYCHLOR	1/1	100.0	1.90E-03	1.90E-03		3.9E+01	mg/kg	NO
PCB-1260	1/1	100.0	2.50E-02	2.50E-02	8.3E-02		mg/kg	NO
URANIUM-238	1/1	100.0	1.62E+00	1.62E+00	7.8E-01		pCi/g	YES

Sample Station=SD07 Medium=SEDIMENT

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ARSENIC	1/1	100.0	1.39E+01	1.39E+01	4.3E-01	2.3E+00	mg/kg	YES
BARIUM	1/1	100.0	2.51E+02	2.51E+02		5.5E+02	mg/kg	NO
BERYLLIUM	1/1	100.0	1.60E+00	1.60E+00	6.3E-02	3.9E+01	mg/kg	YES
CADMIUM	1/1	100.0	1.06E+01	1.06E+01	6.0E+03	7.8E+00	mg/kg	YES
CHROMIUM	1/1	100.0	6.49E+01	6.49E+01	8.9E+02	3.9E+01	mg/kg	YES
COBALT	1/1	100.0	3.32E+01	3.32E+01			mg/kg	
COPPER	1/1	100.0	2.13E+01	2.13E+01			mg/kg	
LEAD	1/1	100.0	3.86E+01	3.86E+01		4.0E+02	mg/kg	NO
MANGANESE	1/1	100.0	3.96E+03	3.96E+03		1.1E+03	mg/kg	YES
MERCURY	1/1	100.0	5.30E-01	5.30E-01		2.3E+00	mg/kg	NO
NICKEL	1/1	100.0	6.21E+01	6.21E+01		1.6E+02	mg/kg	NO
SELENIUM	1/1	100.0	4.20E+00	4.20E+00		3.9E+01	mg/kg	NO
VANADIUM	1/1	100.0	5.41E+01	5.41E+01		5.5E+01	mg/kg	NO
ZINC	1/1	100.0	7.22E+01	7.22E+01		2.3E+03	mg/kg	NO

Table F.13. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD07 Medium=SEDIMENT (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
2,4-D	1/1	100.0	8.20E-02	8.20E-02		7.8E+01	mg/kg	NO
4,4'-DDD	1/1	100.0	1.20E-04	1.20E-04	2.7E+00		mg/kg	NO
4,4'-DDT	1/1	100.0	5.60E-04	5.60E-04	1.9E+00	3.9E+00	mg/kg	NO
BENZO(A)PYRENE	1/1	100.0	2.60E-02	2.60E-02	8.6E-02		mg/kg	NO
BENZO(B)FLUORANTHENE	1/1	100.0	5.60E-02	5.60E-02	8.6E-01		mg/kg	NO
BENZO(K)FLUORANTHENE	1/1	100.0	5.90E-02	5.90E-02	8.6E+00		mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	4.90E-02	4.90E-02	3.2E+01	1.6E+02	mg/kg	NO
DI-N-BUTYLPHTHALATE	1/1	100.0	7.30E-02	7.30E-02		7.8E+02	mg/kg	NO
ENDOSULFAN SULFATE	1/1	100.0	1.30E-03	1.30E-03			mg/kg	
ENDRIN ALDEHYDE	1/1	100.0	2.90E-03	2.90E-03			mg/kg	
FLUORANTHENE	1/1	100.0	4.50E-02	4.50E-02		3.1E+02	mg/kg	NO
GAMMA-CHLORDANE	1/1	100.0	1.30E-04	1.30E-04	4.9E-01	4.7E-01	mg/kg	NO
HEPTACHLOR EPOXIDE	1/1	100.0	4.00E-04	4.00E-04	7.0E-02	1.0E-01	mg/kg	NO
PCB-1260	1/1	100.0	5.90E-02	5.90E-02	8.3E-02		mg/kg	NO
PYRENE	1/1	100.0	4.40E-02	4.40E-02		2.3E+02	mg/kg	NO
URANIUM-234	1/1	100.0	8.53E+00	8.53E+00	1.8E+01		pCi/g	NO
URANIUM-235	1/1	100.0	4.60E-01	4.60E-01	1.6E-01		pCi/g	YES
URANIUM-238	1/1	100.0	1.48E+01	1.48E+01	7.8E-01		pCi/g	YES

Sample Station=SD08 Medium=SEDIMENT

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ARSENIC	1/1	100.0	9.20E+00	9.20E+00	4.3E-01	2.3E+00	mg/kg	YES
BARIUM	1/1	100.0	5.71E+02	5.71E+02		5.5E+02	mg/kg	YES
BERYLLIUM	1/1	100.0	1.50E+00	1.50E+00	6.3E-02	3.9E+01	mg/kg	YES
CHROMIUM	1/1	100.0	2.38E+01	2.38E+01	8.9E+02	3.9E+01	mg/kg	NO
COBALT	1/1	100.0	5.66E+01	5.66E+01			mg/kg	
LEAD	1/1	100.0	2.50E+01	2.50E+01		4.0E+02	mg/kg	NO
LITHIUM	1/1	100.0	1.64E+01	1.64E+01			mg/kg	
MANGANESE	1/1	100.0	9.28E+03	9.28E+03		1.1E+03	mg/kg	YES
NICKEL	1/1	100.0	2.83E+01	2.83E+01		1.6E+02	mg/kg	NO
SELENIUM	1/1	100.0	6.70E+00	6.70E+00		3.9E+01	mg/kg	NO
SILVER	1/1	100.0	3.60E-01	3.60E-01		3.9E+01	mg/kg	NO
VANADIUM	1/1	100.0	3.27E+01	3.27E+01		5.5E+01	mg/kg	NO
ZINC	1/1	100.0	4.80E+01	4.80E+01		2.3E+03	mg/kg	NO
2,4,5-T	1/1	100.0	2.00E-02	2.00E-02		7.8E+01	mg/kg	NO
4,4'-DDD	1/1	100.0	1.40E-03	1.40E-03	2.7E+00		mg/kg	NO
4,4'-DDE	1/1	100.0	4.30E-03	4.30E-03	1.9E+00		mg/kg	NO
4,4'-DDT	1/1	100.0	2.80E-03	2.80E-03	1.9E+00	3.9E+00	mg/kg	NO
ACETONE	1/1	100.0	2.00E-02	2.00E-02		7.8E+02	mg/kg	NO
DI-N-BUTYLPHTHALATE	1/1	100.0	8.80E-02	8.80E-02		7.8E+02	mg/kg	NO
DIELDRIN	1/1	100.0	1.20E-02	1.20E-02	4.0E-02	3.9E-01	mg/kg	NO

Table F.13. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD08 Medium=SEDIMENT (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ENDRIN ALDEHYDE	1/1	100.0	1.50E-02	1.50E-02			mg/kg	
PCB-1260	1/1	100.0	4.30E-01	4.30E-01	8.3E-02		mg/kg	YES
URANIUM-234	1/1	100.0	7.22E+00	7.22E+00	1.8E+01		pCi/g	NO
URANIUM-235	1/1	100.0	3.40E-01	3.40E-01	1.6E-01		pCi/g	YES
URANIUM-238	1/1	100.0	1.33E+01	1.33E+01	7.8E-01		pCi/g	YES

Sample Station=SD09 Medium=SEDIMENT

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	1.26E+04	1.26E+04			mg/kg	
BERYLLIUM	1/1	100.0	3.40E+00	3.40E+00	6.3E-02	3.9E+01	mg/kg	YES
CHROMIUM	1/1	100.0	2.68E+01	2.68E+01	8.9E+02	3.9E+01	mg/kg	NO
COPPER	1/1	100.0	1.21E+01	1.21E+01			mg/kg	
LEAD	1/1	100.0	1.63E+01	1.63E+01		4.0E+02	mg/kg	NO
LITHIUM	1/1	100.0	4.50E+01	4.50E+01			mg/kg	
NICKEL	1/1	100.0	2.49E+01	2.49E+01		1.6E+02	mg/kg	NO
SELENIUM	1/1	100.0	3.50E+00	3.50E+00		3.9E+01	mg/kg	NO
VANADIUM	1/1	100.0	3.02E+01	3.02E+01		5.5E+01	mg/kg	NO
ZINC	1/1	100.0	6.74E+01	6.74E+01		2.3E+03	mg/kg	NO
1,2-DICHLOROETHENE	1/1	100.0	3.00E-03	3.00E-03		7.0E+01	mg/kg	NO
2,4,5-T	1/1	100.0	1.30E-02	1.30E-02		7.8E+01	mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	1.20E-01	1.20E-01	3.2E+01	1.6E+02	mg/kg	NO
DI-N-BUTYLPHTHALATE	1/1	100.0	7.10E-02	7.10E-02		7.8E+02	mg/kg	NO
PCB-1260	1/1	100.0	2.50E+00	2.50E+00	8.3E-02		mg/kg	YES
AMERICIUM-241	1/1	100.0	7.00E-02	7.00E-02	2.2E+00		pCi/g	NO
TECHNETIUM-99	1/1	100.0	5.43E+00	5.43E+00	5.7E+02		pCi/g	NO
URANIUM-234	1/1	100.0	1.11E+01	1.11E+01	1.8E+01		pCi/g	NO
URANIUM-235	1/1	100.0	8.90E-01	8.90E-01	1.6E-01		pCi/g	YES
URANIUM-238	1/1	100.0	2.16E+01	2.16E+01	7.8E-01		pCi/g	YES

Sample Station=SD10 Medium=SEDIMENT

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ARSENIC	1/1	100.0	9.30E+00	9.30E+00	4.3E-01	2.3E+00	mg/kg	YES
BERYLLIUM	1/1	100.0	1.30E+00	1.30E+00	6.3E-02	3.9E+01	mg/kg	YES
CADMIUM	1/1	100.0	4.50E+00	4.50E+00	6.0E+03	7.8E+00	mg/kg	NO
CHROMIUM	1/1	100.0	2.78E+01	2.78E+01	8.9E+02	3.9E+01	mg/kg	NO
COBALT	1/1	100.0	2.56E+01	2.56E+01			mg/kg	

Table F.13. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD10 Medium=SEDIMENT (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
COPPER	1/1	100.0	1.19E+01	1.19E+01			mg/kg	
LEAD	1/1	100.0	2.60E+01	2.60E+01		4.0E+02	mg/kg	NO
LITHIUM	1/1	100.0	2.41E+01	2.41E+01			mg/kg	
MANGANESE	1/1	100.0	2.18E+03	2.18E+03		1.1E+03	mg/kg	YES
NICKEL	1/1	100.0	4.16E+01	4.16E+01		1.6E+02	mg/kg	NO
SELENIUM	1/1	100.0	3.10E+00	3.10E+00		3.9E+01	mg/kg	NO
VANADIUM	1/1	100.0	2.97E+01	2.97E+01		5.5E+01	mg/kg	NO
ZINC	1/1	100.0	5.36E+01	5.36E+01		2.3E+03	mg/kg	NO
4,4'-DDD	1/1	100.0	1.30E-03	1.30E-03	2.7E+00		mg/kg	NO
4,4'-DDE	1/1	100.0	6.20E-03	6.20E-03	1.9E+00		mg/kg	NO
ALPHA-CHLORDANE	1/1	100.0	5.80E-04	5.80E-04	4.9E-01	4.7E-01	mg/kg	NO
DI-N-BUTYLPHTHALATE	1/1	100.0	1.30E-01	1.30E-01		7.8E+02	mg/kg	NO
ENDOSULFAN SULFATE	1/1	100.0	3.80E-03	3.80E-03			mg/kg	
ENDRIN ALDEHYDE	1/1	100.0	9.20E-03	9.20E-03			mg/kg	
METHOXYCHLOR	1/1	100.0	2.10E-03	2.10E-03		3.9E+01	mg/kg	NO
PCB-1254	1/1	100.0	1.20E+00	1.20E+00		1.6E-01	mg/kg	YES
AMERICIUM-241	1/1	100.0	7.00E-02	7.00E-02	2.2E+00		pCi/g	NO
URANIUM-234	1/1	100.0	5.75E+00	5.75E+00	1.8E+01		pCi/g	NO
URANIUM-235	1/1	100.0	2.30E-01	2.30E-01	1.6E-01		pCi/g	YES
URANIUM-238	1/1	100.0	9.36E+00	9.36E+00	7.8E-01		pCi/g	YES

Sample Station=SD11 Medium=SEDIMENT

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ARSENIC	1/1	100.0	1.75E+01	1.75E+01	4.3E-01	2.3E+00	mg/kg	YES
BERYLLIUM	1/1	100.0	1.60E+00	1.60E+00	6.3E-02	3.9E+01	mg/kg	YES
CADMIUM	1/1	100.0	5.10E+00	5.10E+00	6.0E+03	7.8E+00	mg/kg	NO
CHROMIUM	1/1	100.0	1.30E+02	1.30E+02	8.9E+02	3.9E+01	mg/kg	YES
COBALT	1/1	100.0	3.39E+01	3.39E+01			mg/kg	
COPPER	1/1	100.0	1.34E+01	1.34E+01			mg/kg	
LEAD	1/1	100.0	3.09E+01	3.09E+01		4.0E+02	mg/kg	NO
LITHIUM	1/1	100.0	2.24E+01	2.24E+01			mg/kg	
MANGANESE	1/1	100.0	2.76E+03	2.76E+03		1.1E+03	mg/kg	YES
NICKEL	1/1	100.0	4.68E+01	4.68E+01		1.6E+02	mg/kg	NO
SELENIUM	1/1	100.0	3.90E+00	3.90E+00		3.9E+01	mg/kg	NO
VANADIUM	1/1	100.0	5.35E+01	5.35E+01		5.5E+01	mg/kg	NO
ZINC	1/1	100.0	7.38E+01	7.38E+01		2.3E+03	mg/kg	NO
4,4'-DDD	1/1	100.0	4.40E-04	4.40E-04	2.7E+00		mg/kg	NO
BENZO(A)ANTHRACENE	1/1	100.0	1.40E-01	1.40E-01	8.6E-01		mg/kg	NO
BENZO(A)PYRENE	1/1	100.0	1.10E-01	1.10E-01	8.6E-02		mg/kg	YES
BENZO(B)FLUORANTHENE	1/1	100.0	1.90E-01	1.90E-01	8.6E-01		mg/kg	NO
BENZO(GHI)PERYLENE	1/1	100.0	7.90E-02	7.90E-02			mg/kg	

Table F.13. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD11 Medium=SEDIMENT (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BENZO(K)FLUORANTHENE	1/1	100.0	2.00E-01	2.00E-01	8.6E+00		mg/kg	NO
CHRYSENE	1/1	100.0	1.50E-01	1.50E-01	8.6E+01		mg/kg	NO
DI-N-BUTYLPHTHALATE	1/1	100.0	8.20E-02	8.20E-02		7.8E+02	mg/kg	NO
ENDOSULFAN I	1/1	100.0	7.50E-04	7.50E-04			mg/kg	
FLUORANTHENE	1/1	100.0	2.60E-01	2.60E-01		3.1E+02	mg/kg	NO
INDENO(1,2,3-CD)PYRENE	1/1	100.0	7.20E-02	7.20E-02	8.6E-01		mg/kg	NO
PCB-1254	1/1	100.0	2.80E-01	2.80E-01		1.6E-01	mg/kg	YES
PCB-1260	1/1	100.0	2.40E-01	2.40E-01	8.3E-02		mg/kg	YES
PHENANTHRENE	1/1	100.0	1.50E-01	1.50E-01			mg/kg	
PYRENE	1/1	100.0	2.40E-01	2.40E-01		2.3E+02	mg/kg	NO
CURIUM-244	1/1	100.0	3.00E-01	3.00E-01	3.8E+00		pCi/g	NO
URANIUM-234	1/1	100.0	4.72E+00	4.72E+00	1.8E+01		pCi/g	NO
URANIUM-235	1/1	100.0	2.10E-01	2.10E-01	1.6E-01		pCi/g	YES
URANIUM-238	1/1	100.0	7.98E+00	7.98E+00	7.8E-01		pCi/g	YES

Sample Station=SD12 Medium=SEDIMENT

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	1.57E+04	1.57E+04			mg/kg	
ARSENIC	1/1	100.0	1.05E+01	1.05E+01	4.3E-01	2.3E+00	mg/kg	YES
BERYLLIUM	1/1	100.0	1.30E+00	1.30E+00	6.3E-02	3.9E+01	mg/kg	YES
COPPER	1/1	100.0	2.54E+01	2.54E+01			mg/kg	
LEAD	1/1	100.0	5.94E+01	5.94E+01		4.0E+02	mg/kg	NO
LITHIUM	1/1	100.0	6.90E+01	6.90E+01			mg/kg	
NICKEL	1/1	100.0	2.16E+01	2.16E+01		1.6E+02	mg/kg	NO
SELENIUM	1/1	100.0	2.50E+00	2.50E+00		3.9E+01	mg/kg	NO
VANADIUM	1/1	100.0	4.22E+01	4.22E+01		5.5E+01	mg/kg	NO
ZINC	1/1	100.0	8.98E+01	8.98E+01		2.3E+03	mg/kg	NO
ALPHA-BHC	1/1	100.0	2.20E-04	2.20E-04	1.0E-01		mg/kg	NO
BENZO(A)ANTHRACENE	1/1	100.0	1.00E-01	1.00E-01	8.6E-01		mg/kg	NO
BENZO(B)FLUORANTHENE	1/1	100.0	1.40E-01	1.40E-01	8.6E-01		mg/kg	NO
BENZO(K)FLUORANTHENE	1/1	100.0	1.50E-01	1.50E-01	8.6E+00		mg/kg	NO
CHRYSENE	1/1	100.0	9.80E-02	9.80E-02	8.6E+01		mg/kg	NO
DELTA-BHC	1/1	100.0	3.50E-03	3.50E-03			mg/kg	
ENDOSULFAN I	1/1	100.0	3.30E-04	3.30E-04			mg/kg	
ENDOSULFAN II	1/1	100.0	1.20E-03	1.20E-03			mg/kg	
ENDRIN	1/1	100.0	5.80E-04	5.80E-04		8.0E-01	mg/kg	NO
ENDRIN ALDEHYDE	1/1	100.0	1.60E-03	1.60E-03			mg/kg	
FLUORANTHENE	1/1	100.0	1.50E-01	1.50E-01		3.1E+02	mg/kg	NO
METHOXYCHLOR	1/1	100.0	1.20E-03	1.20E-03		3.9E+01	mg/kg	NO
PHENANTHRENE	1/1	100.0	8.50E-02	8.50E-02			mg/kg	
PYRENE	1/1	100.0	1.40E-01	1.40E-01		2.3E+02	mg/kg	NO

Table F.13. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD12 Medium=SEDIMENT (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
URANIUM-238	1/1	100.0	1.55E+00	1.55E+00	7.8E-01		pCi/g	YES

Sample Station=SD13 Medium=SEDIMENT

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ARSENIC	1/1	100.0	1.60E+01	1.60E+01	4.3E-01	2.3E+00	mg/kg	YES
BERYLLIUM	1/1	100.0	1.30E+00	1.30E+00	6.3E-02	3.9E+01	mg/kg	YES
COPPER	1/1	100.0	2.06E+01	2.06E+01			mg/kg	
LEAD	1/1	100.0	5.44E+01	5.44E+01		4.0E+02	mg/kg	NO
NICKEL	1/1	100.0	2.19E+01	2.19E+01		1.6E+02	mg/kg	NO
SELENIUM	1/1	100.0	2.00E+00	2.00E+00		3.9E+01	mg/kg	NO
VANADIUM	1/1	100.0	3.64E+01	3.64E+01		5.5E+01	mg/kg	NO
ZINC	1/1	100.0	1.15E+02	1.15E+02		2.3E+03	mg/kg	NO
4,4'-DDE	1/1	100.0	3.60E-04	3.60E-04	1.9E+00		mg/kg	NO
4,4'-DDT	1/1	100.0	4.30E-04	4.30E-04	1.9E+00	3.9E+00	mg/kg	NO
ALPHA-CHLORDANE	1/1	100.0	1.40E-04	1.40E-04	4.9E-01	4.7E-01	mg/kg	NO
DI-N-BUTYLPHTHALATE	1/1	100.0	1.20E-01	1.20E-01		7.8E+02	mg/kg	NO
ENDOSULFAN SULFATE	1/1	100.0	1.70E-03	1.70E-03			mg/kg	
ENDRIN	1/1	100.0	2.10E-04	2.10E-04		8.0E-01	mg/kg	NO
GAMMA-CHLORDANE	1/1	100.0	4.40E-04	4.40E-04	4.9E-01	4.7E-01	mg/kg	NO
HEPTACHLOR	1/1	100.0	3.80E-04	3.80E-04	1.4E-01	3.9E+00	mg/kg	NO
METHOXYCHLOR	1/1	100.0	9.90E-04	9.90E-04		3.9E+01	mg/kg	NO
THORIUM-230	1/1	100.0	1.03E+00	1.03E+00	2.1E+01		pCi/g	NO
URANIUM-238	1/1	100.0	1.27E+00	1.27E+00	7.8E-01		pCi/g	YES

Sample Station=SD14 Medium=SEDIMENT

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALUMINUM	1/1	100.0	1.41E+04	1.41E+04			mg/kg	
ARSENIC	1/1	100.0	1.32E+01	1.32E+01	4.3E-01	2.3E+00	mg/kg	YES
BARIUM	1/1	100.0	5.27E+02	5.27E+02		5.5E+02	mg/kg	NO
BERYLLIUM	1/1	100.0	1.40E+00	1.40E+00	6.3E-02	3.9E+01	mg/kg	YES
CADMIUM	1/1	100.0	1.62E+01	1.62E+01	6.0E+03	7.8E+00	mg/kg	YES
CHROMIUM	1/1	100.0	3.41E+01	3.41E+01	8.9E+02	3.9E+01	mg/kg	NO
COBALT	1/1	100.0	6.01E+01	6.01E+01			mg/kg	
COPPER	1/1	100.0	1.44E+01	1.44E+01			mg/kg	
LEAD	1/1	100.0	5.08E+01	5.08E+01		4.0E+02	mg/kg	NO
MANGANESE	1/1	100.0	7.32E+03	7.32E+03		1.1E+03	mg/kg	YES

Table F.13. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD14 Medium=SEDIMENT (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
NICKEL	1/1	100.0	9.54E+01	9.54E+01		1.6E+02	mg/kg	NO
SELENIUM	1/1	100.0	6.60E+00	6.60E+00		3.9E+01	mg/kg	NO
SILVER	1/1	100.0	3.00E-01	3.00E-01		3.9E+01	mg/kg	NO
VANADIUM	1/1	100.0	4.17E+01	4.17E+01		5.5E+01	mg/kg	NO
ZINC	1/1	100.0	7.14E+01	7.14E+01		2.3E+03	mg/kg	NO
4,4'-DDE	1/1	100.0	8.00E-05	8.00E-05	1.9E+00		mg/kg	NO
ALPHA-CHLORDANE	1/1	100.0	8.10E-05	8.10E-05	4.9E-01	4.7E-01	mg/kg	NO
BENZO(A)ANTHRACENE	1/1	100.0	9.00E-02	9.00E-02	8.6E-01		mg/kg	NO
BENZO(A)PYRENE	1/1	100.0	6.50E-02	6.50E-02	8.6E-02		mg/kg	NO
BENZO(B)FLUORANTHENE	1/1	100.0	1.10E-01	1.10E-01	8.6E-01		mg/kg	NO
BENZO(K)FLUORANTHENE	1/1	100.0	1.00E-01	1.00E-01	8.6E+00		mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	1.30E-01	1.30E-01	3.2E+01	1.6E+02	mg/kg	NO
CHRYSENE	1/1	100.0	6.50E-02	6.50E-02	8.6E+01		mg/kg	NO
ENDOSULFAN SULFATE	1/1	100.0	8.00E-04	8.00E-04			mg/kg	
ENDRIN ALDEHYDE	1/1	100.0	1.30E-03	1.30E-03			mg/kg	
FLUORANTHENE	1/1	100.0	1.10E-01	1.10E-01		3.1E+02	mg/kg	NO
GAMMA-CHLORDANE	1/1	100.0	1.10E-04	1.10E-04	4.9E-01	4.7E-01	mg/kg	NO
HEPTACHLOR EPOXIDE	1/1	100.0	2.00E-04	2.00E-04	7.0E-02	1.0E-01	mg/kg	NO
PCB-1260	1/1	100.0	2.40E-02	2.40E-02	8.3E-02		mg/kg	NO
PHENANTHRENE	1/1	100.0	8.50E-02	8.50E-02			mg/kg	
PYRENE	1/1	100.0	1.20E-01	1.20E-01		2.3E+02	mg/kg	NO
TECHNETIUM-99	1/1	100.0	4.93E+00	4.93E+00	5.7E+02		pCi/g	NO
THORIUM-228	1/1	100.0	2.17E+00	2.17E+00	4.3E-02		pCi/g	YES
THORIUM-230	1/1	100.0	1.30E+00	1.30E+00	2.1E+01		pCi/g	NO
THORIUM-232	1/1	100.0	1.65E+00	1.65E+00	2.4E+01		pCi/g	NO
URANIUM-234	1/1	100.0	2.25E+01	2.25E+01	1.8E+01		pCi/g	YES
URANIUM-235	1/1	100.0	1.01E+00	1.01E+00	1.6E-01		pCi/g	YES
URANIUM-238	1/1	100.0	3.65E+01	3.65E+01	7.8E-01		pCi/g	YES

Sample Station=SD15 Medium=SEDIMENT

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
CADMIUM	1/1	100.0	5.30E-01	5.30E-01	6.0E+03	7.8E+00	mg/kg	NO
2,4,5-T	1/1	100.0	8.60E-03	8.60E-03		7.8E+01	mg/kg	NO
4,4'-DDE	1/1	100.0	1.40E-04	1.40E-04	1.9E+00		mg/kg	NO
4,4'-DDT	1/1	100.0	4.80E-04	4.80E-04	1.9E+00	3.9E+00	mg/kg	NO
ALDRIN	1/1	100.0	1.40E-04	1.40E-04	3.8E-02	2.3E-01	mg/kg	NO
ALPHA-CHLORDANE	1/1	100.0	6.60E-05	6.60E-05	4.9E-01	4.7E-01	mg/kg	NO
BENZO(A)ANTHRACENE	1/1	100.0	3.80E-02	3.80E-02	8.6E-01		mg/kg	NO
BENZO(A)PYRENE	1/1	100.0	4.50E-02	4.50E-02	8.6E-02		mg/kg	NO
BENZO(B)FLUORANTHENE	1/1	100.0	6.70E-02	6.70E-02	8.6E-01		mg/kg	NO
BENZO(K)FLUORANTHENE	1/1	100.0	7.10E-02	7.10E-02	8.6E+00		mg/kg	NO

Table F.13. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD15 Medium=SEDIMENT (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	3.20E-02	3.20E-02	3.2E+01	1.6E+02	mg/kg	NO
CHRYSENE	1/1	100.0	3.60E-02	3.60E-02	8.6E+01		mg/kg	NO
DI-N-BUTYLPHTHALATE	1/1	100.0	1.20E-01	1.20E-01		7.8E+02	mg/kg	NO
ENDRIN ALDEHYDE	1/1	100.0	2.30E-03	2.30E-03			mg/kg	
FLUORANTHENE	1/1	100.0	6.20E-02	6.20E-02		3.1E+02	mg/kg	NO
GAMMA-CHLORDANE	1/1	100.0	9.30E-05	9.30E-05	4.9E-01	4.7E-01	mg/kg	NO
METHOXYCHLOR	1/1	100.0	2.40E-03	2.40E-03		3.9E+01	mg/kg	NO
PCB-1260	1/1	100.0	3.80E-02	3.80E-02	8.3E-02		mg/kg	NO
PYRENE	1/1	100.0	6.10E-02	6.10E-02		2.3E+02	mg/kg	NO
URANIUM-235	1/1	100.0	1.10E-01	1.10E-01	1.6E-01		pCi/g	NO
URANIUM-238	1/1	100.0	2.36E+00	2.36E+00	7.8E-01		pCi/g	YES

Sample Station=SD16 Medium=SEDIMENT

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
LEAD	1/1	100.0	1.72E+01	1.72E+01		4.0E+02	mg/kg	NO
2,4,5-T	1/1	100.0	2.90E-03	2.90E-03		7.8E+01	mg/kg	NO
4,4'-DDE	1/1	100.0	8.30E-05	8.30E-05	1.9E+00		mg/kg	NO
BENZO(A)ANTHRACENE	1/1	100.0	1.10E-01	1.10E-01	8.6E-01		mg/kg	NO
BENZO(A)PYRENE	1/1	100.0	7.90E-02	7.90E-02	8.6E-02		mg/kg	NO
BENZO(B)FLUORANTHENE	1/1	100.0	1.30E-01	1.30E-01	8.6E-01		mg/kg	NO
BENZO(GHI)PERYLENE	1/1	100.0	6.10E-02	6.10E-02			mg/kg	
BENZO(K)FLUORANTHENE	1/1	100.0	1.40E-01	1.40E-01	8.6E+00		mg/kg	NO
CHRYSENE	1/1	100.0	9.70E-02	9.70E-02	8.6E+01		mg/kg	NO
DI-N-BUTYLPHTHALATE	1/1	100.0	1.50E-01	1.50E-01		7.8E+02	mg/kg	NO
ENDRIN ALDEHYDE	1/1	100.0	1.80E-03	1.80E-03			mg/kg	
FLUORANTHENE	1/1	100.0	1.90E-01	1.90E-01		3.1E+02	mg/kg	NO
INDENO(1,2,3-CD)PYRENE	1/1	100.0	6.50E-02	6.50E-02	8.6E-01		mg/kg	NO
PCB-1260	1/1	100.0	3.90E-02	3.90E-02	8.3E-02		mg/kg	NO
PHENANTHRENE	1/1	100.0	7.20E-02	7.20E-02			mg/kg	
PYRENE	1/1	100.0	1.80E-01	1.80E-01		2.3E+02	mg/kg	NO
URANIUM-235	1/1	100.0	7.00E-02	7.00E-02	1.6E-01		pCi/g	NO
URANIUM-238	1/1	100.0	2.13E+00	2.13E+00	7.8E-01		pCi/g	YES

Sample Station=SD17 Medium=SEDIMENT

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
2,4,5-T	1/1	100.0	2.80E-03	2.80E-03		7.8E+01	mg/kg	NO

Table F.13. Data summary (and PRG summary) for site-related contaminants in Bear Creek Valley
Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD17 Medium=SEDIMENT (continued)

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
4,4'-DDD	1/1	100.0	3.30E-04	3.30E-04	2.7E+00		mg/kg	NO
4,4'-DDE	1/1	100.0	6.20E-04	6.20E-04	1.9E+00		mg/kg	NO
4-METHYLPHENOL	1/1	100.0	2.60E-01	2.60E-01		3.9E+01	mg/kg	NO
ALDRIN	1/1	100.0	2.10E-04	2.10E-04	3.8E-02	2.3E-01	mg/kg	NO
ALPHA-BHC	1/1	100.0	2.90E-04	2.90E-04	1.0E-01		mg/kg	NO
BENZO(A)ANTHRACENE	1/1	100.0	8.20E-02	8.20E-02	8.6E-01		mg/kg	NO
BENZO(B)FLUORANTHENE	1/1	100.0	9.20E-02	9.20E-02	8.6E-01		mg/kg	NO
BENZO(K)FLUORANTHENE	1/1	100.0	9.30E-02	9.30E-02	8.6E+00		mg/kg	NO
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	100.0	6.40E-02	6.40E-02	3.2E+01	1.6E+02	mg/kg	NO
DI-N-BUTYLPHTHALATE	1/1	100.0	8.60E-02	8.60E-02		7.8E+02	mg/kg	NO
ENDRIN ALDEHYDE	1/1	100.0	4.90E-03	4.90E-03			mg/kg	
FLUORANTHENE	1/1	100.0	1.10E-01	1.10E-01		3.1E+02	mg/kg	NO
GAMMA-CHLORDANE	1/1	100.0	1.50E-04	1.50E-04	4.9E-01	4.7E-01	mg/kg	NO
HEPTACHLOR EPOXIDE	1/1	100.0	1.10E-03	1.10E-03	7.0E-02	1.0E-01	mg/kg	NO
METHOXYCHLOR	1/1	100.0	5.10E-04	5.10E-04		3.9E+01	mg/kg	NO
PCB-1260	1/1	100.0	1.10E-01	1.10E-01	8.3E-02		mg/kg	YES
PYRENE	1/1	100.0	1.00E-01	1.00E-01		2.3E+02	mg/kg	NO
THORIUM-230	1/1	100.0	9.60E-01	9.60E-01	2.1E+01		pCi/g	NO
URANIUM-234	1/1	100.0	3.34E+00	3.34E+00	1.8E+01		pCi/g	NO
URANIUM-235	1/1	100.0	2.40E-01	2.40E-01	1.6E-01		pCi/g	YES
URANIUM-238	1/1	100.0	4.75E+00	4.75E+00	7.8E-01		pCi/g	YES

Sample Station=SD18 Medium=SEDIMENT

Analyte	Freq Det	Percent Det	Min Det Conc	Max Det Conc	Resident PRG R=1E-06	Resident PRG HQ=0.1	Conc Units	Max Det > PRG?
ALPHA-CHLORDANE	1/1	100.0	2.40E-04	2.40E-04	4.9E-01	4.7E-01	mg/kg	NO
ENDRIN ALDEHYDE	1/1	100.0	2.10E-04	2.10E-04			mg/kg	
PCB-1254	1/1	100.0	1.70E-02	1.70E-02		1.6E-01	mg/kg	NO
URANIUM-234	1/1	100.0	6.98E+00	6.98E+00	1.8E+01		pCi/g	NO
URANIUM-235	1/1	100.0	2.00E-01	2.00E-01	1.6E-01		pCi/g	YES
URANIUM-238	1/1	100.0	5.28E+00	5.28E+00	7.8E-01		pCi/g	YES

Table F.14. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: S-3 PONDS

Medium=GROUNDWATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	104/104			3.50E-02	3.80E+02	6.12E+01	L	1.56E+02	mg/L
BERYLLIUM	18/66	3.00E-04	6.00E-04	4.00E-04	1.10E-01	1.34E-02	N	1.92E-02	mg/L
BORON	87/91	8.00E-03	2.00E-02	8.00E-03	4.40E+00	2.81E-01	L	3.63E-01	mg/L
CADMIUM	93/154	2.00E-03	1.00E-02	2.00E-03	4.00E+00	1.96E-01	N	2.69E-01	mg/L
CHROMIUM	23/157	1.00E-02	2.00E-02	1.00E-02	3.10E-01	1.75E-02	N	2.40E-02	mg/L
FLUORIDE	84/152	1.00E-01	1.00E-01	1.00E-01	1.10E+02	1.73E+00	N	2.99E+00	mg/L
MANGANESE	93/95	1.00E-03	5.00E-03	2.60E-03	2.20E+02	5.65E+00	L	1.01E+01	mg/L
MERCURY	47/167	2.00E-04	2.60E-04	2.00E-04	1.10E-01	3.21E-03	N	5.20E-03	mg/L
NICKEL	28/74	1.00E-02	5.00E-02	1.20E-02	2.00E+01	2.24E+00	N	3.29E+00	mg/L
NITRATE (AS N)	155/155			4.30E-01	1.34E+04	1.77E+03	N	2.11E+03	mg/L
NITRITE (AS N)	1/9	1.00E+00	1.00E+02	6.70E+00	6.70E+00	2.00E+01	L	6.70E+00	mg/L
STRONTIUM	80/80			1.50E-01	3.40E+02	3.88E+01	L	8.80E+01	mg/L
TOTAL URANIUM	129/163	1.00E-03	1.00E-03	1.00E-03	4.40E+01	1.69E+00	N	2.56E+00	mg/L
ZINC	82/88	1.00E-03	4.00E-03	2.70E-03	2.00E+01	1.30E-01	L	2.11E-01	mg/L
1,1-DICHLOROETHENE	12/195	5.00E-03	1.00E-02	1.00E-03	5.00E-03	2.56E-03	N	2.63E-03	mg/L
1,2-DICHLOROETHENE	38/139	5.00E-03	1.00E-02	1.00E-03	1.00E-01	1.13E-02	N	1.42E-02	mg/L
2,4-DINITROPHENOL	2/11	2.50E-02	5.00E-02	1.10E-02	7.70E-02	8.99E-03	L	3.20E-02	mg/L
ACETONE	55/201	1.00E-03	2.10E-02	2.00E-03	6.00E+00	6.91E-02	N	1.22E-01	mg/L
BENZENE	10/195	5.00E-03	1.00E-02	6.00E-04	3.00E-03	2.54E-03	N	2.61E-03	mg/L
BIS(2-ETHYLHEXYL)PHTHALATE	6/11	5.00E-03	1.00E-02	1.00E-03	3.20E-02	7.65E-03	L	1.83E-02	mg/L
CHLOROFORM	87/199	1.00E-03	1.00E-02	4.00E-04	6.90E-02	5.33E-03	N	6.20E-03	mg/L
DI-N-OCTYLPHTHALATE	2/11	5.00E-03	1.00E-02	2.00E-03	3.00E-03	2.35E-03	L	2.79E-03	mg/L
METHYLENE CHLORIDE	82/203	1.00E-03	1.60E-02	6.00E-04	5.60E-01	1.66E-02	N	2.42E-02	mg/L
TETRACHLOROETHENE	108/203	5.00E-03	1.00E-02	5.00E-04	9.00E+00	2.72E-01	N	4.21E-01	mg/L
TRICHLOROETHENE	51/196	5.00E-03	1.00E-02	8.00E-04	4.10E-02	4.57E-03	N	5.28E-03	mg/L
VINYL CHLORIDE	10/195	1.00E-02	1.00E-02	2.00E-03	1.10E-02	4.97E-03	N	5.04E-03	mg/L
AMERICIUM-241	5/8	4.90E-02	3.00E-01	2.70E+01	3.80E+01	2.01E+01	N	3.14E+01	pCi/L
CESIUM-137	1/3	2.10E+00	3.20E+00	6.00E+00	6.00E+00	3.77E+00	N	6.00E+00	pCi/L
NEPTUNIUM-237	7/10	2.60E-02	4.17E+01	4.00E+01	1.09E+03	3.73E+02	N	5.87E+02	pCi/L
RADIUM (TOTAL ALPHA)	2/2			1.20E+00	3.51E+01	1.82E+01	N	3.51E+01	pCi/L
STRONTIUM-90	8/9	5.60E-01	5.60E-01	3.60E+00	2.54E+02	1.27E+02	N	1.92E+02	pCi/L
TECHNETIUM-99	10/10			5.00E+01	8.04E+04	5.14E+04	N	6.94E+04	pCi/L
THORIUM-228	1/3	1.10E-01	3.20E-01	3.20E+00	3.20E+00	1.21E+00	N	3.20E+00	pCi/L
TRITIUM	9/11	0.00E+00	2.50E+02	6.20E+02	5.41E+03	3.03E+03	N	4.10E+03	pCi/L
URANIUM-234	10/10			1.50E+00	4.65E+03	2.04E+03	N	3.14E+03	pCi/L
URANIUM-235	8/10	1.20E-02	4.75E+02	3.60E+00	5.47E+02	2.29E+02	N	3.53E+02	pCi/L
URANIUM-238	10/10			5.20E-01	1.36E+04	4.78E+03	N	7.48E+03	pCi/L

Medium=SOIL (1-9)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	18/18			8.20E-01	2.05E+01	5.15E+00	L	7.22E+00	mg/kg
MERCURY	15/18	5.00E-02	6.40E-02	7.60E-02	8.29E+01	7.40E+00	L	2.65E+01	mg/kg

Table F.14. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: S-3 PONDS

Medium=SOIL (1-9) (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
VANADIUM	18/18			3.90E+00	9.19E+01	2.99E+01	L	4.10E+01	mg/kg
PCB-1254	10/18	3.30E-02	4.10E-02	1.20E-02	3.70E-01	4.89E-02	L	9.12E-02	mg/kg
PCB-1260	3/18	3.30E-02	5.10E-02	1.60E-02	1.70E-01	6.83E-03	L	3.72E-02	mg/kg
NEPTUNIUM-237	5/18	0.00E+00	9.10E-02	2.60E-02	1.30E-01	2.79E-02	N	4.22E-02	pCi/g
URANIUM-235	9/18	1.00E-03	7.50E-02	4.90E-02	5.40E-01	4.74E-02	L	1.85E-01	pCi/g
URANIUM-238	18/18			1.50E-01	1.80E+01	5.58E+00	L	1.47E+01	pCi/g

Medium=SOIL (10)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
MERCURY	2/2			5.80E+00	1.07E+01	8.25E+00	N	1.07E+01	mg/kg
PCB-1248	2/2			6.50E-02	1.40E-01	1.03E-01	N	1.40E-01	mg/kg
PCB-1254	2/2			6.90E-02	1.90E-01	1.30E-01	N	1.90E-01	mg/kg
PCB-1260	2/2			7.30E-02	2.10E-01	1.42E-01	N	2.10E-01	mg/kg
URANIUM-238	2/2			2.00E+00	2.90E+00	2.45E+00	N	2.90E+00	pCi/g

Medium=SURFACE WATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	55/55			5.37E-02	1.10E+00	2.51E-01	L	3.08E-01	mg/L
BERYLLIUM	5/55	3.00E-04	5.00E-04	3.10E-04	9.90E-04	1.97E-04	N	2.25E-04	mg/L
CADMIUM	4/16	2.00E-03	2.10E-03	1.70E-02	2.40E-02	5.88E-03	N	9.78E-03	mg/L
FLUORIDE	55/55			1.00E-01	1.80E+00	5.03E-01	L	6.15E-01	mg/L
MANGANESE	54/55	3.69E-02	3.69E-02	1.06E-02	5.90E+00	6.87E-01	L	1.15E+00	mg/L
NICKEL	26/55	2.80E-03	3.44E-02	1.24E-02	1.20E-01	1.48E-02	L	2.75E-02	mg/L
NITRATE (AS N)	55/55			2.20E+00	2.86E+02	7.59E+01	L	9.74E+01	mg/L
TOTAL URANIUM	20/20			1.20E-02	1.85E-01	4.64E-02	L	6.10E-02	mg/L
VANADIUM	6/55	2.10E-03	5.00E-03	5.60E-03	3.19E-02	1.21E-04	L	1.12E-03	mg/L
TETRACHLOROETHENE	37/55	5.00E-03	1.00E-02	1.00E-03	6.00E-03	2.49E-03	L	2.85E-03	mg/L
TRICHLOROETHENE	7/55	5.00E-03	1.00E-02	6.00E-04	3.00E-03	2.44E-03	N	2.60E-03	mg/L
STRONTIUM-90	7/11	2.18E-01	8.89E-01	1.05E+00	2.15E+00	1.09E+00	N	1.39E+00	pCi/L
TECHNETIUM-99	8/9	3.55E+01	3.55E+01	1.39E+02	4.77E+02	2.40E+02	N	3.27E+02	pCi/L
THORIUM-228	5/13	1.10E-02	1.15E-01	1.03E-01	2.50E-01	5.11E-02	L	1.52E-01	pCi/L
URANIUM-233/234	34/35	6.03E-02	6.03E-02	5.13E+00	5.40E+01	2.34E+01	N	2.83E+01	pCi/L
URANIUM-235	16/35	3.44E-02	9.49E-01	1.04E+00	4.66E+00	7.82E-01	L	1.60E+00	pCi/L
URANIUM-238	34/35	9.47E-02	9.47E-02	5.83E+00	1.35E+02	4.67E+01	N	5.87E+01	pCi/L

Table F.14. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: S-3 PONDS

Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC					1.12E+00			1.12E+00	mg/kg
BERYLLIUM					2.74E+00			2.74E+00	mg/kg
NICKEL					5.50E+02			5.50E+02	mg/kg
TOTAL URANIUM					9.92E+02			9.92E+02	mg/kg
PCB-1248					5.67E+00			5.67E+00	mg/kg
CESIUM-137					4.77E+00			4.77E+00	pCi/g
NEPTUNIUM-237					9.85E+00			9.85E+00	pCi/g
PLUTONIUM-238					2.53E+01			2.53E+01	pCi/g
PLUTONIUM-239/240					2.54E+00			2.54E+00	pCi/g
RUTHENIUM-106					3.33E+01			3.33E+01	pCi/g
TECHNETIUM-99					7.52E+03			7.52E+03	pCi/g
THORIUM-228					2.67E+02			2.67E+02	pCi/g
THORIUM-230					5.44E+02			5.44E+02	pCi/g
THORIUM-232					8.75E+01			8.75E+01	pCi/g
URANIUM-234					1.24E+02			1.24E+02	pCi/g
URANIUM-235					8.06E+00			8.06E+00	pCi/g
URANIUM-238					3.32E+02			3.32E+02	pCi/g

Table F.15. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: S-3 PONDS

Medium=GROUNDWATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	70/81	2.00E-02	4.00E-02	2.40E-02	8.00E+02	2.67E+00	L	5.75E+00	mg/L
AMMONIA NITROGEN	5/11	2.43E-01	2.43E-01	1.82E+00	5.79E+00	2.23E+00	N	3.68E+00	mg/L
CHLORIDE	136/137	5.00E+00	5.00E+00	5.50E+00	1.34E+03	1.18E+02	L	1.39E+02	mg/L
COBALT	25/74	5.00E-03	2.50E-02	6.10E-03	2.30E+00	2.86E-01	N	3.98E-01	mg/L
COPPER	50/75	4.00E-03	2.00E-02	4.10E-03	3.10E+00	4.76E-02	L	8.89E-02	mg/L
KJELDAHL NITROGEN	6/11	6.00E-02	2.00E-01	2.00E-01	1.80E+00	3.62E-01	L	1.40E+00	mg/L
LEAD	61/167	4.00E-03	2.00E-02	4.00E-03	6.60E-01	1.65E-02	N	2.44E-02	mg/L
LITHIUM	15/15			5.00E-03	3.50E+00	7.65E-01	L	2.54E+00	mg/L
NIOBIUM	7/12	7.00E-03	7.00E-03	7.50E-03	1.00E-01	1.23E-02	L	2.73E-02	mg/L
SILICON	53/53			1.60E+00	3.90E+01	8.41E+00	L	1.00E+01	mg/L
SULFATE	89/92	1.00E+00	5.00E+00	2.00E+00	2.20E+03	6.62E+01	L	8.87E+01	mg/L
TITANIUM	12/15	3.00E-03	3.00E-03	9.70E-03	8.50E-01	1.05E-01	L	3.07E-01	mg/L
2-NITROPHENOL	5/11	5.00E-03	1.00E-02	1.80E-02	7.10E-02	1.38E-02	L	5.28E-02	mg/L
4-NITROPHENOL	5/11	2.50E-02	5.00E-02	2.20E-02	1.20E-01	3.28E-02	L	6.73E-02	mg/L
PHENOLS	3/20	1.00E-03	3.00E-02	1.00E-03	4.00E-03	1.83E-04	L	1.05E-03	mg/L

Medium=SOIL (1-9)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COPPER	17/18	6.80E+00	6.80E+00	5.30E+00	5.08E+01	2.42E+01	N	3.01E+01	mg/kg

Medium=SURFACE WATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	43/55	2.58E-02	6.86E-01	3.61E-02	1.78E+01	4.45E-01	L	6.84E-01	mg/L
CHLORIDE	54/55	1.00E+00	1.00E+00	9.90E+00	1.22E+03	7.90E+01	L	9.85E+01	mg/L
LEAD	2/16	4.00E-03	4.20E-03	7.30E-03	2.60E-02	2.39E-04	L	8.23E-03	mg/L
SULFATE	54/55	1.00E+01	1.00E+01	1.35E+01	9.90E+01	4.88E+01	N	5.28E+01	mg/L

Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM					2.21E+04			2.21E+04	mg/kg
CALCIUM					4.22E+04			4.22E+04	mg/kg
CERIUM					8.18E+00			8.18E+00	mg/kg

Table F.15. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: S-3 PONDS

Medium=WASTE INVENTORY (soil)
(continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COBALT					3.47E+00			3.47E+00	mg/kg
COPPER					9.25E+01			9.25E+01	mg/kg
GALLIUM					6.15E+00			6.15E+00	mg/kg
IRON					3.65E+03			3.65E+03	mg/kg
KJELDAHL NITROGEN					4.60E+02			4.60E+02	mg/kg
LANTHANUM					2.59E+00			2.59E+00	mg/kg
LITHIUM					7.57E+01			7.57E+01	mg/kg
MAGNESIUM					1.94E+03			1.94E+03	mg/kg
NIOBIUM					2.09E+01			2.09E+01	mg/kg
PHOSPHORUS					9.53E+02			9.53E+02	mg/kg
POTASSIUM					1.63E+03			1.63E+03	mg/kg
SCANDIUM					1.20E+00			1.20E+00	mg/kg
SODIUM					2.72E+03			2.72E+03	mg/kg
SULFATE					2.20E+03			2.20E+03	mg/kg
THALLIUM					3.30E-01			3.30E-01	mg/kg
THORIUM					1.95E+02			1.95E+02	mg/kg
TITANIUM					3.99E+02			3.99E+02	mg/kg
YTTRIUM					4.47E+00			4.47E+00	mg/kg
ZIRCONIUM					4.78E+02			4.78E+02	mg/kg
1-(2-BUTOXYETHOXY)-ETHANOL					1.05E+00			1.05E+00	mg/kg
2-HEXANOL					2.96E-01			2.96E-01	mg/kg
3-(1,1-DIMETHYLETHYL)PHENOL					6.04E+00			6.04E+00	mg/kg

Table F.16. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: OIL LANDFARM

Medium=GROUNDWATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	71/71			5.60E-02	1.20E+00	2.99E-01	L	3.45E-01	mg/L
BERYLLIUM	17/71	3.00E-04	3.00E-04	3.00E-04	3.10E-03	3.44E-04	N	4.40E-04	mg/L
BORON	65/65			3.00E-02	3.00E+00	2.76E-01	L	3.55E-01	mg/L
CADMIUM	9/73	2.00E-03	2.00E-03	2.00E-03	3.00E-02	2.35E-03	N	3.29E-03	mg/L
CHROMIUM	33/95	1.00E-02	1.00E-02	1.00E-02	4.10E-01	2.17E-02	N	3.00E-02	mg/L
FLUORIDE	26/82	5.00E-02	1.00E-01	1.00E-01	4.00E+00	2.75E-01	N	4.00E-01	mg/L
MANGANESE	72/74	1.00E-03	1.00E-03	2.40E-03	1.60E+01	6.27E-01	L	1.09E+00	mg/L
MERCURY	9/71	2.00E-04	2.00E-04	3.00E-04	7.84E-02	1.28E-03	N	3.12E-03	mg/L
NICKEL	46/71	1.00E-02	1.00E-02	6.20E-03	1.90E-01	2.38E-02	L	3.21E-02	mg/L
NITRATE (AS N)	65/102	1.00E-01	2.00E-01	1.10E-01	1.05E+02	1.25E+00	L	2.16E+00	mg/L
TOTAL URANIUM	82/101	1.00E-03	1.00E-03	1.00E-03	5.22E-01	7.32E-03	L	1.06E-02	mg/L
VANADIUM	18/71	2.30E-03	8.10E-03	2.70E-03	4.90E-02	6.13E-03	N	7.87E-03	mg/L
ZINC	59/71	1.00E-03	5.34E-02	1.30E-03	1.20E+00	3.16E-02	L	4.86E-02	mg/L
1,1,1-TRICHLOROETHANE	69/117	5.00E-03	2.50E-02	6.00E-04	5.10E-01	9.74E-03	N	1.77E-02	mg/L
1,1-DICHLOROETHANE	82/116	5.00E-03	2.50E-02	2.00E-03	2.00E+00	3.92E-02	N	7.84E-02	mg/L
1,1-DICHLOROETHENE	77/117	5.00E-03	2.50E-02	1.00E-03	6.20E-01	1.73E-02	N	2.97E-02	mg/L
1,2-DICHLOROETHANE	13/116	5.00E-03	2.50E-02	5.00E-04	2.70E-02	4.16E-03	N	4.90E-03	mg/L
1,2-DICHLOROETHENE	56/85	5.00E-03	2.50E-02	7.00E-04	1.10E+00	2.00E-02	L	2.89E-02	mg/L
BENZENE	35/116	5.00E-03	2.50E-02	4.00E-04	5.30E-02	5.59E-03	N	6.91E-03	mg/L
CARBON TETRACHLORIDE	11/117	5.00E-03	1.00E-02	2.00E-03	9.00E-03	3.03E-03	N	3.26E-03	mg/L
CHLOROBENZENE	18/116	5.00E-03	2.50E-02	3.00E-04	8.00E-03	3.06E-03	N	3.29E-03	mg/L
CHLOROFORM	25/116	2.00E-03	2.50E-02	6.00E-04	1.40E-01	7.29E-03	N	1.01E-02	mg/L
METHYLENE CHLORIDE	24/115	5.00E-04	2.50E-02	1.00E-03	3.40E+00	3.31E-02	N	8.21E-02	mg/L
PCB-1254	1/5	1.00E-03	1.10E-03	4.50E-04	4.50E-04	5.00E-04	N	4.50E-04	mg/L
TETRACHLOROETHENE	55/117	5.00E-03	2.00E-02	3.00E-04	1.60E+00	6.60E-02	N	1.01E-01	mg/L
TRANS-1,2-DICHLOROETHENE	28/31	5.00E-03	5.00E-03	6.00E-04	2.70E-01	7.99E-02	L	1.37E-01	mg/L
TRICHLOROETHENE	84/117	5.00E-03	1.00E-02	2.00E-03	2.00E+00	9.38E-02	N	1.29E-01	mg/L
VINYL CHLORIDE	30/117	1.00E-02	5.00E-02	2.00E-03	7.30E-02	8.34E-03	N	9.69E-03	mg/L
CESIUM-137	1/9	0.00E+00	7.40E+00	4.60E+00	4.60E+00	3.33E+00	N	4.60E+00	pCi/L
LEAD-212	1/6	9.30E-01	1.90E+01	1.60E+01	1.60E+01	1.02E+01	N	1.56E+01	pCi/L
NEPTUNIUM-237	1/3	0.00E+00	8.10E-02	2.40E-01	2.40E-01	1.07E-01	N	2.40E-01	pCi/L
POTASSIUM-40	1/6	5.20E+01	1.50E+02	1.70E+02	1.70E+02	1.10E+02	N	1.51E+02	pCi/L
TECHNETIUM-99	1/9	0.00E+00	1.40E+01	3.60E+01	3.60E+01	7.01E+00	N	1.46E+01	pCi/L
THORIUM-228	4/9	5.40E-02	9.80E-01	1.20E+00	1.90E+00	8.58E-01	N	1.29E+00	pCi/L
THORIUM-230	6/9	2.40E-01	6.80E-01	2.90E-01	2.60E+00	1.08E+00	L	2.14E+00	pCi/L
URANIUM-234	9/9			2.60E-01	1.30E+03	1.15E+03	L	1.30E+03	pCi/L
URANIUM-235	5/9	6.30E-02	2.60E-01	4.60E+00	5.30E+01	3.05E+00	L	2.89E+01	pCi/L
URANIUM-238	8/9	1.50E-01	1.50E-01	3.50E+00	1.80E+03	1.18E+02	L	7.21E+02	pCi/L

Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	8/8			1.10E+00	3.18E+01	5.32E+00	L	1.13E+01	mg/kg

Table F.16. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: OIL LANDFARM

Medium=SOIL (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PCB-1260	3/8	3.40E-02	4.00E-02	3.60E-02	2.20E-01	3.02E-02	L	1.16E-01	mg/kg
COBALT-60	4/8	1.70E-01	2.10E+00	7.00E-01	1.70E+00	1.09E+00	N	1.54E+00	pCi/g
LEAD-212	1/8	0.00E+00	1.60E+00	6.20E+00	6.20E+00	1.19E+00	N	2.60E+00	pCi/g
THALLIUM-208	1/8	1.10E+00	6.10E+00	4.60E+00	4.60E+00	3.29E+00	L	4.60E+00	pCi/g
URANIUM-235	2/8	0.00E+00	9.60E-03	2.10E-02	3.60E-01	5.11E-02	N	1.35E-01	pCi/g
URANIUM-238	8/8			6.60E-02	5.90E+00	5.66E-01	L	1.94E+00	pCi/g

Medium=SOIL INVENTORY

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TOTAL URANIUM	140/149	1.00E+01	2.00E+01	1.00E+01	2.74E+02	7.56E+01	L	8.72E+01	mg/kg
PCB-1254	70/93	1.00E-01	1.00E+00	7.00E-01	2.35E+01	4.92E+00	N	5.79E+00	mg/kg
PCB-1260	57/57			6.40E-01	1.80E+01	6.05E+00	L	7.37E+00	mg/kg
POLYCHLORINATED BIPHENYL	183/186	1.00E-01	1.00E-01	1.00E-01	2.40E+01	8.27E+00	N	8.90E+00	mg/kg
URANIUM-234 (calc.)	140/149	3.43E+00	6.86E+00	3.43E+00	9.40E+01	2.61E+01	L	2.98E+01	pCi/g
URANIUM-235 (calc.)	140/149	1.56E-01	3.11E-01	1.56E-01	4.27E+00	1.18E+00	L	1.35E+00	pCi/g
URANIUM-238 (calc.)	140/149	3.34E+00	6.67E+00	3.34E+00	9.14E+01	2.53E+01	L	2.90E+01	pCi/g

Medium=SURFACE WATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	5/43	1.50E-03	2.60E-03	1.80E-03	5.60E-02	8.73E-05	L	8.16E-04	mg/L
BARIUM	52/52			3.25E-02	6.82E-01	2.16E-01	L	2.75E-01	mg/L
CADMIUM	5/8	2.00E-03	2.00E-03	2.10E-03	8.60E-03	3.50E-03	L	7.52E-03	mg/L
FLUORIDE	39/52	1.00E-01	1.00E-01	1.00E-01	2.60E+00	7.33E-01	L	1.16E+00	mg/L
NITRATE (AS N)	38/52	1.00E-01	1.00E-01	1.20E-01	2.39E+02	1.73E+01	L	4.93E+01	mg/L
TOTAL URANIUM	10/10			8.50E-02	3.24E-01	1.80E-01	L	2.24E-01	mg/L
STRONTIUM-90	3/13	5.30E-02	8.33E-01	1.01E+00	1.94E+00	6.74E-01	N	9.30E-01	pCi/L
TECHNETIUM-99	2/12	0.00E+00	2.46E+01	1.21E+02	2.90E+02	3.96E+01	N	8.41E+01	pCi/L
THORIUM-228	4/12	0.00E+00	2.02E-01	1.04E-01	3.10E-01	1.24E-01	N	1.80E-01	pCi/L
THORIUM-230	6/12	2.80E-02	1.01E-01	1.36E-01	1.95E+01	2.21E-01	L	1.01E+00	pCi/L
THORIUM-232	7/12	1.99E-02	7.89E-02	1.03E-01	1.79E+00	1.61E-01	L	3.61E-01	pCi/L
URANIUM-233/234	21/42	5.22E-02	8.33E-01	2.47E+01	4.55E+02	1.24E+01	L	5.62E+01	pCi/L
URANIUM-235	19/42	0.00E+00	1.78E-01	1.27E+00	2.74E+01	3.73E+00	N	5.26E+00	pCi/L
URANIUM-238	21/42	1.83E-02	8.79E-01	4.95E+01	9.96E+02	1.87E+01	L	1.11E+02	pCi/L

Table F.17. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: OIL LANDFARM

Medium=GROUNDWATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	57/66	2.00E-02	2.00E-02	2.30E-02	4.30E+01	9.39E-01	L	1.68E+00	mg/L
AMMONIA NITROGEN	1/3	2.43E-01	2.43E-01	3.53E+00	3.53E+00	1.26E+00	N	3.53E+00	mg/L
CHLORIDE	101/101			1.80E+00	2.12E+02	5.02E+01	L	6.04E+01	mg/L
COBALT	22/71	2.30E-03	5.00E-03	4.90E-03	1.40E-01	9.09E-03	N	1.30E-02	mg/L
COPPER	32/71	4.00E-03	1.96E-02	4.20E-03	1.21E-01	5.78E-03	L	9.29E-03	mg/L
KJELDAHL NITROGEN	3/3			2.66E+00	4.90E+00	3.89E+00	N	4.90E+00	mg/L
LEAD	53/99	4.00E-03	4.00E-03	1.20E-03	6.40E-01	8.79E-03	L	1.30E-02	mg/L
NIOBIUM	2/7	7.00E-03	7.00E-03	2.60E-02	2.90E-02	1.04E-02	N	1.90E-02	mg/L
SILICON	32/32			8.10E-01	2.40E+01	9.76E+00	L	1.20E+01	mg/L
SULFATE	102/102			1.00E+00	3.00E+02	3.50E+01	L	4.23E+01	mg/L
TITANIUM	3/7	3.00E-03	3.00E-03	4.80E-02	2.90E-01	1.01E-02	L	2.16E-01	mg/L
PHENANTHRENE	2/5	1.00E-02	1.10E-02	1.00E-03	1.00E-03	3.60E-03	N	1.00E-03	mg/L
PHENOLS	4/10	1.00E-03	1.00E-03	2.00E-03	6.00E-03	1.08E-03	L	4.04E-03	mg/L

Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COPPER	8/8			7.10E+00	1.20E+02	3.08E+01	L	5.87E+01	mg/kg

Medium=SURFACE WATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	46/52	2.70E-02	7.00E-01	3.40E-02	7.75E+00	8.44E-01	L	1.21E+00	mg/L
CHLORIDE	52/52			1.00E+00	8.10E+01	1.01E+01	L	1.45E+01	mg/L
COPPER	5/52	2.10E-03	2.20E-02	3.00E-03	1.20E-02	5.81E-04	L	2.07E-03	mg/L
LITHIUM	14/14			3.70E-03	1.75E-01	9.75E-02	L	1.75E-01	mg/L
SULFATE	41/52	5.00E+00	5.00E+00	5.40E+00	1.14E+02	3.97E+01	N	4.75E+01	mg/L

Table F.18. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: SANITARY LANDFILL 1

Medium=GROUNDWATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	71/71			5.60E-02	1.20E+00	2.99E-01	L	3.45E-01	mg/L
BERYLLIUM	17/71	3.00E-04	3.00E-04	3.00E-04	3.10E-03	3.44E-04	N	4.40E-04	mg/L
BORON	65/65			3.00E-02	3.00E+00	2.76E-01	L	3.55E-01	mg/L
CADMIUM	9/73	2.00E-03	2.00E-03	2.00E-03	3.00E-02	2.35E-03	N	3.29E-03	mg/L
CHROMIUM	33/95	1.00E-02	1.00E-02	1.00E-02	4.10E-01	2.17E-02	N	3.00E-02	mg/L
FLUORIDE	26/82	5.00E-02	1.00E-01	1.00E-01	4.00E+00	2.75E-01	N	4.00E-01	mg/L
MANGANESE	72/74	1.00E-03	1.00E-03	2.40E-03	1.60E+01	6.27E-01	L	1.09E+00	mg/L
MERCURY	9/71	2.00E-04	2.00E-04	3.00E-04	7.84E-02	1.28E-03	N	3.12E-03	mg/L
NICKEL	46/71	1.00E-02	1.00E-02	6.20E-03	1.90E-01	2.38E-02	L	3.21E-02	mg/L
NITRATE (AS N)	65/102	1.00E-01	2.00E-01	1.10E-01	1.05E+02	1.25E+00	L	2.16E+00	mg/L
TOTAL URANIUM	82/101	1.00E-03	1.00E-03	1.00E-03	5.22E-01	7.32E-03	L	1.06E-02	mg/L
VANADIUM	18/71	2.30E-03	8.10E-03	2.70E-03	4.90E-02	6.13E-03	N	7.87E-03	mg/L
ZINC	59/71	1.00E-03	5.34E-02	1.30E-03	1.20E+00	3.16E-02	L	4.86E-02	mg/L
1,1,1-TRICHLOROETHANE	69/117	5.00E-03	2.50E-02	6.00E-04	5.10E-01	9.74E-03	N	1.77E-02	mg/L
1,1-DICHLOROETHANE	82/116	5.00E-03	2.50E-02	2.00E-03	2.00E+00	3.92E-02	N	7.84E-02	mg/L
1,1-DICHLOROETHENE	77/117	5.00E-03	2.50E-02	1.00E-03	6.20E-01	1.73E-02	N	2.97E-02	mg/L
1,2-DICHLOROETHANE	13/116	5.00E-03	2.50E-02	5.00E-04	2.70E-02	4.16E-03	N	4.90E-03	mg/L
1,2-DICHLOROETHENE	56/85	5.00E-03	2.50E-02	7.00E-04	1.10E+00	2.00E-02	L	2.89E-02	mg/L
BENZENE	35/116	5.00E-03	2.50E-02	4.00E-04	5.30E-02	5.59E-03	N	6.91E-03	mg/L
CARBON TETRACHLORIDE	11/117	5.00E-03	1.00E-02	2.00E-03	9.00E-03	3.03E-03	N	3.26E-03	mg/L
CHLOROBENZENE	18/116	5.00E-03	2.50E-02	3.00E-04	8.00E-03	3.06E-03	N	3.29E-03	mg/L
CHLOROFORM	25/116	2.00E-03	2.50E-02	6.00E-04	1.40E-01	7.29E-03	N	1.01E-02	mg/L
METHYLENE CHLORIDE	24/115	5.00E-04	2.50E-02	1.00E-03	3.40E+00	3.31E-02	N	8.21E-02	mg/L
PCB-1254	1/5	1.00E-03	1.10E-03	4.50E-04	4.50E-04	5.00E-04	N	4.50E-04	mg/L
TETRACHLOROETHENE	55/117	5.00E-03	2.00E-02	3.00E-04	1.60E+00	6.60E-02	N	1.01E-01	mg/L
TRANS-1,2-DICHLOROETHENE	28/31	5.00E-03	5.00E-03	6.00E-04	2.70E-01	7.99E-02	L	1.37E-01	mg/L
TRICHLOROETHENE	84/117	5.00E-03	1.00E-02	2.00E-03	2.00E+00	9.38E-02	N	1.29E-01	mg/L
VINYL CHLORIDE	30/117	1.00E-02	5.00E-02	2.00E-03	7.30E-02	8.34E-03	N	9.69E-03	mg/L
CESIUM-137	1/9	0.00E+00	7.40E+00	4.60E+00	4.60E+00	3.33E+00	N	4.60E+00	pCi/L
LEAD-212	1/6	9.30E-01	1.90E+01	1.60E+01	1.60E+01	1.02E+01	N	1.56E+01	pCi/L
NEPTUNIUM-237	1/3	0.00E+00	8.10E-02	2.40E-01	2.40E-01	1.07E-01	N	2.40E-01	pCi/L
POTASSIUM-40	1/6	5.20E+01	1.50E+02	1.70E+02	1.70E+02	1.10E+02	N	1.51E+02	pCi/L
TECHNETIUM-99	1/9	0.00E+00	1.40E+01	3.60E+01	3.60E+01	7.01E+00	N	1.46E+01	pCi/L
THORIUM-228	4/9	5.40E-02	9.80E-01	1.20E+00	1.90E+00	8.58E-01	N	1.29E+00	pCi/L
THORIUM-230	6/9	2.40E-01	6.80E-01	2.90E-01	2.60E+00	1.08E+00	L	2.14E+00	pCi/L
URANIUM-234	9/9			2.60E-01	1.30E+03	1.15E+03	L	1.30E+03	pCi/L
URANIUM-235	5/9	6.30E-02	2.60E-01	4.60E+00	5.30E+01	3.05E+00	L	2.89E+01	pCi/L
URANIUM-238	8/9	1.50E-01	1.50E-01	3.50E+00	1.80E+03	1.18E+02	L	7.21E+02	pCi/L

Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
MERCURY	5/5			9.00E-02	4.15E+01	9.85E+00	N	2.68E+01	mg/kg

Table F.18. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: SANITARY LANDFILL 1

Medium=SOIL (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZO(A)ANTHRACENE	3/5	3.90E-01	4.20E-01	1.30E-01	5.70E+00	1.30E+00	N	3.65E+00	mg/kg
BENZO(A)PYRENE	3/5	3.90E-01	4.20E-01	1.10E-01	4.20E+00	9.85E-01	N	2.70E+00	mg/kg
BENZO(B)FLUORANTHENE	3/5	3.90E-01	4.20E-01	1.10E-01	5.80E+00	1.31E+00	N	3.70E+00	mg/kg
DIBENZO(A,H)ANTHRACENE	1/5	3.90E-01	5.10E-01	1.00E+00	1.00E+00	3.73E-01	N	7.08E-01	mg/kg
INDENO(1,2,3-CD)PYRENE	3/5	3.90E-01	4.20E-01	6.70E-02	1.50E+00	4.12E-01	N	9.95E-01	mg/kg
PCB-1232	1/5	3.90E-02	4.90E-02	1.30E+00	1.30E+00	2.77E-01	N	8.22E-01	mg/kg
PCB-1254	2/5	3.90E-02	4.20E-02	7.50E-01	1.70E+00	5.02E-01	N	1.21E+00	mg/kg
PCB-1260	1/4	3.90E-02	4.90E-02	9.80E-02	9.80E-02	4.06E-02	N	8.57E-02	mg/kg
COBALT-60	1/5	0.00E+00	4.10E+00	1.30E+00	1.30E+00	1.08E+00	N	1.30E+00	pCi/g
URANIUM-235	4/5	9.80E-02	9.80E-02	5.30E-02	7.00E-01	2.25E-01	N	4.84E-01	pCi/g
URANIUM-238	5/5			1.10E+00	2.20E+01	7.34E+00	N	1.55E+01	pCi/g

Medium=SURFACE WATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	5/43	1.50E-03	2.60E-03	1.80E-03	5.60E-02	8.73E-05	L	8.16E-04	mg/L
BARIUM	52/52			3.25E-02	6.82E-01	2.16E-01	L	2.75E-01	mg/L
CADMIUM	5/8	2.00E-03	2.00E-03	2.10E-03	8.60E-03	3.50E-03	L	7.52E-03	mg/L
FLUORIDE	39/52	1.00E-01	1.00E-01	1.00E-01	2.60E+00	7.33E-01	L	1.16E+00	mg/L
NITRATE (AS N)	38/52	1.00E-01	1.00E-01	1.20E-01	2.39E+02	1.73E+01	L	4.93E+01	mg/L
TOTAL URANIUM	10/10			8.50E-02	3.24E-01	1.80E-01	L	2.24E-01	mg/L
STRONTIUM-90	3/13	5.30E-02	8.33E-01	1.01E+00	1.94E+00	6.74E-01	N	9.30E-01	pCi/L
TECHNETIUM-99	2/12	0.00E+00	2.46E+01	1.21E+02	2.90E+02	3.96E+01	N	8.41E+01	pCi/L
THORIUM-228	4/12	0.00E+00	2.02E-01	1.04E-01	3.10E-01	1.24E-01	N	1.80E-01	pCi/L
THORIUM-230	6/12	2.80E-02	1.01E-01	1.36E-01	1.95E+01	2.21E-01	L	1.01E+00	pCi/L
THORIUM-232	7/12	1.99E-02	7.89E-02	1.03E-01	1.79E+00	1.61E-01	L	3.61E-01	pCi/L
URANIUM-233/234	21/42	5.22E-02	8.33E-01	2.47E+01	4.55E+02	1.24E+01	L	5.62E+01	pCi/L
URANIUM-235	19/42	0.00E+00	1.78E-01	1.27E+00	2.74E+01	3.73E+00	N	5.26E+00	pCi/L
URANIUM-238	21/42	1.83E-02	8.79E-01	4.95E+01	9.96E+02	1.87E+01	L	1.11E+02	pCi/L

Table F.19. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: SANITARY LANDFILL 1

Medium=GROUNDWATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	57/66	2.00E-02	2.00E-02	2.30E-02	4.30E+01	9.39E-01	L	1.68E+00	mg/L
AMMONIA NITROGEN	1/3	2.43E-01	2.43E-01	3.53E+00	3.53E+00	1.26E+00	N	3.53E+00	mg/L
CHLORIDE	101/101			1.80E+00	2.12E+02	5.02E+01	L	6.04E+01	mg/L
COBALT	22/71	2.30E-03	5.00E-03	4.90E-03	1.40E-01	9.09E-03	N	1.30E-02	mg/L
COPPER	32/71	4.00E-03	1.96E-02	4.20E-03	1.21E-01	5.78E-03	L	9.29E-03	mg/L
KJELDAHL NITROGEN	3/3			2.66E+00	4.90E+00	3.89E+00	N	4.90E+00	mg/L
LEAD	53/99	4.00E-03	4.00E-03	1.20E-03	6.40E-01	8.79E-03	L	1.30E-02	mg/L
NIOBIUM	2/7	7.00E-03	7.00E-03	2.60E-02	2.90E-02	1.04E-02	N	1.90E-02	mg/L
SILICON	32/32			8.10E-01	2.40E+01	9.76E+00	L	1.20E+01	mg/L
SULFATE	102/102			1.00E+00	3.00E+02	3.50E+01	L	4.23E+01	mg/L
TITANIUM	3/7	3.00E-03	3.00E-03	4.80E-02	2.90E-01	1.01E-02	L	2.16E-01	mg/L
PHENANTHRENE	2/5	1.00E-02	1.10E-02	1.00E-03	1.00E-03	3.60E-03	N	1.00E-03	mg/L
PHENOLS	4/10	1.00E-03	1.00E-03	2.00E-03	6.00E-03	1.08E-03	L	4.04E-03	mg/L

Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COPPER	4/4			2.37E+01	2.52E+02	9.06E+01	N	2.18E+02	mg/kg
ACENAPHTHYLENE	1/5	3.90E-01	5.10E-01	4.90E-02	4.90E-02	1.83E-01	N	4.90E-02	mg/kg
BENZO(GHI)PERYLENE	3/5	3.90E-01	4.20E-01	5.40E-02	1.70E+00	4.49E-01	N	1.12E+00	mg/kg
DIBENZOFURAN	1/5	3.90E-01	5.10E-01	1.30E-01	1.30E-01	1.99E-01	N	1.30E-01	mg/kg
PHENANTHRENE	4/5	3.90E-01	3.90E-01	5.20E-02	4.90E+00	1.16E+00	N	3.16E+00	mg/kg

Medium=SURFACE WATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	46/52	2.70E-02	7.00E-01	3.40E-02	7.75E+00	8.44E-01	L	1.21E+00	mg/L
CHLORIDE	52/52			1.00E+00	8.10E+01	1.01E+01	L	1.45E+01	mg/L
COPPER	5/52	2.10E-03	2.20E-02	3.00E-03	1.20E-02	5.81E-04	L	2.07E-03	mg/L
LITHIUM	14/14			3.70E-03	1.75E-01	9.75E-02	L	1.75E-01	mg/L
SULFATE	41/52	5.00E+00	5.00E+00	5.40E+00	1.14E+02	3.97E+01	N	4.75E+01	mg/L

Table F.20. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: BONEYARD/BURNYARD

Medium=GROUNDWATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	71/71			5.60E-02	1.20E+00	2.99E-01	L	3.45E-01	mg/L
BERYLLIUM	17/71	3.00E-04	3.00E-04	3.00E-04	3.10E-03	3.44E-04	N	4.40E-04	mg/L
BORON	65/65			3.00E-02	3.00E+00	2.76E-01	L	3.55E-01	mg/L
CADMIUM	9/73	2.00E-03	2.00E-03	2.00E-03	3.00E-02	2.35E-03	N	3.29E-03	mg/L
CHROMIUM	33/95	1.00E-02	1.00E-02	1.00E-02	4.10E-01	2.17E-02	N	3.00E-02	mg/L
FLUORIDE	26/82	5.00E-02	1.00E-01	1.00E-01	4.00E+00	2.75E-01	N	4.00E-01	mg/L
MANGANESE	72/74	1.00E-03	1.00E-03	2.40E-03	1.60E+01	6.27E-01	L	1.09E+00	mg/L
MERCURY	9/71	2.00E-04	2.00E-04	3.00E-04	7.84E-02	1.28E-03	N	3.12E-03	mg/L
NICKEL	46/71	1.00E-02	1.00E-02	6.20E-03	1.90E-01	2.38E-02	L	3.21E-02	mg/L
NITRATE (AS N)	65/102	1.00E-01	2.00E-01	1.10E-01	1.05E+02	1.25E+00	L	2.16E+00	mg/L
TOTAL URANIUM	82/101	1.00E-03	1.00E-03	1.00E-03	5.22E-01	7.32E-03	L	1.06E-02	mg/L
VANADIUM	18/71	2.30E-03	8.10E-03	2.70E-03	4.90E-02	6.13E-03	N	7.87E-03	mg/L
ZINC	59/71	1.00E-03	5.34E-02	1.30E-03	1.20E+00	3.16E-02	L	4.86E-02	mg/L
1,1,1-TRICHLOROETHANE	69/117	5.00E-03	2.50E-02	6.00E-04	5.10E-01	9.74E-03	N	1.77E-02	mg/L
1,1-DICHLOROETHANE	82/116	5.00E-03	2.50E-02	2.00E-03	2.00E+00	3.92E-02	N	7.84E-02	mg/L
1,1-DICHLOROETHENE	77/117	5.00E-03	2.50E-02	1.00E-03	6.20E-01	1.73E-02	N	2.97E-02	mg/L
1,2-DICHLOROETHANE	13/116	5.00E-03	2.50E-02	5.00E-04	2.70E-02	4.16E-03	N	4.90E-03	mg/L
1,2-DICHLOROETHENE	56/85	5.00E-03	2.50E-02	7.00E-04	1.10E+00	2.00E-02	L	2.89E-02	mg/L
BENZENE	35/116	5.00E-03	2.50E-02	4.00E-04	5.30E-02	5.59E-03	N	6.91E-03	mg/L
CARBON TETRACHLORIDE	11/117	5.00E-03	1.00E-02	2.00E-03	9.00E-03	3.03E-03	N	3.26E-03	mg/L
CHLOROBENZENE	18/116	5.00E-03	2.50E-02	3.00E-04	8.00E-03	3.06E-03	N	3.29E-03	mg/L
CHLOROFORM	25/116	2.00E-03	2.50E-02	6.00E-04	1.40E-01	7.29E-03	N	1.01E-02	mg/L
METHYLENE CHLORIDE	24/115	5.00E-04	2.50E-02	1.00E-03	3.40E+00	3.31E-02	N	8.21E-02	mg/L
PCB-1254	1/5	1.00E-03	1.10E-03	4.50E-04	4.50E-04	5.00E-04	N	4.50E-04	mg/L
TETRACHLOROETHENE	55/117	5.00E-03	2.00E-02	3.00E-04	1.60E+00	6.60E-02	N	1.01E-01	mg/L
TRANS-1,2-DICHLOROETHENE	28/31	5.00E-03	5.00E-03	6.00E-04	2.70E-01	7.99E-02	L	1.37E-01	mg/L
TRICHLOROETHENE	84/117	5.00E-03	1.00E-02	2.00E-03	2.00E+00	9.38E-02	N	1.29E-01	mg/L
VINYL CHLORIDE	30/117	1.00E-02	5.00E-02	2.00E-03	7.30E-02	8.34E-03	N	9.69E-03	mg/L
CESIUM-137	1/9	0.00E+00	7.40E+00	4.60E+00	4.60E+00	3.33E+00	N	4.60E+00	pCi/L
LEAD-212	1/6	9.30E-01	1.90E+01	1.60E+01	1.60E+01	1.02E+01	N	1.56E+01	pCi/L
NEPTUNIUM-237	1/3	0.00E+00	8.10E-02	2.40E-01	2.40E-01	1.07E-01	N	2.40E-01	pCi/L
POTASSIUM-40	1/6	5.20E+01	1.50E+02	1.70E+02	1.70E+02	1.10E+02	N	1.51E+02	pCi/L
TECHNETIUM-99	1/9	0.00E+00	1.40E+01	3.60E+01	3.60E+01	7.01E+00	N	1.46E+01	pCi/L
THORIUM-228	4/9	5.40E-02	9.80E-01	1.20E+00	1.90E+00	8.58E-01	N	1.29E+00	pCi/L
THORIUM-230	6/9	2.40E-01	6.80E-01	2.90E-01	2.60E+00	1.08E+00	L	2.14E+00	pCi/L
URANIUM-234	9/9			2.60E-01	1.30E+03	1.15E+03	L	1.30E+03	pCi/L
URANIUM-235	5/9	6.30E-02	2.60E-01	4.60E+00	5.30E+01	3.05E+00	L	2.89E+01	pCi/L
URANIUM-238	8/9	1.50E-01	1.50E-01	3.50E+00	1.80E+03	1.18E+02	L	7.21E+02	pCi/L

Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ANTIMONY	12/12			2.70E-01	1.65E+03	3.47E+01	L	2.95E+02	mg/kg

Table F.20. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: BONEYARD/BURNYARD

Medium=SOIL (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	15/15			2.10E+00	3.25E+01	1.40E+01	L	2.16E+01	mg/kg
BARIUM	15/15			5.45E+01	1.10E+03	3.17E+02	L	4.53E+02	mg/kg
BERYLLIUM	14/15	5.40E-01	5.40E-01	6.00E-01	3.30E+00	1.29E+00	L	1.70E+00	mg/kg
CADMIUM	11/15	3.00E-01	3.30E-01	8.70E-01	3.23E+01	8.26E+00	L	2.75E+01	mg/kg
CHROMIUM	15/15			2.07E+01	1.40E+02	6.57E+01	N	8.10E+01	mg/kg
MANGANESE	15/15			4.16E+02	2.68E+03	1.22E+03	L	1.56E+03	mg/kg
MERCURY	15/15			2.40E+00	7.77E+01	3.17E+01	N	4.32E+01	mg/kg
MOLYBDENUM	3/11	5.20E-01	7.70E+00	3.60E+01	5.03E+01	5.12E-01	L	2.42E+01	mg/kg
NICKEL	15/15			6.90E+00	1.06E+04	5.17E+02	L	1.57E+03	mg/kg
SELENIUM	4/13	5.40E-01	2.40E+00	7.60E-01	1.32E+02	3.96E-01	L	3.67E+00	mg/kg
SILVER	14/15	1.50E+00	1.50E+00	6.20E-01	6.15E+01	2.14E+01	L	4.54E+01	mg/kg
ZINC	15/15			4.68E+01	4.38E+03	1.82E+03	L	4.38E+03	mg/kg
2,3,7,8-TCDD	2/3	2.56E-06	2.56E-06	9.10E-07	7.72E-06	3.30E-06	N	7.72E-06	mg/kg
BENZO(A)ANTHRACENE	14/14			9.20E-02	1.20E+02	1.92E+01	L	6.85E+01	mg/kg
BENZO(A)PYRENE	14/14			1.00E-01	7.60E+01	1.33E+01	L	4.60E+01	mg/kg
BENZO(B)FLUORANTHENE	14/14			1.20E-01	8.60E+01	1.69E+01	L	5.97E+01	mg/kg
BENZO(K)FLUORANTHENE	14/14			1.20E-01	8.00E+01	1.25E+01	L	3.97E+01	mg/kg
CHRYSENE	14/14			9.60E-02	1.20E+02	1.92E+01	L	6.86E+01	mg/kg
DIBENZO(A,H)ANTHRACENE	13/14	4.10E-01	4.10E-01	5.40E-02	1.20E+01	1.65E+00	L	3.37E+00	mg/kg
INDENO(1,2,3-CD)PYRENE	14/14			6.30E-02	3.10E+01	6.41E+00	L	2.17E+01	mg/kg
PCB-1254	11/11			1.90E-01	5.80E+00	1.83E+00	L	3.48E+00	mg/kg
PCB-1260	3/10	3.60E-02	4.20E-02	3.60E-01	1.60E+00	2.45E-02	L	5.29E-01	mg/kg
URANIUM-234	17/17			1.40E+00	2.60E+02	1.40E+02	L	2.60E+02	pCi/g
URANIUM-235	15/17	7.60E-01	8.90E-01	8.50E-02	1.70E+01	4.47E+00	L	8.62E+00	pCi/g
URANIUM-238	17/17			1.80E+00	8.80E+02	1.84E+02	L	5.27E+02	pCi/g

Medium=SOIL (hot spot)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHROMIUM	1/1			8.35E+01	8.35E+01	8.35E+01	NT	8.35E+01	mg/kg
SILVER	1/1			1.08E+02	1.08E+02	1.08E+02	NT	1.08E+02	mg/kg
URANIUM-235	1/1			7.36E+02	7.36E+02	7.36E+02	NT	7.36E+02	pCi/g
URANIUM-238	1/1			4.76E+04	4.76E+04	4.76E+04	NT	4.76E+04	pCi/g

Medium=SURFACE WATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	5/43	1.50E-03	2.60E-03	1.80E-03	5.60E-02	8.73E-05	L	8.16E-04	mg/L

Table F.20. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: BONEYARD/BURNYARD

Medium=SURFACE WATER
(continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	52/52			3.25E-02	6.82E-01	2.16E-01	L	2.75E-01	mg/L
CADMIUM	5/8	2.00E-03	2.00E-03	2.10E-03	8.60E-03	3.50E-03	L	7.52E-03	mg/L
FLUORIDE	39/52	1.00E-01	1.00E-01	1.00E-01	2.60E+00	7.33E-01	L	1.16E+00	mg/L
NITRATE (AS N)	38/52	1.00E-01	1.00E-01	1.20E-01	2.39E+02	1.73E+01	L	4.93E+01	mg/L
TOTAL URANIUM	10/10			8.50E-02	3.24E-01	1.80E-01	L	2.24E-01	mg/L
STRONTIUM-90	3/13	5.30E-02	8.33E-01	1.01E+00	1.94E+00	6.74E-01	N	9.30E-01	pCi/L
TECHNETIUM-99	2/12	0.00E+00	2.46E+01	1.21E+02	2.90E+02	3.96E+01	N	8.41E+01	pCi/L
THORIUM-228	4/12	0.00E+00	2.02E-01	1.04E-01	3.10E-01	1.24E-01	N	1.80E-01	pCi/L
THORIUM-230	6/12	2.80E-02	1.01E-01	1.36E-01	1.95E+01	2.21E-01	L	1.01E+00	pCi/L
THORIUM-232	7/12	1.99E-02	7.89E-02	1.03E-01	1.79E+00	1.61E-01	L	3.61E-01	pCi/L
URANIUM-233/234	21/42	5.22E-02	8.33E-01	2.47E+01	4.55E+02	1.24E+01	L	5.62E+01	pCi/L
URANIUM-235	19/42	0.00E+00	1.78E-01	1.27E+00	2.74E+01	3.73E+00	N	5.26E+00	pCi/L
URANIUM-238	21/42	1.83E-02	8.79E-01	4.95E+01	9.96E+02	1.87E+01	L	1.11E+02	pCi/L

Table F.21. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: BONEYARD/BURNYARD

Medium=GROUNDWATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	57/66	2.00E-02	2.00E-02	2.30E-02	4.30E+01	9.39E-01	L	1.68E+00	mg/L
AMMONIA NITROGEN	1/3	2.43E-01	2.43E-01	3.53E+00	3.53E+00	1.26E+00	N	3.53E+00	mg/L
CHLORIDE	101/101			1.80E+00	2.12E+02	5.02E+01	L	6.04E+01	mg/L
COBALT	22/71	2.30E-03	5.00E-03	4.90E-03	1.40E-01	9.09E-03	N	1.30E-02	mg/L
COPPER	32/71	4.00E-03	1.96E-02	4.20E-03	1.21E-01	5.78E-03	L	9.29E-03	mg/L
KJELDAHL NITROGEN	3/3			2.66E+00	4.90E+00	3.89E+00	N	4.90E+00	mg/L
LEAD	53/99	4.00E-03	4.00E-03	1.20E-03	6.40E-01	8.79E-03	L	1.30E-02	mg/L
NIOBIUM	2/7	7.00E-03	7.00E-03	2.60E-02	2.90E-02	1.04E-02	N	1.90E-02	mg/L
SILICON	32/32			8.10E-01	2.40E+01	9.76E+00	L	1.20E+01	mg/L
SULFATE	102/102			1.00E+00	3.00E+02	3.50E+01	L	4.23E+01	mg/L
TITANIUM	3/7	3.00E-03	3.00E-03	4.80E-02	2.90E-01	1.01E-02	L	2.16E-01	mg/L
PHENANTHRENE	2/5	1.00E-02	1.10E-02	1.00E-03	1.00E-03	3.60E-03	N	1.00E-03	mg/L
PHENOLS	4/10	1.00E-03	1.00E-03	2.00E-03	6.00E-03	1.08E-03	L	4.04E-03	mg/L

Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COBALT	15/15			1.04E+01	1.31E+02	2.63E+01	L	3.51E+01	mg/kg
COPPER	15/15			1.82E+01	6.22E+03	6.30E+03	L	6.22E+03	mg/kg
LEAD	15/15			1.62E+01	1.87E+03	1.12E+03	L	1.87E+03	mg/kg
THALLIUM	1/15	3.70E-01	4.50E-01	8.70E-01	8.70E-01	2.43E-01	L	2.87E-01	mg/kg
2-METHYLNAPHTHALENE	10/14	3.60E-01	4.20E-01	5.30E-02	2.60E+00	2.54E-01	L	4.27E-01	mg/kg
ACENAPHTHYLENE	8/12	4.00E-01	4.20E-01	5.30E-02	4.90E-01	1.50E-01	L	2.18E-01	mg/kg
BENZO(GHI)PERYLENE	14/14			5.80E-02	3.00E+01	6.16E+00	L	2.00E+01	mg/kg
DIBENZOFURAN	13/14	4.10E-01	4.10E-01	6.80E-02	1.00E+01	6.97E-01	L	1.34E+00	mg/kg
PHENANTHRENE	14/14			1.20E-01	1.80E+02	2.41E+01	L	8.24E+01	mg/kg

Medium=SOIL (hot spot)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			1.98E+04	1.98E+04	1.98E+04	NT	1.98E+04	mg/kg
CALCIUM	1/1			2.90E+04	2.90E+04	2.90E+04	NT	2.90E+04	mg/kg
COPPER	1/1			7.05E+02	7.05E+02	7.05E+02	NT	7.05E+02	mg/kg
IRON	1/1			4.68E+04	4.68E+04	4.68E+04	NT	4.68E+04	mg/kg
LEAD	1/1			7.05E+02	7.05E+02	7.05E+02	NT	7.05E+02	mg/kg
MAGNESIUM	1/1			7.24E+03	7.24E+03	7.24E+03	NT	7.24E+03	mg/kg
POTASSIUM	1/1			7.48E+03	7.48E+03	7.48E+03	NT	7.48E+03	mg/kg
SODIUM	1/1			1.94E+03	1.94E+03	1.94E+03	NT	1.94E+03	mg/kg

Table F.21. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: BONEYARD/BURNYARD

Medium=SURFACE WATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	46/52	2.70E-02	7.00E-01	3.40E-02	7.75E+00	8.44E-01	L	1.21E+00	mg/L
CHLORIDE	52/52			1.00E+00	8.10E+01	1.01E+01	L	1.45E+01	mg/L
COPPER	5/52	2.10E-03	2.20E-02	3.00E-03	1.20E-02	5.81E-04	L	2.07E-03	mg/L
LITHIUM	14/14			3.70E-03	1.75E-01	9.75E-02	L	1.75E-01	mg/L
SULFATE	41/52	5.00E+00	5.00E+00	5.40E+00	1.14E+02	3.97E+01	N	4.75E+01	mg/L

Table F.22. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: BURIAL GROUNDS

Location=13 - ALL BG AREAS (water) Medium=GROUNDWATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	97/97			1.40E-02	1.20E+00	2.41E-01	L	2.83E-01	mg/L
BERYLLIUM	14/96	3.00E-04	1.30E-03	3.60E-04	2.70E-03	2.74E-04	N	3.45E-04	mg/L
BORON	69/78	3.00E-03	4.00E-03	4.00E-03	3.10E+01	1.36E-01	L	2.21E-01	mg/L
CADMIUM	24/126	2.00E-03	2.00E-03	2.00E-03	5.20E-02	2.79E-03	N	3.74E-03	mg/L
CHROMIUM	48/127	1.00E-02	5.00E-02	1.00E-02	4.40E-01	2.67E-02	N	3.48E-02	mg/L
FLUORIDE	67/103	5.00E-02	1.00E-01	5.00E-02	7.60E+00	8.22E-01	N	1.14E+00	mg/L
MANGANESE	97/103	1.00E-03	1.00E-03	1.20E-03	1.90E+01	2.25E-01	L	3.55E-01	mg/L
NICKEL	41/97	1.00E-02	1.00E-02	9.80E-03	4.60E-01	2.11E-02	N	2.93E-02	mg/L
VANADIUM	22/97	4.00E-03	5.00E-03	3.90E-03	4.46E-02	5.26E-03	N	6.54E-03	mg/L
1,1,1-TRICHLOROETHANE	82/146	2.00E-03	2.50E-02	4.00E-04	1.30E+01	3.80E-01	N	5.68E-01	mg/L
1,1,2-TRICHLOROETHANE	15/135	5.00E-03	2.50E-02	2.00E-03	3.00E-01	1.63E-02	N	2.27E-02	mg/L
1,1-DICHLOROETHANE	97/146	5.00E-03	2.50E-02	7.00E-04	7.80E+00	4.85E-01	N	6.46E-01	mg/L
1,1-DICHLOROETHENE	71/145	5.00E-03	2.50E-02	8.00E-04	1.30E+01	3.47E-01	N	5.41E-01	mg/L
1,2-DICHLOROETHANE	51/136	5.00E-03	2.50E-02	8.00E-04	3.00E-01	1.37E-02	N	1.85E-02	mg/L
1,2-DICHLOROETHENE	74/105	5.00E-03	2.50E-02	5.00E-03	5.40E+00	9.02E-02	L	1.47E-01	mg/L
2-BUTANONE	20/136	1.00E-02	5.00E-02	3.00E-03	3.60E+00	6.79E-02	N	1.20E-01	mg/L
4-METHYL-2-PENTANONE	13/138	3.00E-03	5.00E-02	1.00E-03	3.20E-01	1.03E-02	N	1.45E-02	mg/L
ACETONE	27/135	2.00E-03	5.00E-02	1.00E-03	8.50E-01	1.96E-02	N	3.03E-02	mg/L
BENZENE	57/137	5.00E-03	2.50E-02	6.00E-04	1.00E+00	3.00E-02	N	4.38E-02	mg/L
CHLOROFORM	41/138	2.00E-03	2.50E-02	8.00E-04	1.70E+00	1.89E-02	N	3.92E-02	mg/L
METHYLENE CHLORIDE	52/136	7.00E-04	2.50E-02	7.00E-04	4.90E-01	1.84E-02	N	2.63E-02	mg/L
TETRACHLOROETHENE	102/147	5.00E-03	1.00E-02	7.00E-04	6.30E+01	2.09E+00	N	3.15E+00	mg/L
TOLUENE	36/136	1.00E-03	2.50E-02	3.00E-04	6.70E-01	1.23E-02	N	2.09E-02	mg/L
TRANS-1,2-DICHLOROETHENE	36/38	5.00E-03	5.00E-03	7.00E-03	5.00E+01	1.99E+00	L	4.24E+00	mg/L
TRICHLOROETHENE	109/147	5.00E-03	1.00E-02	1.00E-03	2.40E+01	1.16E+00	N	1.66E+00	mg/L
TRICHLOROFLUOROMETHANE	2/6	1.00E-02	1.00E-02	1.20E-01	1.60E+00	2.90E-01	N	8.19E-01	mg/L
VINYL CHLORIDE	83/143	1.00E-02	5.00E-02	1.00E-03	3.40E+00	1.96E-01	N	2.71E-01	mg/L
CESIUM-137	2/12	0.00E+00	8.30E+00	8.70E+00	1.10E+01	3.89E+00	N	5.77E+00	pCi/L
POTASSIUM-40	1/6	3.00E+01	1.10E+02	1.60E+02	1.60E+02	8.88E+01	N	1.29E+02	pCi/L
THORIUM-228	7/12	1.10E-01	5.50E-01	3.80E-01	2.00E+00	8.43E-01	N	1.20E+00	pCi/L
TRITIUM	1/6	3.00E+01	2.10E+02	6.20E+02	6.20E+02	2.02E+02	N	3.77E+02	pCi/L
URANIUM-234	7/12	2.80E-01	9.40E-01	1.50E-01	1.70E+00	5.96E-01	L	9.70E-01	pCi/L
URANIUM-238	6/12	0.00E+00	8.50E-01	4.60E-01	1.60E+00	6.59E-01	N	9.31E-01	pCi/L

Location=13 - ALL BG AREAS (water) Medium=SURFACE WATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM	6/35	3.00E-04	6.10E-04	3.80E-04	8.60E-03	5.05E-05	L	2.28E-04	mg/L
FLUORIDE	27/35	5.00E-02	1.00E-01	1.00E-01	8.70E-01	1.66E-01	L	2.12E-01	mg/L
NITRATE (AS N)	30/35	1.00E-01	1.00E-01	1.10E-01	1.91E+01	1.05E+00	L	1.75E+00	mg/L
VANADIUM	10/35	2.10E-03	1.86E-02	4.00E-03	6.98E-02	1.14E-03	L	4.55E-03	mg/L
1,1,2-TRICHLOROETHANE	5/34	5.00E-03	1.00E-02	1.00E-03	2.00E-03	2.41E-03	N	2.00E-03	mg/L
1,1-DICHLOROETHENE	31/34	5.00E-03	5.00E-03	2.00E-03	1.60E-02	7.57E-03	N	8.72E-03	mg/L

Table F.22. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: BURIAL GROUNDS

Location=13 - ALL BG AREAS (water) Medium=SURFACE WATER (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,2-DICHLOROETHANE	13/27	5.00E-03	1.00E-02	1.00E-03	4.00E-03	2.69E-03	N	2.95E-03	mg/L
1,2-DICHLOROETHENE	33/34	5.00E-03	5.00E-03	4.00E-03	4.10E-01	1.83E-01	N	2.11E-01	mg/L
BENZENE	7/34	5.00E-03	1.00E-02	1.00E-03	3.00E-03	2.38E-03	N	2.58E-03	mg/L
CHLOROFORM	31/34	5.00E-03	5.00E-03	1.00E-03	8.00E-03	3.69E-03	L	4.39E-03	mg/L
TETRACHLOROETHENE	32/34	5.00E-03	5.00E-03	1.60E-02	1.20E-01	5.21E-02	N	6.17E-02	mg/L
TRICHLOROETHENE	32/34	5.00E-03	5.00E-03	8.00E-03	8.20E-02	3.69E-02	L	4.84E-02	mg/L
VINYL CHLORIDE	32/34	1.00E-02	1.00E-02	3.00E-03	3.30E-02	1.40E-02	L	1.70E-02	mg/L
PLUTONIUM-238	1/6	0.00E+00	1.70E-02	2.23E-01	2.23E-01	4.33E-02	N	1.16E-01	pCi/L
POTASSIUM-40	1/2	3.40E+01	3.40E+01	1.30E+02	1.30E+02	8.20E+01	N	1.30E+02	pCi/L
THORIUM-228	3/8	0.00E+00	2.10E-01	1.57E-01	4.80E-01	1.73E-01	N	3.09E-01	pCi/L
URANIUM-233/234	35/35			2.22E+00	5.60E+01	1.07E+01	L	1.34E+01	pCi/L
URANIUM-235	7/35	8.88E-03	8.11E-01	1.07E+00	6.20E+00	7.27E-02	L	3.52E-01	pCi/L
URANIUM-238	35/35			3.62E+00	4.40E+02	2.74E+01	L	3.77E+01	pCi/L

Location=A-16 Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PCB-1248	1/2	5.80E-02	5.80E-02	4.00E-01	4.00E-01	2.15E-01	N	4.00E-01	mg/kg
PCB-1254	2/2			4.30E-02	3.70E-01	2.07E-01	N	3.70E-01	mg/kg
THALLIUM-208	1/2	9.00E+00	9.00E+00	3.70E+00	3.70E+00	6.35E+00	N	3.70E+00	pCi/g

Location=A-16 Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TOTAL URANIUM					6.10E+02			6.10E+02	mg/kg
URANIUM-234 (calc.)					2.07E+02			2.07E+02	pCi/g
URANIUM-235 (calc.)					9.40E+00			9.40E+00	pCi/g
URANIUM-238 (calc.)					2.02E+02			2.02E+02	pCi/g

Location=A-17 Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PCB-1248	1/2	5.80E-02	5.80E-02	4.00E-01	4.00E-01	2.15E-01	N	4.00E-01	mg/kg
PCB-1254	2/2			4.30E-02	3.70E-01	2.07E-01	N	3.70E-01	mg/kg

Table F.22. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: BURIAL GROUNDS

Location=A-17 Medium=SOIL (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
THALLIUM-208	1/2	9.00E+00	9.00E+00	3.70E+00	3.70E+00	6.35E+00	N	3.70E+00	pCi/g

Location=A-17 Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TOTAL URANIUM					6.10E+02			6.10E+02	mg/kg
URANIUM-234 (calc.)					2.07E+02			2.07E+02	pCi/g
URANIUM-235 (calc.)					9.40E+00			9.40E+00	pCi/g
URANIUM-238 (calc.)					2.02E+02			2.02E+02	pCi/g

Location=A-18 Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PCB-1248	1/2	5.80E-02	5.80E-02	4.00E-01	4.00E-01	2.15E-01	N	4.00E-01	mg/kg
PCB-1254	2/2			4.30E-02	3.70E-01	2.07E-01	N	3.70E-01	mg/kg
THALLIUM-208	1/2	9.00E+00	9.00E+00	3.70E+00	3.70E+00	6.35E+00	N	3.70E+00	pCi/g

Location=A-18 Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TOTAL URANIUM					6.10E+02			6.10E+02	mg/kg
URANIUM-234 (calc.)					2.07E+02			2.07E+02	pCi/g
URANIUM-235 (calc.)					9.40E+00			9.40E+00	pCi/g
URANIUM-238 (calc.)					2.02E+02			2.02E+02	pCi/g

Location=A-NORTH Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
VINYL CHLORIDE	1/9	1.10E-02	1.30E-02	6.00E-03	6.00E-03	6.11E-03	N	6.00E-03	mg/kg

Table F.22. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: BURIAL GROUNDS

Location=A-NORTH Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM					3.00E-01			3.00E-01	mg/kg
TOTAL URANIUM					1.10E+04			1.10E+04	mg/kg
POLYCHLORINATED BIPHENYL					1.30E+03			1.30E+03	mg/kg
URANIUM-234 (calc.)					3.73E+03			3.73E+03	pCi/g
URANIUM-235 (calc.)					1.70E+02			1.70E+02	pCi/g
URANIUM-238 (calc.)					3.64E+03			3.64E+03	pCi/g

Location=A-SOUTH Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
URANIUM-238	7/7			7.50E-02	3.90E+00	5.40E-01	L	1.57E+00	pCi/g

Location=A-SOUTH Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM					1.20E+00			1.20E+00	mg/kg
TOTAL URANIUM					1.50E+04			1.50E+04	mg/kg
1,1,1-TRICHLOROETHANE					9.60E+02			9.60E+02	mg/kg
BENZENE					1.40E+02			1.40E+02	mg/kg
FREON					4.80E+02			4.80E+02	mg/kg
POLYCHLORINATED BIPHENYL					2.10E+01			2.10E+01	mg/kg
TETRACHLOROETHENE					8.90E+02			8.90E+02	mg/kg
TRICHLOROETHENE					8.50E+01			8.50E+01	mg/kg
URANIUM-234 (calc.)					5.09E+03			5.09E+03	pCi/g
URANIUM-235 (calc.)					2.31E+02			2.31E+02	pCi/g
URANIUM-238 (calc.)					4.96E+03			4.96E+03	pCi/g

Location=B Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	4/4			1.10E+00	3.23E+01	9.88E+00	N	2.75E+01	mg/kg
PCB-1254	2/4	3.80E-02	4.00E-02	5.20E-02	1.00E+01	2.52E+00	N	8.39E+00	mg/kg
PCB-1260	1/4	3.80E-02	4.00E-02	3.60E+01	3.60E+01	9.01E+00	N	3.02E+01	mg/kg
URANIUM-238	4/4			1.30E-01	1.10E+01	2.90E+00	N	9.26E+00	pCi/g

Table F.22. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: BURIAL GROUNDS

Location=B Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TOTAL URANIUM					3.00E+05			3.00E+05	mg/kg
THORIUM-232 (calc.)					4.47E+01			4.47E+01	pCi/g
URANIUM-234 (calc.)					1.02E+05			1.02E+05	pCi/g
URANIUM-235 (calc.)					4.63E+03			4.63E+03	pCi/g
URANIUM-238 (calc.)					9.92E+04			9.92E+04	pCi/g

Location=C-EAST Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	2/2			5.30E+00	3.94E+01	2.24E+01	N	3.94E+01	mg/kg
BERYLLIUM	2/2			7.30E-01	4.80E+00	2.77E+00	N	4.80E+00	mg/kg
VANADIUM	2/2			2.12E+01	6.88E+01	4.50E+01	N	6.88E+01	mg/kg
URANIUM-238	2/2			8.00E+00	3.60E+01	2.20E+01	N	3.60E+01	pCi/g

Location=C-EAST Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM					1.10E+03			1.10E+03	mg/kg
TOTAL URANIUM					2.10E+04			2.10E+04	mg/kg
THORIUM-232 (calc.)					5.78E+02			5.78E+02	pCi/g
URANIUM-234 (calc.)					7.13E+03			7.13E+03	pCi/g
URANIUM-235 (calc.)					3.24E+02			3.24E+02	pCi/g
URANIUM-238 (calc.)					6.94E+03			6.94E+03	pCi/g

Location=C-WEST Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	10/10			6.40E-01	4.23E+01	9.31E+00	L	2.48E+01	mg/kg
NICKEL	10/10			5.20E+00	2.06E+02	3.74E+01	L	6.87E+01	mg/kg
PCB-1254	1/9	3.80E-02	4.50E-02	6.70E-01	6.70E-01	5.95E-02	L	1.33E-01	mg/kg
PCB-1260	1/9	3.80E-02	4.50E-02	2.30E+00	2.30E+00	1.20E-01	L	4.20E-01	mg/kg
COBALT-60	1/10	0.00E+00	4.60E+00	1.20E+00	1.20E+00	1.67E+00	N	1.20E+00	pCi/g
URANIUM-238	10/10			8.40E-02	2.30E+01	3.00E+00	L	1.46E+01	pCi/g

Table F.22. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: BURIAL GROUNDS

Location=C-WEST Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM					1.10E+03			1.10E+03	mg/kg
TOTAL URANIUM					2.20E+04			2.20E+04	mg/kg
THORIUM-232 (calc.)					3.38E+02			3.38E+02	pCi/g
URANIUM-234 (calc.)					7.47E+03			7.47E+03	pCi/g
URANIUM-235 (calc.)					3.39E+02			3.39E+02	pCi/g
URANIUM-238 (calc.)					7.27E+03			7.27E+03	pCi/g

Location=D-EAST Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	2/2			5.30E+00	3.94E+01	2.24E+01	N	3.94E+01	mg/kg
BERYLLIUM	2/2			7.30E-01	4.80E+00	2.77E+00	N	4.80E+00	mg/kg
VANADIUM	2/2			2.12E+01	6.88E+01	4.50E+01	N	6.88E+01	mg/kg
URANIUM-238	2/2			8.00E+00	3.60E+01	2.20E+01	N	3.60E+01	pCi/g

Location=D-EAST Medium=SOIL (hot spot)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM	1/1			5.90E-01	5.90E-01	5.90E-01	NT	5.90E-01	mg/kg
URANIUM-234	1/1			1.54E+05	1.54E+05	1.54E+05	NT	1.54E+05	pCi/g
URANIUM-235	1/1			2.56E+03	2.56E+03	2.56E+03	NT	2.56E+03	pCi/g
URANIUM-238	1/1			2.09E+05	2.09E+05	2.09E+05	NT	2.09E+05	pCi/g

Location=D-EAST Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TOTAL URANIUM					2.40E+05			2.40E+05	mg/kg
URANIUM-234 (calc.)					8.14E+04			8.14E+04	pCi/g
URANIUM-235 (calc.)					3.70E+03			3.70E+03	pCi/g
URANIUM-238 (calc.)					7.93E+04			7.93E+04	pCi/g

Table F.22. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: BURIAL GROUNDS

Location=D-SOUTH Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	4/4			1.10E+00	3.23E+01	9.88E+00	N	2.75E+01	mg/kg
PCB-1254	2/4	3.80E-02	4.00E-02	5.20E-02	1.00E+01	2.52E+00	N	8.39E+00	mg/kg
PCB-1260	1/4	3.80E-02	4.00E-02	3.60E+01	3.60E+01	9.01E+00	N	3.02E+01	mg/kg
URANIUM-238	4/4			1.30E-01	1.10E+01	2.90E+00	N	9.26E+00	pCi/g

Location=D-SOUTH Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TOTAL URANIUM					2.40E+05			2.40E+05	mg/kg
URANIUM-234 (calc.)					8.14E+04			8.14E+04	pCi/g
URANIUM-235 (calc.)					3.70E+03			3.70E+03	pCi/g
URANIUM-238 (calc.)					7.93E+04			7.93E+04	pCi/g

Location=D-WEST,E,J Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TOTAL URANIUM					2.60E+05			2.60E+05	mg/kg
URANIUM-234 (calc.)					8.82E+04			8.82E+04	pCi/g
URANIUM-235 (calc.)					4.01E+03			4.01E+03	pCi/g
URANIUM-238 (calc.)					8.60E+04			8.60E+04	pCi/g

Location=SEEP C-WEST TOE (Mid. MH) Medium=LEACHATE

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	2/2			3.80E-01	5.24E-01	4.52E-01	N	5.24E-01	mg/L
BERYLLIUM	1/2	2.00E-02	2.00E-02	3.00E-03	3.00E-03	6.50E-03	N	3.00E-03	mg/L
BORON	2/2			5.60E+01	6.33E+01	5.97E+01	N	6.33E+01	mg/L
MANGANESE	2/2			8.83E+00	1.01E+01	9.47E+00	N	1.01E+01	mg/L
MOLYBDENUM	1/2	3.00E-01	3.00E-01	3.00E-02	3.00E-02	9.00E-02	N	3.00E-02	mg/L
TOTAL URANIUM	2/2			3.40E-02	4.40E-02	3.90E-02	N	4.40E-02	mg/L
1,1-DICHLOROETHANE	2/2			6.80E-02	1.30E-01	9.90E-02	N	1.30E-01	mg/L
1,1-DICHLOROETHENE	1/2	1.00E-02	1.00E-02	8.00E-03	8.00E-03	6.50E-03	N	8.00E-03	mg/L
1,2-DICHLOROETHANE	2/2			2.00E-03	7.00E-03	4.50E-03	N	7.00E-03	mg/L
1,4-DICHLOROBENZENE	2/2			1.10E-02	1.40E-02	1.25E-02	N	1.40E-02	mg/L
1,4-DIOXANE	1/1			1.90E-01	1.90E-01	1.90E-01	NT	1.90E-01	mg/L

Table F.22. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: BURIAL GROUNDS

Location=SEEP C-WEST TOE (Mid. MH) Medium=LEACHATE (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
2,4-DIMETHYLPHENOL	1/1			5.20E-02	5.20E-02	5.20E-02	NT	5.20E-02	mg/L
BENZENE	2/2			3.00E-03	3.90E-02	2.10E-02	N	3.90E-02	mg/L
BIS(2-ETHYLHEXYL)PHTHALATE	1/1			7.00E-03	7.00E-03	7.00E-03	NT	7.00E-03	mg/L
CIS-1,2-DICHLOROETHENE	2/2			2.80E-02	1.90E-01	1.09E-01	N	1.90E-01	mg/L
METHYLENE CHLORIDE	2/2			8.00E-03	4.70E-02	2.75E-02	N	4.70E-02	mg/L
POLYCHLORINATED BIPHENYL	2/2			4.90E-03	1.80E-02	1.15E-02	N	1.80E-02	mg/L
TETRACHLOROETHENE	1/2	1.00E-02	1.00E-02	8.00E-03	8.00E-03	6.50E-03	N	8.00E-03	mg/L
TRICHLOROETHENE	1/2	1.00E-02	1.00E-02	2.30E-02	2.30E-02	1.40E-02	N	2.30E-02	mg/L
VINYL CHLORIDE	2/2			9.00E-03	5.60E-02	3.25E-02	N	5.60E-02	mg/L
NEPTUNIUM-237	1/1			5.20E-01	5.20E-01	5.20E-01	NT	5.20E-01	pCi/L
RADIUM (TOTAL ALPHA)	1/1			6.50E-01	6.50E-01	6.50E-01	NT	6.50E-01	pCi/L
TRITIUM	1/1			2.40E+03	2.40E+03	2.40E+03	NT	2.40E+03	pCi/L
URANIUM-234	1/1			3.90E+00	3.90E+00	3.90E+00	NT	3.90E+00	pCi/L
URANIUM-238	1/1			6.10E+00	6.10E+00	6.10E+00	NT	6.10E+00	pCi/L

Location=SEEP1 Medium=LEACHATE

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1,2-TRICHLOROETHANE	1/1			3.00E-03	3.00E-03	3.00E-03	NT	3.00E-03	mg/L
1,1-DICHLOROETHANE	1/1			4.00E-01	4.00E-01	4.00E-01	NT	4.00E-01	mg/L
1,1-DICHLOROETHENE	1/1			1.30E-02	1.30E-02	1.30E-02	NT	1.30E-02	mg/L
1,2-DICHLOROETHANE	1/1			7.00E-03	7.00E-03	7.00E-03	NT	7.00E-03	mg/L
2,4-DIMETHYLPHENOL	1/1			2.10E-01	2.10E-01	2.10E-01	NT	2.10E-01	mg/L
2,4-DINITROTOLUENE	1/1			1.00E-03	1.00E-03	1.00E-03	NT	1.00E-03	mg/L
2,6-DINITROTOLUENE	1/1			2.00E-03	2.00E-03	2.00E-03	NT	2.00E-03	mg/L
BENZENE	1/1			1.90E-02	1.90E-02	1.90E-02	NT	1.90E-02	mg/L
BENZIDINE	1/1			5.00E-03	5.00E-03	5.00E-03	NT	5.00E-03	mg/L
BIS(2-ETHYLHEXYL)PHTHALATE	1/1			3.30E-02	3.30E-02	3.30E-02	NT	3.30E-02	mg/L
CHLOROFORM	1/1			4.00E-03	4.00E-03	4.00E-03	NT	4.00E-03	mg/L
CIS-1,2-DICHLOROETHENE	1/1			4.90E+00	4.90E+00	4.90E+00	NT	4.90E+00	mg/L
DI-N-OCTYLPHTHALATE	1/1			4.00E-03	4.00E-03	4.00E-03	NT	4.00E-03	mg/L
DIBROMOCHLOROMETHANE	1/1			4.00E-03	4.00E-03	4.00E-03	NT	4.00E-03	mg/L
PENTACHLOROPHENOL	1/1			6.00E-03	6.00E-03	6.00E-03	NT	6.00E-03	mg/L
POLYCHLORINATED BIPHENYL	1/1			3.20E-01	3.20E-01	3.20E-01	NT	3.20E-01	mg/L
TRICHLOROETHENE	1/1			2.00E-03	2.00E-03	2.00E-03	NT	2.00E-03	mg/L
VINYL CHLORIDE	1/1			9.90E-01	9.90E-01	9.90E-01	NT	9.90E-01	mg/L
CESIUM-137	1/1			6.10E+00	6.10E+00	6.10E+00	NT	6.10E+00	pCi/L
NEPTUNIUM-237	1/1			7.50E-01	7.50E-01	7.50E-01	NT	7.50E-01	pCi/L
URANIUM-234	1/1			6.30E+00	6.30E+00	6.30E+00	NT	6.30E+00	pCi/L
URANIUM-238	1/1			4.70E+00	4.70E+00	4.70E+00	NT	4.70E+00	pCi/L

Table F.22. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: BURIAL GROUNDS

Location=SEEP2 (S. Manhole) Medium=LEACHATE

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	1/2	2.00E+00	2.00E+00	8.00E-01	8.00E-01	9.00E-01	N	8.00E-01	mg/L
BARIUM	2/2			1.10E-01	2.89E+00	1.50E+00	N	2.89E+00	mg/L
BERYLLIUM	1/2	2.00E-02	2.00E-02	1.11E+00	1.11E+00	5.60E-01	N	1.11E+00	mg/L
BORON	2/2			1.21E+01	1.75E+01	1.48E+01	N	1.75E+01	mg/L
CHROMIUM	1/2	3.00E-01	3.00E-01	2.80E-01	2.80E-01	2.15E-01	N	2.80E-01	mg/L
MANGANESE	2/2			2.70E-01	1.87E+01	9.49E+00	N	1.87E+01	mg/L
MOLYBDENUM	1/2	3.00E-01	3.00E-01	7.00E-02	7.00E-02	1.10E-01	N	7.00E-02	mg/L
NICKEL	1/2	4.00E-01	4.00E-01	3.60E-01	3.60E-01	2.80E-01	N	3.60E-01	mg/L
TOTAL URANIUM	2/2			1.45E+00	1.49E+00	1.47E+00	N	1.49E+00	mg/L
VANADIUM	1/2	2.00E-01	2.00E-01	8.90E-01	8.90E-01	4.95E-01	N	8.90E-01	mg/L
ZINC	1/2	5.00E-01	5.00E-01	3.20E+00	3.20E+00	1.73E+00	N	3.20E+00	mg/L
1,1-DICHLOROETHANE	2/2			3.10E-02	8.10E-02	5.60E-02	N	8.10E-02	mg/L
1,2-DICHLOROETHANE	2/2			1.00E-03	2.00E-03	1.50E-03	N	2.00E-03	mg/L
1,4-DIOXANE	1/1			1.80E-01	1.80E-01	1.80E-01	NT	1.80E-01	mg/L
BENZENE	1/2	1.00E-02	1.00E-02	4.00E-03	4.00E-03	4.50E-03	N	4.00E-03	mg/L
METHYLENE CHLORIDE	2/2			2.00E-02	5.60E-02	3.80E-02	N	5.60E-02	mg/L
VINYL CHLORIDE	2/2			3.00E-03	1.00E-02	6.50E-03	N	1.00E-02	mg/L
NEPTUNIUM-237	1/1			8.50E-01	8.50E-01	8.50E-01	NT	8.50E-01	pCi/L
TECHNETIUM-99	1/1			1.10E+02	1.10E+02	1.10E+02	NT	1.10E+02	pCi/L
TRITIUM	1/1			4.20E+03	4.20E+03	4.20E+03	NT	4.20E+03	pCi/L
URANIUM-234	1/1			5.80E+01	5.80E+01	5.80E+01	NT	5.80E+01	pCi/L
URANIUM-235	1/1			3.90E+00	3.90E+00	3.90E+00	NT	3.90E+00	pCi/L
URANIUM-238	1/1			3.50E+02	3.50E+02	3.50E+02	NT	3.50E+02	pCi/L

Location=SEEPS 3&4 (N. Manhole) Medium=LEACHATE

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	2/2			1.28E+00	2.22E+00	1.75E+00	N	2.22E+00	mg/L
BERYLLIUM	2/2			2.00E-02	3.30E-02	2.65E-02	N	3.30E-02	mg/L
BORON	2/2			1.21E+02	1.26E+02	1.24E+02	N	1.26E+02	mg/L
MANGANESE	2/2			1.06E+01	1.35E+01	1.21E+01	N	1.35E+01	mg/L
MOLYBDENUM	1/2	3.00E-01	3.00E-01	1.40E-01	1.40E-01	1.45E-01	N	1.40E-01	mg/L
VANADIUM	1/2	2.00E-01	2.00E-01	6.00E-02	6.00E-02	8.00E-02	N	6.00E-02	mg/L
1,1,2-TRICHLOROETHANE	1/2	1.00E-02	1.00E-02	1.00E-03	1.00E-03	3.00E-03	N	1.00E-03	mg/L
1,1-DICHLOROETHANE	2/2			1.70E-01	4.10E-01	2.90E-01	N	4.10E-01	mg/L
1,1-DICHLOROETHENE	2/2			1.50E-02	3.00E-02	2.25E-02	N	3.00E-02	mg/L
1,2-DICHLOROETHANE	2/2			6.00E-03	8.00E-03	7.00E-03	N	8.00E-03	mg/L
1,4-DICHLOROBENZENE	2/2			2.10E-02	2.60E-02	2.35E-02	N	2.60E-02	mg/L
1,4-DIOXANE	1/1			2.00E-01	2.00E-01	2.00E-01	NT	2.00E-01	mg/L
BENZENE	2/2			1.60E-02	5.30E-02	3.45E-02	N	5.30E-02	mg/L
BIS(2-ETHYLHEXYL)PHTHALATE	1/1			6.00E-03	6.00E-03	6.00E-03	NT	6.00E-03	mg/L
CIS-1,2-DICHLOROETHENE	2/2			3.80E-01	9.20E-01	6.50E-01	N	9.20E-01	mg/L
METHYLENE CHLORIDE	2/2			1.50E-02	3.30E-02	2.40E-02	N	3.30E-02	mg/L

Table F.22. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: BURIAL GROUNDS

Location=SEEPS 3&4 (N. Manhole) Medium=LEACHATE (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
POLYCHLORINATED BIPHENYL	2/2			2.60E-03	9.50E-03	6.05E-03	N	9.50E-03	mg/L
TETRACHLOROETHENE	2/2			9.00E-03	1.80E-02	1.35E-02	N	1.80E-02	mg/L
TRICHLOROETHENE	2/2			6.00E-03	2.10E-02	1.35E-02	N	2.10E-02	mg/L
VINYL CHLORIDE	2/2			8.40E-02	1.80E-01	1.32E-01	N	1.80E-01	mg/L
URANIUM-234 (calc.)	2/2			3.43E+00	3.43E+00	3.43E+00	N	3.43E+00	pCi/L
URANIUM-238 (calc.)	2/2			3.34E+00	3.34E+00	3.34E+00	N	3.34E+00	pCi/L

Location=WIP-NORTH Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	4/4			1.10E+00	3.23E+01	9.88E+00	N	2.75E+01	mg/kg
PCB-1254	2/4	3.80E-02	4.00E-02	5.20E-02	1.00E+01	2.52E+00	N	8.39E+00	mg/kg
PCB-1260	1/4	3.80E-02	4.00E-02	3.60E+01	3.60E+01	9.01E+00	N	3.02E+01	mg/kg
URANIUM-238	4/4			1.30E-01	1.10E+01	2.90E+00	N	9.26E+00	pCi/g

Location=WIP-NORTH Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM					2.60E+01			2.60E+01	mg/kg
MERCURIC CHLORIDE					1.70E+01			1.70E+01	mg/kg
TOTAL URANIUM					7.20E+04			7.20E+04	mg/kg
4,4'-DDT					4.90E+00			4.90E+00	mg/kg
BENZENE					1.30E+02			1.30E+02	mg/kg
BENZIDINE					3.10E+01			3.10E+01	mg/kg
POLYCHLORINATED BIPHENYL					1.70E+00			1.70E+00	mg/kg
TRICHLOROETHANE					7.70E+00			7.70E+00	mg/kg
THORIUM-232 (calc.)					6.32E+01			6.32E+01	pCi/g
URANIUM-234 (calc.)					2.44E+04			2.44E+04	pCi/g
URANIUM-235 (calc.)					1.11E+03			1.11E+03	pCi/g
URANIUM-238 (calc.)					2.38E+04			2.38E+04	pCi/g

Table F.22. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: BURIAL GROUNDS

Location=WIP-SOUTH Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	4/4			1.10E+00	3.23E+01	9.88E+00	N	2.75E+01	mg/kg
PCB-1254	2/4	3.80E-02	4.00E-02	5.20E-02	1.00E+01	2.52E+00	N	8.39E+00	mg/kg
PCB-1260	1/4	3.80E-02	4.00E-02	3.60E+01	3.60E+01	9.01E+00	N	3.02E+01	mg/kg
URANIUM-238	4/4			1.30E-01	1.10E+01	2.90E+00	N	9.26E+00	pCi/g

Location=WIP-SOUTH Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHROMIUM					4.70E+01			4.70E+01	mg/kg
TOTAL URANIUM					7.50E+04			7.50E+04	mg/kg
URANIUM-234 (calc.)					2.55E+04			2.55E+04	pCi/g
URANIUM-235 (calc.)					1.16E+03			1.16E+03	pCi/g
URANIUM-238 (calc.)					2.48E+04			2.48E+04	pCi/g

Table F.23. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: BURIAL GROUNDS

Location=13 - ALL BG AREAS (water) Medium=GROUNDWATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	72/84	2.00E-02	2.00E-02	2.00E-02	3.06E+01	4.44E-01	L	6.80E-01	mg/L
CHLORIDE	134/136	5.00E+00	5.00E+00	1.00E+00	3.17E+02	2.69E+01	L	3.36E+01	mg/L
COBALT	18/97	4.00E-03	6.10E-03	3.40E-03	7.80E-02	5.28E-03	N	7.01E-03	mg/L
COPPER	53/96	4.00E-03	2.50E-02	4.40E-03	6.60E+00	1.03E-01	N	2.22E-01	mg/L
LEAD	84/138	4.00E-03	4.00E-03	3.60E-03	7.00E-01	2.35E-02	N	3.34E-02	mg/L
LITHIUM	12/13	1.00E-03	1.00E-03	1.90E-03	9.90E-01	4.60E-02	L	1.27E-01	mg/L
NIOBIUM	4/13	7.00E-03	7.00E-03	7.70E-03	1.40E-02	3.84E-03	L	8.86E-03	mg/L
SILICON	45/45			1.90E+00	1.40E+01	7.53E+00	N	8.22E+00	mg/L
2-HEXANONE	10/136	1.00E-02	5.00E-02	1.00E-03	2.20E-01	9.51E-03	N	1.27E-02	mg/L
PHENOLS	12/32	1.00E-03	5.00E-02	1.00E-03	9.40E-02	2.05E-03	L	5.10E-03	mg/L

Location=13 - ALL BG AREAS (water) Medium=SURFACE WATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	19/35	1.70E-02	2.21E-01	4.09E-02	3.01E+01	4.16E-01	L	1.34E+00	mg/L
CHLORIDE	35/35			1.70E+00	3.63E+01	1.62E+01	L	1.99E+01	mg/L
LITHIUM	14/14			2.83E-02	1.88E-01	1.06E-01	L	1.43E-01	mg/L
SULFATE	29/35	5.00E+00	1.00E+01	5.30E+00	7.88E+01	1.63E+01	L	2.14E+01	mg/L

Location=A-16 Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PHENANTHRENE	1/1			1.50E-01	1.50E-01	1.50E-01	NT	1.50E-01	mg/kg

Location=A-17 Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PHENANTHRENE	1/1			1.50E-01	1.50E-01	1.50E-01	NT	1.50E-01	mg/kg

Table F.23. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: BURIAL GROUNDS

Location=A-18 Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PHENANTHRENE	1/1			1.50E-01	1.50E-01	1.50E-01	NT	1.50E-01	mg/kg

Location=A-NORTH Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
LITHIUM					6.00E-01			6.00E-01	mg/kg
TECHNETIUM					1.40E-03			1.40E-03	mg/kg
THORIUM					3.10E+00			3.10E+00	mg/kg
ASBESTOS					7.30E+04			7.30E+04	mg/kg
MOP WATERS									
WASTE OILS AND COOLANTS									

Location=A-SOUTH Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
LITHIUM					1.10E+00			1.10E+00	mg/kg
ASBESTOS									
FUEL-WATER									
MOP WATERS									
VARSOL					9.40E+02			9.40E+02	mg/kg
WASTE OILS AND COOLANTS									

Location=B Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PHENANTHRENE	1/2	4.00E-01	4.00E-01	9.90E-02	9.90E-02	1.50E-01	N	9.90E-02	mg/kg

Location=B Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
THORIUM					4.10E+02			4.10E+02	mg/kg

Table F.23. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: BURIAL GROUNDS

Location=B Medium=WASTE INVENTORY (soil) (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
POLYCHLORINATED BIPHENYL									

Location=C-EAST Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
LITHIUM					2.80E+02			2.80E+02	mg/kg
THORIUM					5.30E+03			5.30E+03	mg/kg
ASBESTOS									

Location=C-WEST Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COPPER	7/10	3.70E+00	1.05E+01	1.50E+01	4.50E+01	1.78E+01	N	2.52E+01	mg/kg

Location=C-WEST Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
LITHIUM					2.80E+02			2.80E+02	mg/kg
TECHNETIUM					1.60E-02			1.60E-02	mg/kg
THORIUM					3.10E+03			3.10E+03	mg/kg
ASBESTOS									

Location=D-EAST Medium=SOIL (hot spot)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			1.39E+04	1.39E+04	1.39E+04	NT	1.39E+04	mg/kg
CALCIUM	1/1			5.14E+03	5.14E+03	5.14E+03	NT	5.14E+03	mg/kg
COPPER	1/1			2.40E+01	2.40E+01	2.40E+01	NT	2.40E+01	mg/kg
IRON	1/1			7.44E+03	7.44E+03	7.44E+03	NT	7.44E+03	mg/kg
MAGNESIUM	1/1			1.35E+03	1.35E+03	1.35E+03	NT	1.35E+03	mg/kg

Table F.23. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: BURIAL GROUNDS

Location=D-EAST Medium=SOIL (hot spot) (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
POTASSIUM	1/1			4.17E+03	4.17E+03	4.17E+03	NT	4.17E+03	mg/kg
SODIUM	1/1			2.21E+02	2.21E+02	2.21E+02	NT	2.21E+02	mg/kg

Location=D-SOUTH Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PHENANTHRENE	1/2	4.00E-01	4.00E-01	9.90E-02	9.90E-02	1.50E-01	N	9.90E-02	mg/kg

Location=SEEP C-WEST TOE (Mid. MH) Medium=LEACHATE

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/2	2.00E+00	2.00E+00	3.00E-01	3.00E-01	6.50E-01	N	3.00E-01	mg/L
CALCIUM	2/2			1.16E+02	1.20E+02	1.18E+02	N	1.20E+02	mg/L
COBALT	1/2	1.00E-01	1.00E-01	2.00E-02	2.00E-02	3.50E-02	N	2.00E-02	mg/L
IRON	2/2			1.50E+01	8.41E+01	4.96E+01	N	8.41E+01	mg/L
LITHIUM	2/2			1.28E+01	1.48E+01	1.38E+01	N	1.48E+01	mg/L
MAGNESIUM	2/2			2.10E+01	2.12E+01	2.11E+01	N	2.12E+01	mg/L
PHOSPHORUS	1/2	3.00E+00	3.00E+00	1.10E+00	1.10E+00	1.30E+00	N	1.10E+00	mg/L
POTASSIUM	1/2	3.00E+01	3.00E+01	1.00E+01	1.00E+01	1.25E+01	N	1.00E+01	mg/L
SODIUM	2/2			1.90E+01	2.14E+01	2.02E+01	N	2.14E+01	mg/L
1,2-DICHLORO-1,1,2-TRIFLUOROETHANE	1/1			2.70E-02	2.70E-02	2.70E-02	NT	2.70E-02	mg/L
1,3,5-CYCLOHEPTATRIENE	1/1			4.00E-03	4.00E-03	4.00E-03	NT	4.00E-03	mg/L
1,3-DICHLOROBENZENE	1/2	1.00E-02	1.00E-02	4.00E-03	4.00E-03	4.50E-03	N	4.00E-03	mg/L
2-METHYL-2,4-PENTANEDIOL	1/1			2.70E-01	2.70E-01	2.70E-01	NT	2.70E-01	mg/L
3,5-DIMETHYLPHENOL	1/1			7.90E-02	7.90E-02	7.90E-02	NT	7.90E-02	mg/L
4-HYDROXY-4-METHYL-2-PENTANONE	1/1			1.20E-01	1.20E-01	1.20E-01	NT	1.20E-01	mg/L
BIS(2-BUTOXYETHYL)ETHER	1/1			9.20E-02	9.20E-02	9.20E-02	NT	9.20E-02	mg/L
DICHLOROACETIC ACID	1/1			5.00E-03	5.00E-03	5.00E-03	NT	5.00E-03	mg/L
ETHANOL, 2-CHLORO-, PHOSPHATE (3:1)	1/1			5.60E-02	5.60E-02	5.60E-02	NT	5.60E-02	mg/L
HEXADECANOIC ACID	1/1			3.10E-02	3.10E-02	3.10E-02	NT	3.10E-02	mg/L
N,N,4-TRIMETHYL-BENZENESULFONAMIDE	1/1			3.70E-02	3.70E-02	3.70E-02	NT	3.70E-02	mg/L

Table F.23. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: BURIAL GROUNDS

Location=SEEP1 Medium=LEACHATE

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
4-BROMOPHENYL PHENYL ETHER	1/1			1.00E-03	1.00E-03	1.00E-03	NT	1.00E-03	mg/L

Location=SEEP2 (S. Manhole) Medium=LEACHATE

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/2	2.00E+00	2.00E+00	1.59E+02	1.59E+02	8.00E+01	N	1.59E+02	mg/L
CALCIUM	2/2			9.20E+01	5.31E+02	3.12E+02	N	5.31E+02	mg/L
CERIUM	1/2	8.00E-01	8.00E-01	1.22E+00	1.22E+00	8.10E-01	N	1.22E+00	mg/L
COBALT	1/2	1.00E-01	1.00E-01	2.10E-01	2.10E-01	1.30E-01	N	2.10E-01	mg/L
COPPER	1/2	3.00E-01	3.00E-01	6.40E-01	6.40E-01	3.95E-01	N	6.40E-01	mg/L
IRON	1/2	3.00E+00	3.00E+00	1.29E+03	1.29E+03	6.46E+02	N	1.29E+03	mg/L
LEAD	1/2	1.00E+00	1.00E+00	8.00E-01	8.00E-01	6.50E-01	N	8.00E-01	mg/L
LITHIUM	2/2			9.00E+00	1.19E+01	1.05E+01	N	1.19E+01	mg/L
MAGNESIUM	2/2			1.50E+01	5.09E+01	3.30E+01	N	5.09E+01	mg/L
PHOSPHORUS	1/2	3.00E+00	3.00E+00	9.10E+00	9.10E+00	5.30E+00	N	9.10E+00	mg/L
POTASSIUM	1/2	3.00E+01	3.00E+01	1.80E+01	1.80E+01	1.65E+01	N	1.80E+01	mg/L
SODIUM	2/2			4.00E+00	5.10E+00	4.55E+00	N	5.10E+00	mg/L
THORIUM	1/2	5.00E-01	5.00E-01	1.10E-01	1.10E-01	1.80E-01	N	1.10E-01	mg/L
TITANIUM	1/2	6.00E-01	6.00E-01	1.02E+00	1.02E+00	6.60E-01	N	1.02E+00	mg/L
ZIRCONIUM	1/2	2.00E-01	2.00E-01	1.60E-01	1.60E-01	1.30E-01	N	1.60E-01	mg/L
1,3,5-CYCLOHEPTATRIENE	1/1			5.00E-03	5.00E-03	5.00E-03	NT	5.00E-03	mg/L
4-HYDROXY-4-METHYL-2-PENTANONE	1/1			8.00E-02	8.00E-02	8.00E-02	NT	8.00E-02	mg/L
BIS(2-BUTOXYETHYL)ETHER	1/1			3.20E-02	3.20E-02	3.20E-02	NT	3.20E-02	mg/L
DICHLOROACETIC ACID	2/2			4.00E-03	5.00E-03	4.50E-03	N	5.00E-03	mg/L
HEXADECANOIC ACID	1/1			1.40E-02	1.40E-02	1.40E-02	NT	1.40E-02	mg/L

Location=SEEPS 3&4 (N. Manhole) Medium=LEACHATE

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	2/2			6.00E+00	1.70E+01	1.15E+01	N	1.70E+01	mg/L
CALCIUM	2/2			6.70E+01	6.74E+01	6.72E+01	N	6.74E+01	mg/L
CERIUM	1/2	8.00E-01	8.00E-01	8.00E-02	8.00E-02	2.40E-01	N	8.00E-02	mg/L
COBALT	1/2	1.00E-01	1.00E-01	6.00E-02	6.00E-02	5.50E-02	N	6.00E-02	mg/L
COPPER	1/2	3.00E-01	3.00E-01	4.00E-02	4.00E-02	9.50E-02	N	4.00E-02	mg/L
IRON	2/2			1.07E+02	3.50E+02	2.29E+02	N	3.50E+02	mg/L
LITHIUM	2/2			3.17E+01	3.24E+01	3.21E+01	N	3.24E+01	mg/L
MAGNESIUM	2/2			2.30E+01	2.31E+01	2.31E+01	N	2.31E+01	mg/L
PHOSPHORUS	2/2			4.00E+00	1.09E+01	7.45E+00	N	1.09E+01	mg/L
POTASSIUM	1/2	3.00E+01	3.00E+01	1.80E+01	1.80E+01	1.65E+01	N	1.80E+01	mg/L

Table F.23. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: BURIAL GROUNDS

Location=SEEPS 3&4 (N. Manhole) Medium=LEACHATE (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
SODIUM	2/2			3.40E+01	3.40E+01	3.40E+01	N	3.40E+01	mg/L
TITANIUM	1/2	6.00E-01	6.00E-01	1.70E-01	1.70E-01	2.35E-01	N	1.70E-01	mg/L
1,1-THIOBIS ETHANE	1/1			2.60E-02	2.60E-02	2.60E-02	NT	2.60E-02	mg/L
1,2-DICHLORO-1,1,2-TRIFLUOROETHANE	2/2			3.90E-02	7.30E-02	5.60E-02	N	7.30E-02	mg/L
1,3-DICHLOROBENZENE	2/2			6.00E-03	6.00E-03	6.00E-03	N	6.00E-03	mg/L
2,2,3,4-TETRAMETHYL-PENTANE	1/1			8.40E-02	8.40E-02	8.40E-02	NT	8.40E-02	mg/L
2,4,6-TRIMETHYL OCTANE	1/1			3.80E-02	3.80E-02	3.80E-02	NT	3.80E-02	mg/L
2-METHYL-2,4-PENTANEDIOL	1/1			1.10E-01	1.10E-01	1.10E-01	NT	1.10E-01	mg/L
3-(1,1-DIMETHYLETHYL)PHENOL	1/1			4.00E-02	4.00E-02	4.00E-02	NT	4.00E-02	mg/L
3-CHLORO-1-BUTYNE	1/1			4.00E-03	4.00E-03	4.00E-03	NT	4.00E-03	mg/L
4-(1,1-DIMETHYLETHYL)BENZOIC ACID	1/1			4.60E-02	4.60E-02	4.60E-02	NT	4.60E-02	mg/L
4-HYDROXY-4-METHYL-2-PENTANONE	1/1			7.80E-02	7.80E-02	7.80E-02	NT	7.80E-02	mg/L
BIS(2-BUTOXYETHYL)ETHER	1/1			2.49E-01	2.49E-01	2.49E-01	NT	2.49E-01	mg/L
HEXADECANOIC ACID	1/1			2.90E-02	2.90E-02	2.90E-02	NT	2.90E-02	mg/L
PHOSPHORIC ACID, TRIBUTYL ESTER	1/1			4.00E-02	4.00E-02	4.00E-02	NT	4.00E-02	mg/L

Location=WIP-NORTH Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PHENANTHRENE	1/2	4.00E-01	4.00E-01	9.90E-02	9.90E-02	1.50E-01	N	9.90E-02	mg/kg

Location=WIP-NORTH Medium=WASTE INVENTORY (soil)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM					3.00E-01			3.00E-01	mg/kg
AMMONIA COMPOUNDS					5.00E-01			5.00E-01	mg/kg
BROMINE					1.00E+00			1.00E+00	mg/kg
LITHIUM					2.90E+00			2.90E+00	mg/kg
THORIUM					5.80E+02			5.80E+02	mg/kg
2-BUTANONE									
4-METHYL-2-PENTANONE									
ACETIC ACID					6.00E-01			6.00E-01	mg/kg
ACETONE									
ALIZARIN					1.00E-03			1.00E-03	mg/kg
ASBESTOS									
CARBON TETRACHLORIDE									
CYCLOHEXANE									
DIMETHYLBENZENE									

Table F.23. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: BURIAL GROUNDS

Location=WIP-NORTH Medium=WASTE INVENTORY (soil) (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
EPOXYS					9.50E+01			9.50E+01	mg/kg
ETHYL ALCOHOL					1.00E-01			1.00E-01	mg/kg
METHANOL									
PICRIC ACID									
TOLUENE									
WASTE OILS					7.70E+01			7.70E+01	mg/kg

Location=WIP-SOUTH Medium=SOIL

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PHENANTHRENE	1/2	4.00E-01	4.00E-01	9.90E-02	9.90E-02	1.50E-01	N	9.90E-02	mg/kg

Table F.24. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: FLOODPLAIN AREA (western BCV)

Medium=FISH

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
MERCURY	35/35			1.60E-01	1.30E+00	4.63E-01	L	1.30E+00	mg/kg
PCB-1254	35/35			1.30E-02	7.70E-01	2.00E-01	L	7.70E-01	mg/kg
PCB-1260	35/35			2.00E-02	8.90E-01	2.82E-01	L	8.90E-01	mg/kg

Medium=GROUNDWATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	52/52			2.50E-02	1.40E+00	2.95E-01	L	4.06E-01	mg/L
STRONTIUM	52/52			6.50E-02	1.50E+01	8.56E+00	L	1.50E+01	mg/L
CESIUM-137	3/6	1.40E+00	3.40E+00	5.60E+00	8.80E+00	4.77E+00	N	6.97E+00	pCi/L
RADIUM (TOTAL ALPHA)	4/6	4.10E-01	4.40E-01	8.80E-01	5.40E+00	2.07E+00	N	3.88E+00	pCi/L
RADIUM-228	2/6	0.00E+00	0.00E+00	2.40E+00	7.80E+00	1.70E+00	N	4.28E+00	pCi/L
THORIUM-228	2/6	6.80E-02	1.70E-01	2.60E-01	9.20E-01	2.77E-01	N	5.42E-01	pCi/L
URANIUM-234	3/6	1.10E-02	2.20E-01	5.80E-01	1.50E+00	5.09E-01	N	9.67E-01	pCi/L
URANIUM-238	2/6	0.00E+00	3.40E-01	3.40E-01	1.00E+00	3.16E-01	N	6.16E-01	pCi/L

Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	6/8	9.40E-01	9.50E-01	2.10E+00	1.75E+01	7.41E+00	N	1.20E+01	mg/kg
BERYLLIUM	5/8	6.00E-02	6.20E-01	5.90E-01	1.60E+00	8.30E-01	N	1.24E+00	mg/kg
CHROMIUM	8/8			3.10E+00	1.30E+02	3.08E+01	L	6.58E+01	mg/kg
MANGANESE	8/8			1.01E+02	2.76E+03	1.02E+03	L	2.42E+03	mg/kg
BENZO(A)PYRENE	3/8	4.60E-01	7.30E-01	4.50E-02	1.10E-01	2.14E-01	N	1.10E-01	mg/kg
PCB-1254	3/8	4.80E-02	7.30E-02	1.70E-02	1.20E+00	4.49E-02	L	3.33E-01	mg/kg
PCB-1260	4/8	4.60E-02	7.30E-02	3.80E-02	2.40E-01	5.41E-02	L	1.24E-01	mg/kg
URANIUM-235	6/8	1.00E-02	2.00E-02	7.00E-02	2.40E-01	1.36E-01	N	2.00E-01	pCi/g
URANIUM-238	8/8			1.27E+00	9.36E+00	4.54E+00	L	7.43E+00	pCi/g

Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PCB-1254	4/23	4.00E-02	4.60E-02	1.30E-02	5.10E+00	2.59E-03	L	6.08E-02	mg/kg
PCB-1260	17/23	4.00E-02	4.40E-02	6.40E-03	3.20E+00	1.22E-01	L	2.57E-01	mg/kg
URANIUM-234	24/24			7.60E-01	3.04E+01	4.92E+00	L	7.90E+00	pCi/g

Table F.24. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: FLOODPLAIN AREA (western BCV)

Medium=SOIL (creek floodplain) (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
URANIUM-235	22/24	1.00E-02	1.00E-02	2.00E-02	2.08E+00	2.20E-01	L	3.87E-01	pCi/g
URANIUM-238	24/24			6.90E-01	6.07E+01	8.25E+00	L	1.49E+01	pCi/g

Medium=SURFACE WATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ANTIMONY	3/28	1.50E-03	1.80E-03	1.50E-03	5.70E-02	4.27E-05	L	1.48E-03	mg/L
ARSENIC	3/29	1.50E-03	2.60E-03	1.90E-03	6.00E-02	1.48E-05	L	2.32E-03	mg/L
FLUORIDE	76/134	1.00E-01	1.00E-01	1.00E-02	6.60E-01	1.01E-01	L	1.16E-01	mg/L
NITRATE (AS N)	239/254	1.00E-01	2.00E-01	1.40E-01	5.00E+02	7.99E+00	N	1.25E+01	mg/L
TOTAL URANIUM	28/51	1.00E-03	1.00E-03	1.00E-03	6.70E-02	1.69E-02	N	2.11E-02	mg/L
CESIUM-137	2/3	1.60E+00	1.60E+00	6.80E+00	7.50E+00	5.30E+00	N	7.50E+00	pCi/L
URANIUM-233/234	10/29	1.17E-01	9.84E-01	2.50E-01	3.20E+00	4.12E-01	L	7.84E-01	pCi/L
URANIUM-238	12/29	2.64E-02	8.20E-01	2.20E-01	7.10E+00	4.07E-01	L	1.03E+00	pCi/L

Table F.25. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: FLOODPLAIN AREA (western BCV)

Medium=GROUNDWATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	52/52			7.90E+00	2.18E+03	5.07E+02	L	1.06E+03	mg/L
SULFATE	52/52			6.00E+00	2.83E+03	1.98E+03	L	2.83E+03	mg/L

Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	8/8			2.79E+03	1.57E+04	8.01E+03	N	1.08E+04	mg/kg
COBALT	8/8			3.70E-01	3.39E+01	1.47E+01	N	2.21E+01	mg/kg
COPPER	8/8			3.70E+00	2.54E+01	1.26E+01	L	1.88E+01	mg/kg
LITHIUM	7/8	1.10E+00	1.10E+00	4.50E+00	6.90E+01	1.84E+01	L	4.71E+01	mg/kg
BENZO(GHI)PERYLENE	2/8	4.60E-01	7.30E-01	6.10E-02	7.90E-02	2.33E-01	N	7.90E-02	mg/kg
DELTA-BHC	1/8	2.40E-03	3.50E-03	3.50E-03	3.50E-03	1.63E-03	L	2.02E-03	mg/kg
ENDOSULFAN I	2/8	2.40E-03	3.50E-03	3.30E-04	7.50E-04	1.17E-03	N	7.50E-04	mg/kg
ENDOSULFAN II	1/8	4.60E-03	6.80E-03	1.20E-03	1.20E-03	2.46E-03	N	1.20E-03	mg/kg
ENDOSULFAN SULFATE	2/8	4.80E-03	7.30E-03	1.70E-03	3.80E-03	2.18E-03	L	3.09E-03	mg/kg
ENDRIN ALDEHYDE	6/8	5.10E-03	6.80E-03	2.10E-04	9.20E-03	2.91E-03	L	6.02E-03	mg/kg
PHENANTHRENE	3/8	4.60E-01	6.80E-01	7.20E-02	1.50E-01	2.08E-01	N	1.50E-01	mg/kg

Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ENDOSULFAN II	2/23	4.00E-03	5.20E-03	4.60E-04	7.60E-04	2.02E-03	N	7.60E-04	mg/kg
ENDOSULFAN SULFATE	2/23	4.00E-03	5.20E-03	2.30E-04	9.80E-04	2.01E-03	N	9.80E-04	mg/kg
ENDRIN ALDEHYDE	10/23	4.00E-03	5.20E-03	2.70E-04	3.80E-02	1.94E-03	L	3.90E-03	mg/kg

Medium=SURFACE WATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	120/134	2.00E-02	2.04E-01	2.50E-02	4.21E+00	3.39E-01	L	4.26E-01	mg/L
CHLORIDE	123/131	1.00E+00	2.00E+00	1.50E+00	1.50E+01	5.66E+00	N	6.14E+00	mg/L
COPPER	8/134	2.10E-03	7.30E-03	4.60E-03	4.90E-02	3.00E-03	N	3.62E-03	mg/L
TITANIUM	16/56	2.00E-02	2.00E-02	1.00E-02	5.00E-02	1.50E-02	N	1.72E-02	mg/L

Table F.26. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: DARA

Medium=SOIL INVENTORY

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
HEXACHLORODIBENZO-P-DIOXINS	22/32				2.65E+00	1.94E-04	NA	2.65E-03	mg/kg
PCB-1254	32/32				1.03E+02	5.00E+01	NA	1.03E+02	mg/kg
PENTACHLOROBENZENE	3/32				2.50E+01	5.52E+00	NA	2.50E+01	mg/kg
TETRACHLORODIBENZO-P-DIOXINS	2/32				2.40E+00	2.75E-04	NA	2.40E-03	mg/kg
URANIUM-234	32/32				1.14E+02	2.66E+01	NA	1.14E+02	pCi/g
URANIUM-235	32/32				4.91E+00	1.03E+00	NA	4.91E+00	pCi/g
URANIUM-238	32/32				7.69E+01	1.89E+01	NA	7.69E+01	pCi/g

Table F.27. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: DARA

Medium=SOIL INVENTORY

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
HEXACHLORODIBENZO-FURANS	27/32				2.92E+00	1.07E-03	NA	2.92E-03	mg/kg
PENTACHLORODIBENZO-FURANS	31/32				3.41E+00	7.99E-04	NA	3.41E-03	mg/kg
PENTACHLORODIBENZO-P-DIOXINS	2/32				3.90E-01	1.37E-04	NA	3.90E-04	mg/kg
PHENANTHRENE	6/32				5.10E+00	8.52E-01	NA	5.10E+00	mg/kg
TETRACHLORODIBENZO-FURANS	32/32				6.67E+00	2.07E-03	NA	6.67E-03	mg/kg

Table F.28. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: OIL LANDFARM STORAGE PAD

Medium=SOIL INVENTORY

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	40/40			2.20E+00	2.80E+00	2.51E+00	N	2.55E+00	mg/kg
BERYLLIUM	40/40			7.10E-01	1.30E+01	4.66E+00	N	5.82E+00	mg/kg
TOTAL URANIUM	40/40			1.60E+01	1.51E+02	6.68E+01	L	7.88E+01	mg/kg
POLYCHLORINATED BIPHENYL	40/40			1.70E-01	9.25E+01	1.75E+01	L	2.65E+01	mg/kg
URANIUM-234	40/40			9.19E+00	3.24E+01	2.08E+01	N	2.25E+01	pCi/g
URANIUM-235	40/40			3.51E-01	2.70E+00	1.39E+00	N	1.53E+00	pCi/g
URANIUM-238	40/40			5.14E+00	4.59E+01	2.03E+01	L	2.40E+01	pCi/g

Table F.29. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: OIL LANDFARM STORAGE PAD

Medium=SOIL INVENTORY

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	40/40			9.60E+03	1.80E+04	1.39E+04	N	1.44E+04	mg/kg
CALCIUM	40/40			1.60E+03	2.60E+04	6.17E+03	L	7.88E+03	mg/kg
CHLORIDE	40/40			5.00E+00	4.02E+02	1.18E+02	L	1.51E+02	mg/kg
COBALT	40/40			7.00E+00	1.40E+01	9.65E+00	L	1.01E+01	mg/kg
COPPER	40/40			9.00E+00	2.50E+01	1.49E+01	L	1.61E+01	mg/kg
IRON	40/40			1.40E+04	2.90E+04	1.86E+04	L	1.95E+04	mg/kg
LITHIUM	40/40			6.60E+02	8.30E+02	7.51E+02	N	7.64E+02	mg/kg
MAGNESIUM	40/40			8.90E+00	9.40E+03	3.29E+03	N	3.87E+03	mg/kg
PHOSPHATES	40/40			5.00E+00	4.90E+02	1.15E+02	L	1.74E+02	mg/kg
PHOSPHORUS	40/40			1.50E+02	1.10E+03	4.05E+02	L	4.72E+02	mg/kg
SILICON	40/40			1.30E+03	2.10E+03	1.73E+03	L	1.77E+03	mg/kg
SODIUM	40/40			2.20E+02	2.80E+02	2.51E+02	N	2.55E+02	mg/kg
TITANIUM	40/40			9.70E+01	1.60E+02	1.27E+02	N	1.31E+02	mg/kg
ZIRCONIUM	40/40			3.10E+00	8.00E+00	5.46E+00	L	5.86E+00	mg/kg

Table F.30. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: BEAR CREEK ROAD DEBRIS BURIAL AND CREEKSIDE DEBRIS BURIAL

Location=BCR DB Medium=SOIL (hot spot)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	1/1			1.07E+01	1.07E+01	1.07E+01	NT	1.07E+01	mg/kg
BARIUM	1/1			6.33E+02	6.33E+02	6.33E+02	NT	6.33E+02	mg/kg
BERYLLIUM	1/1			8.80E-01	8.80E-01	8.80E-01	NT	8.80E-01	mg/kg
CADMIUM	1/1			1.56E+01	1.56E+01	1.56E+01	NT	1.56E+01	mg/kg
CHROMIUM	1/1			7.81E+01	7.81E+01	7.81E+01	NT	7.81E+01	mg/kg
MERCURY	1/1			5.40E+00	5.40E+00	5.40E+00	NT	5.40E+00	mg/kg
PCB-1254	1/1			3.60E+00	3.60E+00	3.60E+00	NT	3.60E+00	mg/kg
CESIUM-137	1/1			1.19E+00	1.19E+00	1.19E+00	NT	1.19E+00	pCi/g
CURIUM-243	1/1			3.30E-01	3.30E-01	3.30E-01	NT	3.30E-01	pCi/g
THORIUM-228	1/1			8.80E-01	8.80E-01	8.80E-01	NT	8.80E-01	pCi/g
URANIUM-234	1/1			4.11E+02	4.11E+02	4.11E+02	NT	4.11E+02	pCi/g
URANIUM-235	1/1			1.81E+00	1.81E+00	1.81E+00	NT	1.81E+00	pCi/g
URANIUM-238	1/1			6.38E+01	6.38E+01	6.38E+01	NT	6.38E+01	pCi/g

Location=CS DB Medium=SOIL (hot spot)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	1/1			7.90E+00	7.90E+00	7.90E+00	NT	7.90E+00	mg/kg
BERYLLIUM	1/1			1.40E+00	1.40E+00	1.40E+00	NT	1.40E+00	mg/kg
CHROMIUM	1/1			1.07E+02	1.07E+02	1.07E+02	NT	1.07E+02	mg/kg
MERCURY	1/1			3.30E+01	3.30E+01	3.30E+01	NT	3.30E+01	mg/kg
BENZO(A)ANTHRACENE	1/1			1.00E+01	1.00E+01	1.00E+01	NT	1.00E+01	mg/kg
BENZO(A)PYRENE	1/1			8.00E+00	8.00E+00	8.00E+00	NT	8.00E+00	mg/kg
BENZO(B)FLUORANTHENE	1/1			1.40E+01	1.40E+01	1.40E+01	NT	1.40E+01	mg/kg
BENZO(K)FLUORANTHENE	1/1			1.30E+01	1.30E+01	1.30E+01	NT	1.30E+01	mg/kg
DIBENZO(A,H)ANTHRACENE	1/1			3.50E-01	3.50E-01	3.50E-01	NT	3.50E-01	mg/kg
INDENO(1,2,3-CD)PYRENE	1/1			2.20E+00	2.20E+00	2.20E+00	NT	2.20E+00	mg/kg
PCB-1254	1/1			1.20E+00	1.20E+00	1.20E+00	NT	1.20E+00	mg/kg
CESIUM-137	1/1			2.10E-01	2.10E-01	2.10E-01	NT	2.10E-01	pCi/g
THORIUM-228	1/1			2.20E+00	2.20E+00	2.20E+00	NT	2.20E+00	pCi/g
URANIUM-234	1/1			2.79E+01	2.79E+01	2.79E+01	NT	2.79E+01	pCi/g
URANIUM-235	1/1			1.45E+00	1.45E+00	1.45E+00	NT	1.45E+00	pCi/g
URANIUM-238	1/1			2.48E+01	2.48E+01	2.48E+01	NT	2.48E+01	pCi/g

Table F.31. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: BEAR CREEK ROAD DEBRIS BURIAL AND CREEKSIDE DEBRIS BURIAL

Location=BCR DB Medium=SOIL (hot spot)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			5.97E+03	5.97E+03	5.97E+03	NT	5.97E+03	mg/kg
CALCIUM	1/1			5.58E+03	5.58E+03	5.58E+03	NT	5.58E+03	mg/kg
COBALT	1/1			8.20E+00	8.20E+00	8.20E+00	NT	8.20E+00	mg/kg
COPPER	1/1			1.65E+03	1.65E+03	1.65E+03	NT	1.65E+03	mg/kg
IRON	1/1			1.52E+04	1.52E+04	1.52E+04	NT	1.52E+04	mg/kg
LEAD	1/1			5.16E+02	5.16E+02	5.16E+02	NT	5.16E+02	mg/kg
LITHIUM	1/1			1.08E+01	1.08E+01	1.08E+01	NT	1.08E+01	mg/kg
MAGNESIUM	1/1			8.87E+02	8.87E+02	8.87E+02	NT	8.87E+02	mg/kg
POTASSIUM	1/1			9.08E+02	9.08E+02	9.08E+02	NT	9.08E+02	mg/kg
SODIUM	1/1			4.03E+02	4.03E+02	4.03E+02	NT	4.03E+02	mg/kg
2-METHYLNAPHTHALENE	1/1			7.30E-02	7.30E-02	7.30E-02	NT	7.30E-02	mg/kg
PHENANTHRENE	1/1			6.30E-02	6.30E-02	6.30E-02	NT	6.30E-02	mg/kg

Location=CS DB Medium=SOIL (hot spot)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			1.59E+04	1.59E+04	1.59E+04	NT	1.59E+04	mg/kg
CALCIUM	1/1			1.39E+04	1.39E+04	1.39E+04	NT	1.39E+04	mg/kg
COBALT	1/1			1.77E+01	1.77E+01	1.77E+01	NT	1.77E+01	mg/kg
COPPER	1/1			5.20E+01	5.20E+01	5.20E+01	NT	5.20E+01	mg/kg
IRON	1/1			2.55E+04	2.55E+04	2.55E+04	NT	2.55E+04	mg/kg
LITHIUM	1/1			3.25E+01	3.25E+01	3.25E+01	NT	3.25E+01	mg/kg
MAGNESIUM	1/1			5.05E+03	5.05E+03	5.05E+03	NT	5.05E+03	mg/kg
POTASSIUM	1/1			2.03E+03	2.03E+03	2.03E+03	NT	2.03E+03	mg/kg
SODIUM	1/1			2.17E+02	2.17E+02	2.17E+02	NT	2.17E+02	mg/kg
2-METHYLNAPHTHALENE	1/1			1.20E+00	1.20E+00	1.20E+00	NT	1.20E+00	mg/kg
BENZO(GHI)PERYLENE	1/1			1.80E+00	1.80E+00	1.80E+00	NT	1.80E+00	mg/kg
DIBENZOFURAN	1/1			2.90E+00	2.90E+00	2.90E+00	NT	2.90E+00	mg/kg
PHENANTHRENE	1/1			3.00E+01	3.00E+01	3.00E+01	NT	3.00E+01	mg/kg

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=BG-01

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM	1/1			1.20E-03	1.20E-03	1.20E-03	NT	1.20E-03	mg/L
POTASSIUM-40	1/1			1.60E+02	1.60E+02	1.60E+02	NT	1.60E+02	pCi/L
THORIUM-228	1/1			1.10E+00	1.10E+00	1.10E+00	NT	1.10E+00	pCi/L
URANIUM-238	1/1			1.20E+00	1.20E+00	1.20E+00	NT	1.20E+00	pCi/L

Sample Station=BG-02

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM	1/1			2.60E-03	2.60E-03	2.60E-03	NT	2.60E-03	mg/L
MANGANESE	1/1			2.89E+00	2.89E+00	2.89E+00	NT	2.89E+00	mg/L
NICKEL	1/1			9.65E-02	9.65E-02	9.65E-02	NT	9.65E-02	mg/L
VANADIUM	1/1			4.46E-02	4.46E-02	4.46E-02	NT	4.46E-02	mg/L
1,1,1-TRICHLOROETHANE	1/1			1.40E-01	1.40E-01	1.40E-01	NT	1.40E-01	mg/L
1,1-DICHLOROETHANE	1/1			2.00E-01	2.00E-01	2.00E-01	NT	2.00E-01	mg/L
1,1-DICHLOROETHENE	1/1			7.80E-02	7.80E-02	7.80E-02	NT	7.80E-02	mg/L
1,2-DICHLOROETHANE	1/1			5.10E-02	5.10E-02	5.10E-02	NT	5.10E-02	mg/L
1,2-DICHLOROETHENE	1/1			1.50E+00	1.50E+00	1.50E+00	NT	1.50E+00	mg/L
BENZENE	1/1			9.30E-02	9.30E-02	9.30E-02	NT	9.30E-02	mg/L
CHLOROFORM	1/1			1.30E-02	1.30E-02	1.30E-02	NT	1.30E-02	mg/L
TETRACHLOROETHENE	1/1			2.30E-01	2.30E-01	2.30E-01	NT	2.30E-01	mg/L
TRICHLOROETHENE	1/1			8.20E-01	8.20E-01	8.20E-01	NT	8.20E-01	mg/L
VINYL CHLORIDE	1/1			1.90E-01	1.90E-01	1.90E-01	NT	1.90E-01	mg/L
THORIUM-228	1/1			1.80E+00	1.80E+00	1.80E+00	NT	1.80E+00	pCi/L

Sample Station=BG-03

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1,1-TRICHLOROETHANE	1/1			2.20E+00	2.20E+00	2.20E+00	NT	2.20E+00	mg/L
1,1,2-TRICHLOROETHANE	1/1			9.00E-03	9.00E-03	9.00E-03	NT	9.00E-03	mg/L
1,1-DICHLOROETHANE	1/1			8.20E-01	8.20E-01	8.20E-01	NT	8.20E-01	mg/L
1,1-DICHLOROETHENE	1/1			1.70E+00	1.70E+00	1.70E+00	NT	1.70E+00	mg/L
1,2-DICHLOROETHANE	1/1			3.00E-01	3.00E-01	3.00E-01	NT	3.00E-01	mg/L
1,2-DICHLOROETHENE	1/1			2.00E+00	2.00E+00	2.00E+00	NT	2.00E+00	mg/L
1,2-DICHLOROPROPANE	1/1			1.00E-03	1.00E-03	1.00E-03	NT	1.00E-03	mg/L
BENZENE	1/1			1.00E+00	1.00E+00	1.00E+00	NT	1.00E+00	mg/L
CHLOROFORM	1/1			2.40E-02	2.40E-02	2.40E-02	NT	2.40E-02	mg/L
TETRACHLOROETHENE	1/1			2.80E+00	2.80E+00	2.80E+00	NT	2.80E+00	mg/L
TRICHLOROETHENE	1/1			3.20E+00	3.20E+00	3.20E+00	NT	3.20E+00	mg/L
TRICHLOROFLUOROMETHANE	1/1			1.60E+00	1.60E+00	1.60E+00	NT	1.60E+00	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=BG-03 (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
VINYL CHLORIDE	1/1			2.90E-01	2.90E-01	2.90E-01	NT	2.90E-01	mg/L
THORIUM-228	1/1			1.50E+00	1.50E+00	1.50E+00	NT	1.50E+00	pCi/L
URANIUM-238	1/1			1.10E+00	1.10E+00	1.10E+00	NT	1.10E+00	pCi/L

Sample Station=BG-04

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
MANGANESE	1/1			5.65E+00	5.65E+00	5.65E+00	NT	5.65E+00	mg/L
1,1-DICHLOROETHANE	1/1			9.30E-02	9.30E-02	9.30E-02	NT	9.30E-02	mg/L
1,2-DICHLOROETHANE	1/1			5.00E-03	5.00E-03	5.00E-03	NT	5.00E-03	mg/L
BENZENE	1/1			1.10E-01	1.10E-01	1.10E-01	NT	1.10E-01	mg/L
TETRACHLOROETHENE	1/1			3.00E-03	3.00E-03	3.00E-03	NT	3.00E-03	mg/L
TRICHLOROETHENE	1/1			2.00E-03	2.00E-03	2.00E-03	NT	2.00E-03	mg/L
VINYL CHLORIDE	1/1			5.00E-03	5.00E-03	5.00E-03	NT	5.00E-03	mg/L

Sample Station=BG-05

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZENE	1/1			2.00E-03	2.00E-03	2.00E-03	NT	2.00E-03	mg/L

Sample Station=BG-12

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
MANGANESE	1/1			5.29E+00	5.29E+00	5.29E+00	NT	5.29E+00	mg/L
VANADIUM	1/1			2.36E-02	2.36E-02	2.36E-02	NT	2.36E-02	mg/L
TETRACHLOROETHENE	1/1			1.40E-01	1.40E-01	1.40E-01	NT	1.40E-01	mg/L
THORIUM-228	1/1			1.30E+00	1.30E+00	1.30E+00	NT	1.30E+00	pCi/L
URANIUM-234	1/1			1.60E+00	1.60E+00	1.60E+00	NT	1.60E+00	pCi/L
URANIUM-238	1/1			1.60E+00	1.60E+00	1.60E+00	NT	1.60E+00	pCi/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=BG-13

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
MANGANESE	1/1			2.05E+00	2.05E+00	2.05E+00	NT	2.05E+00	mg/L
VANADIUM	1/1			3.68E-02	3.68E-02	3.68E-02	NT	3.68E-02	mg/L
THORIUM-228	1/1			2.00E+00	2.00E+00	2.00E+00	NT	2.00E+00	pCi/L

Sample Station=BY-01

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
MOLYBDENUM	1/1			1.29E-01	1.29E-01	1.29E-01	NT	1.29E-01	mg/L
TRICHLOROETHENE	1/1			3.00E-03	3.00E-03	3.00E-03	NT	3.00E-03	mg/L
THORIUM-228	1/1			1.20E+00	1.20E+00	1.20E+00	NT	1.20E+00	pCi/L
THORIUM-230	1/1			1.30E+00	1.30E+00	1.30E+00	NT	1.30E+00	pCi/L
URANIUM-234	1/1			4.70E+00	4.70E+00	4.70E+00	NT	4.70E+00	pCi/L
URANIUM-238	1/1			3.30E+00	3.30E+00	3.30E+00	NT	3.30E+00	pCi/L

Sample Station=BY-02

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
MERCURY	1/1			1.60E-03	1.60E-03	1.60E-03	NT	1.60E-03	mg/L
1,1,2-TRICHLOROETHANE	1/1			5.00E-03	5.00E-03	5.00E-03	NT	5.00E-03	mg/L
1,1-DICHLOROETHENE	1/1			5.00E-03	5.00E-03	5.00E-03	NT	5.00E-03	mg/L
1,2-DICHLOROETHANE	1/1			2.30E-02	2.30E-02	2.30E-02	NT	2.30E-02	mg/L
1,2-DICHLOROETHENE	1/1			1.10E+00	1.10E+00	1.10E+00	NT	1.10E+00	mg/L
BENZENE	1/1			8.00E-03	8.00E-03	8.00E-03	NT	8.00E-03	mg/L
TETRACHLOROETHENE	1/1			6.20E-01	6.20E-01	6.20E-01	NT	6.20E-01	mg/L
TRICHLOROETHENE	1/1			2.10E-01	2.10E-01	2.10E-01	NT	2.10E-01	mg/L
VINYL CHLORIDE	1/1			7.30E-02	7.30E-02	7.30E-02	NT	7.30E-02	mg/L
LEAD-212	1/1			1.60E+01	1.60E+01	1.60E+01	NT	1.60E+01	pCi/L
THORIUM-228	1/1			1.20E+00	1.20E+00	1.20E+00	NT	1.20E+00	pCi/L
URANIUM-234	1/1			4.90E+00	4.90E+00	4.90E+00	NT	4.90E+00	pCi/L
URANIUM-238	1/1			5.00E+00	5.00E+00	5.00E+00	NT	5.00E+00	pCi/L

Sample Station=BY-03

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM	1/1			1.70E-03	1.70E-03	1.70E-03	NT	1.70E-03	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=BY-03 (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
MANGANESE	1/1			3.11E+00	3.11E+00	3.11E+00	NT	3.11E+00	mg/L
NICKEL	1/1			7.99E-02	7.99E-02	7.99E-02	NT	7.99E-02	mg/L
VANADIUM	1/1			3.19E-02	3.19E-02	3.19E-02	NT	3.19E-02	mg/L
1,1,2-TRICHLOROETHANE	1/1			3.00E-03	3.00E-03	3.00E-03	NT	3.00E-03	mg/L
1,1-DICHLOROETHENE	1/1			1.10E-01	1.10E-01	1.10E-01	NT	1.10E-01	mg/L
1,2-DICHLOROETHANE	1/1			6.00E-03	6.00E-03	6.00E-03	NT	6.00E-03	mg/L
1,2-DICHLOROETHENE	1/1			7.80E-02	7.80E-02	7.80E-02	NT	7.80E-02	mg/L
BENZENE	1/1			1.00E-02	1.00E-02	1.00E-02	NT	1.00E-02	mg/L
CHLOROFORM	1/1			1.40E-01	1.40E-01	1.40E-01	NT	1.40E-01	mg/L
TETRACHLOROETHENE	1/1			1.50E-02	1.50E-02	1.50E-02	NT	1.50E-02	mg/L
TRICHLOROETHENE	1/1			2.00E+00	2.00E+00	2.00E+00	NT	2.00E+00	mg/L
VINYL CHLORIDE	1/1			9.00E-03	9.00E-03	9.00E-03	NT	9.00E-03	mg/L
THORIUM-230	1/1			2.60E+00	2.60E+00	2.60E+00	NT	2.60E+00	pCi/L
URANIUM-234	1/1			2.90E+00	2.90E+00	2.90E+00	NT	2.90E+00	pCi/L
URANIUM-238	1/1			3.60E+00	3.60E+00	3.60E+00	NT	3.60E+00	pCi/L

Sample Station=BY-04

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
FLUORIDE	1/1			3.00E+00	3.00E+00	3.00E+00	NT	3.00E+00	mg/L
MERCURY	1/1			1.70E-03	1.70E-03	1.70E-03	NT	1.70E-03	mg/L
BENZENE	1/1			1.00E-03	1.00E-03	1.00E-03	NT	1.00E-03	mg/L
PCB-1254	1/1			4.50E-04	4.50E-04	4.50E-04	NT	4.50E-04	mg/L
THORIUM-228	1/1			1.90E+00	1.90E+00	1.90E+00	NT	1.90E+00	pCi/L
THORIUM-230	1/1			2.20E+00	2.20E+00	2.20E+00	NT	2.20E+00	pCi/L
URANIUM-234	1/1			3.30E+02	3.30E+02	3.30E+02	NT	3.30E+02	pCi/L
URANIUM-235	1/1			8.00E+00	8.00E+00	8.00E+00	NT	8.00E+00	pCi/L
URANIUM-238	1/1			1.40E+02	1.40E+02	1.40E+02	NT	1.40E+02	pCi/L

Sample Station=BY-05

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM	1/1			8.50E-04	8.50E-04	8.50E-04	NT	8.50E-04	mg/L
URANIUM-238	1/1			1.50E+00	1.50E+00	1.50E+00	NT	1.50E+00	pCi/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=BY-06

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
FLUORIDE	1/1			2.10E+00	2.10E+00	2.10E+00	NT	2.10E+00	mg/L
MERCURY	1/1			7.84E-02	7.84E-02	7.84E-02	NT	7.84E-02	mg/L
THORIUM-228	1/1			1.20E+00	1.20E+00	1.20E+00	NT	1.20E+00	pCi/L
URANIUM-234	1/1			1.10E+02	1.10E+02	1.10E+02	NT	1.10E+02	pCi/L
URANIUM-235	1/1			6.50E+00	6.50E+00	6.50E+00	NT	6.50E+00	pCi/L
URANIUM-238	1/1			1.00E+02	1.00E+02	1.00E+02	NT	1.00E+02	pCi/L

Sample Station=BY-09

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
FLUORIDE	1/1			4.00E+00	4.00E+00	4.00E+00	NT	4.00E+00	mg/L
THORIUM-228	1/1			1.70E+00	1.70E+00	1.70E+00	NT	1.70E+00	pCi/L
THORIUM-230	1/1			2.20E+00	2.20E+00	2.20E+00	NT	2.20E+00	pCi/L
URANIUM-234	1/1			1.30E+03	1.30E+03	1.30E+03	NT	1.30E+03	pCi/L
URANIUM-235	1/1			5.30E+01	5.30E+01	5.30E+01	NT	5.30E+01	pCi/L
URANIUM-238	1/1			1.80E+03	1.80E+03	1.80E+03	NT	1.80E+03	pCi/L

Sample Station=GW-003

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHROMIUM	1/2	1.00E-02	1.00E-02	8.00E-02	8.00E-02	4.25E-02	N	8.00E-02	mg/L
1,1,1-TRICHLOROETHANE	2/2			2.40E-01	5.10E-01	3.75E-01	N	5.10E-01	mg/L
1,1-DICHLOROETHANE	2/2			1.90E+00	2.00E+00	1.95E+00	N	2.00E+00	mg/L
1,1-DICHLOROETHENE	2/2			6.20E-01	6.20E-01	6.20E-01	N	6.20E-01	mg/L
1,2-DICHLOROETHANE	1/2	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.25E-03	N	2.00E-03	mg/L
CHLOROFORM	1/2	5.00E-03	5.00E-03	8.00E-04	8.00E-04	1.65E-03	N	8.00E-04	mg/L
VINYL CHLORIDE	1/2	1.00E-02	1.00E-02	9.00E-03	9.00E-03	7.00E-03	N	9.00E-03	mg/L

Sample Station=GW-005

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	5/5			3.40E-01	6.20E-01	4.66E-01	N	5.62E-01	mg/L
CHROMIUM	4/5	1.00E-02	1.00E-02	1.20E-02	4.10E-01	1.17E-01	N	2.78E-01	mg/L
TOTAL URANIUM	5/5			2.20E-02	6.20E-02	4.32E-02	N	5.95E-02	mg/L
VANADIUM	4/5	5.00E-03	5.00E-03	6.20E-03	2.70E-02	1.07E-02	N	1.98E-02	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-005 (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
URANIUM-234	1/1			9.80E+00	9.80E+00	9.80E+00	NT	9.80E+00	pCi/L
URANIUM-238	1/1			3.50E+00	3.50E+00	3.50E+00	NT	3.50E+00	pCi/L

Sample Station=GW-007

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CADMIUM	6/6			5.00E-03	3.00E-02	1.35E-02	N	2.15E-02	mg/L
1,1-DICHLOROETHENE	8/10	5.00E-03	5.00E-03	1.00E-03	5.00E-03	3.10E-03	N	3.88E-03	mg/L
1,2-DICHLOROETHENE	4/4			6.70E-02	1.50E-01	1.03E-01	N	1.45E-01	mg/L
BENZENE	1/10	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.35E-03	N	1.00E-03	mg/L
CHLOROFORM	1/10	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.45E-03	N	2.00E-03	mg/L
METHYLENE CHLORIDE	6/10	5.00E-03	5.00E-03	1.00E-03	1.00E-02	2.91E-03	L	4.80E-03	mg/L
TETRACHLOROETHENE	10/10			4.30E-02	1.00E-01	6.78E-02	L	7.99E-02	mg/L
TRANS-1,2-DICHLOROETHENE	6/6			1.30E-01	2.70E-01	2.02E-01	N	2.50E-01	mg/L
TRICHLOROETHENE	9/10	5.00E-03	5.00E-03	7.00E-03	2.00E-02	1.25E-02	N	1.58E-02	mg/L
VINYL CHLORIDE	5/10	1.00E-02	1.00E-02	3.00E-03	6.00E-03	4.40E-03	N	5.02E-03	mg/L

Sample Station=GW-010

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	1/1			8.10E-01	8.10E-01	8.10E-01	NT	8.10E-01	mg/L
BERYLLIUM	1/1			3.10E-03	3.10E-03	3.10E-03	NT	3.10E-03	mg/L
CHROMIUM	9/10	1.00E-02	1.00E-02	1.80E-02	1.40E-01	7.15E-02	N	9.82E-02	mg/L
MANGANESE	1/1			6.90E+00	6.90E+00	6.90E+00	NT	6.90E+00	mg/L
NICKEL	1/1			1.40E-01	1.40E-01	1.40E-01	NT	1.40E-01	mg/L
VANADIUM	1/1			4.90E-02	4.90E-02	4.90E-02	NT	4.90E-02	mg/L
1,1-DICHLOROETHENE	10/10			2.00E-03	8.00E-03	5.40E-03	N	6.43E-03	mg/L
BENZENE	1/10	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.35E-03	N	1.00E-03	mg/L
CHLOROFORM	3/10	5.00E-03	5.00E-03	3.00E-03	3.00E-03	2.65E-03	N	2.79E-03	mg/L
METHYLENE CHLORIDE	4/10	5.00E-03	5.00E-03	1.00E-03	1.00E-02	2.52E-03	L	4.75E-03	mg/L
TETRACHLOROETHENE	10/10			3.00E-03	1.00E-02	6.30E-03	N	7.61E-03	mg/L
TRICHLOROETHENE	10/10			4.00E-03	8.00E-03	5.81E-03	L	6.49E-03	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-014

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ANTIMONY	1/1			1.10E-01	1.10E-01	1.10E-01	NT	1.10E-01	mg/L
BARIUM	1/1			1.20E+00	1.20E+00	1.20E+00	NT	1.20E+00	mg/L
BORON	1/1			4.20E+00	4.20E+00	4.20E+00	NT	4.20E+00	mg/L
MANGANESE	3/3			2.30E+00	3.90E+00	3.20E+00	N	3.90E+00	mg/L
1,1,2,2-TETRACHLOROETHANE	1/6	5.00E-03	5.00E-03	2.40E-02	2.40E-02	6.08E-03	N	1.33E-02	mg/L
1,1,2-TRICHLOROETHANE	1/6	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.42E-03	N	2.00E-03	mg/L
1,1-DICHLOROETHANE	7/7			5.30E-01	1.70E+00	8.18E-01	L	1.07E+00	mg/L
1,1-DICHLOROETHENE	7/7			9.70E-02	3.60E-01	1.70E-01	L	2.27E-01	mg/L
1,2-DICHLOROETHANE	6/6			6.00E-03	2.80E-02	1.17E-02	N	1.85E-02	mg/L
1,2-DICHLOROETHENE	1/1			2.60E+00	2.60E+00	2.60E+00	NT	2.60E+00	mg/L
2-BUTANONE	3/6	1.00E-02	1.00E-02	1.80E-02	1.50E+00	2.60E-01	N	7.60E-01	mg/L
BENZENE	6/6			2.60E-02	1.80E-01	7.80E-02	N	1.25E-01	mg/L
CHLOROFORM	3/6	5.00E-03	5.00E-03	2.00E-03	3.00E-03	2.42E-03	N	2.73E-03	mg/L
METHYLENE CHLORIDE	6/6			6.00E-03	1.60E-02	8.67E-03	N	1.18E-02	mg/L
TETRACHLOROETHENE	7/7			1.60E-01	2.70E+01	8.60E+00	L	2.70E+01	mg/L
TRANS-1,2-DICHLOROETHENE	6/6			1.70E-02	3.00E+01	7.99E+00	N	1.70E+01	mg/L
TRICHLOROETHENE	7/7			6.70E-01	1.30E+01	3.13E+00	L	6.09E+00	mg/L
VINYL CHLORIDE	6/7	1.00E-02	1.00E-02	7.60E-01	3.40E+00	1.25E+00	N	2.02E+00	mg/L
CESIUM-137	1/1			8.70E+00	8.70E+00	8.70E+00	NT	8.70E+00	pCi/L
URANIUM-238	1/1			8.90E-01	8.90E-01	8.90E-01	NT	8.90E-01	pCi/L

Sample Station=GW-018

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
METHYLENE CHLORIDE	1/2	5.00E-03	5.00E-03	1.60E-02	1.60E-02	9.25E-03	N	1.60E-02	mg/L

Sample Station=GW-021

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	1/1			8.20E-01	8.20E-01	8.20E-01	NT	8.20E-01	mg/L
1,1-DICHLOROETHANE	3/4	5.00E-03	5.00E-03	1.10E-01	2.09E-01	1.20E-01	N	2.09E-01	mg/L
1,2-DICHLOROETHANE	3/4	5.00E-03	5.00E-03	1.00E-03	2.00E-03	1.63E-03	N	2.00E-03	mg/L
CHLOROFORM	3/4	5.00E-03	5.00E-03	1.00E-03	3.00E-03	2.13E-03	N	3.00E-03	mg/L
METHYLENE CHLORIDE	3/4	5.00E-03	5.00E-03	2.00E-03	6.00E-03	3.38E-03	N	5.49E-03	mg/L
TETRACHLOROETHENE	2/4	5.00E-03	5.00E-03	2.00E-03	1.70E-02	6.00E-03	N	1.46E-02	mg/L
VINYL CHLORIDE	1/4	1.00E-02	1.00E-02	2.00E-03	2.00E-03	4.25E-03	N	2.00E-03	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-027

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	1/1			1.20E+00	1.20E+00	1.20E+00	NT	1.20E+00	mg/L
BORON	1/1			3.10E+01	3.10E+01	3.10E+01	NT	3.10E+01	mg/L
CADMIUM	4/6	2.00E-03	2.00E-03	2.00E-03	5.00E-03	2.80E-03	N	4.20E-03	mg/L
MANGANESE	1/1			1.90E+01	1.90E+01	1.90E+01	NT	1.90E+01	mg/L
NICKEL	1/1			4.60E-01	4.60E-01	4.60E-01	NT	4.60E-01	mg/L
1,1,1-TRICHLOROETHANE	6/6			5.00E-01	3.40E+00	1.48E+00	N	2.35E+00	mg/L
1,1,2,2-TETRACHLOROETHANE	1/5	5.00E-03	5.00E-03	5.00E-03	5.00E-03	3.00E-03	N	4.07E-03	mg/L
1,1,2-TRICHLOROETHANE	4/6	5.00E-03	5.00E-03	3.50E-02	1.30E-01	5.03E-02	N	9.01E-02	mg/L
1,1-DICHLOROETHANE	5/5			7.00E-01	2.60E+00	1.33E+00	N	2.05E+00	mg/L
1,1-DICHLOROETHENE	5/6	5.00E-03	5.00E-03	1.60E-01	7.60E-01	3.44E-01	N	5.84E-01	mg/L
1,2-DICHLOROETHANE	6/6			2.30E-02	7.00E-02	4.27E-02	N	5.73E-02	mg/L
2-BUTANONE	4/6	1.00E-02	1.00E-02	1.30E-02	3.60E+00	7.63E-01	N	1.95E+00	mg/L
4-METHYL-2-PENTANONE	3/6	1.00E-02	1.00E-02	3.00E-03	3.20E-01	7.97E-02	N	1.86E-01	mg/L
ACETONE	2/5	1.00E-02	1.00E-02	1.80E-02	8.50E-01	1.77E-01	N	5.36E-01	mg/L
BENZENE	5/5			4.80E-02	1.40E-01	9.84E-02	N	1.38E-01	mg/L
CARBON TETRACHLORIDE	2/5	5.00E-03	5.00E-03	7.60E-02	1.90E-01	5.47E-02	N	1.33E-01	mg/L
CHLOROFORM	5/5			2.00E-03	1.70E+00	3.43E-01	N	1.07E+00	mg/L
METHYLENE CHLORIDE	6/6			1.10E-02	4.90E-01	1.20E-01	N	2.79E-01	mg/L
TETRACHLOROETHENE	6/6			1.00E+00	6.30E+01	1.94E+01	N	4.02E+01	mg/L
TOLUENE	6/6			1.70E-02	1.90E-01	8.37E-02	N	1.35E-01	mg/L
TRANS-1,2-DICHLOROETHENE	6/6			2.30E+00	5.00E+01	1.82E+01	N	3.48E+01	mg/L
TRICHLOROETHENE	6/6			1.10E+00	1.70E+01	7.42E+00	N	1.30E+01	mg/L
VINYL CHLORIDE	5/6	1.00E-02	1.00E-02	4.20E-01	3.10E+00	1.77E+00	N	2.82E+00	mg/L

Sample Station=GW-037

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
FLUORIDE	4/5	1.00E-01	1.00E-01	2.90E-01	4.00E-01	2.68E-01	N	3.92E-01	mg/L
METHYLENE CHLORIDE	1/5	5.00E-03	5.00E-03	1.70E-02	1.70E-02	5.40E-03	N	1.16E-02	mg/L

Sample Station=GW-039

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CADMIUM	8/8			5.00E-03	5.20E-02	2.05E-02	L	3.35E-02	mg/L
CHROMIUM	8/8			4.00E-02	6.00E-02	5.07E-02	L	5.60E-02	mg/L
MANGANESE	1/1			2.20E+00	2.20E+00	2.20E+00	NT	2.20E+00	mg/L
NICKEL	1/1			9.20E-02	9.20E-02	9.20E-02	NT	9.20E-02	mg/L
1,1,1-TRICHLOROETHANE	8/8			1.40E+00	1.30E+01	4.82E+00	L	7.36E+00	mg/L
1,1,2-TRICHLOROETHANE	8/8			1.20E-01	3.00E-01	1.80E-01	L	2.11E-01	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-039 (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1-DICHLOROETHANE	8/8			9.00E-01	7.80E+00	4.13E+00	N	5.59E+00	mg/L
1,1-DICHLOROETHENE	8/8			1.30E+00	1.30E+01	5.40E+00	L	8.02E+00	mg/L
1,2-DICHLOROETHANE	8/8			7.70E-02	1.02E-01	8.94E-02	N	9.59E-02	mg/L
1,2-DICHLOROETHENE	1/1			2.90E+00	2.90E+00	2.90E+00	NT	2.90E+00	mg/L
2-BUTANONE	3/8	1.00E-02	1.00E-02	1.70E-02	1.20E+00	1.62E-02	L	5.20E-01	mg/L
BENZENE	8/8			8.00E-03	1.80E-02	1.36E-02	N	1.59E-02	mg/L
CHLOROFORM	7/8	5.00E-03	5.00E-03	6.00E-03	1.80E-02	1.04E-02	N	1.43E-02	mg/L
CHLOROMETHANE	1/8	1.00E-02	1.00E-02	2.00E-03	2.00E-03	4.63E-03	N	2.00E-03	mg/L
METHYLENE CHLORIDE	8/8			7.80E-02	9.90E-02	8.63E-02	L	9.14E-02	mg/L
TETRACHLOROETHENE	8/8			3.50E-02	6.40E-02	5.29E-02	N	5.86E-02	mg/L
TRANS-1,2-DICHLOROETHENE	7/7			3.50E-02	8.90E+00	1.03E+01	L	8.90E+00	mg/L
TRICHLOROETHENE	8/8			9.00E-02	2.50E-01	1.89E-01	N	2.20E-01	mg/L
VINYL CHLORIDE	7/8	1.00E-02	1.00E-02	4.20E-02	2.90E-01	1.58E-01	N	2.31E-01	mg/L

Sample Station=GW-040

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
FLUORIDE	13/13			2.00E-01	4.00E-01	3.15E-01	N	3.49E-01	mg/L
VANADIUM	10/13	5.00E-03	5.00E-03	5.00E-03	3.50E-02	1.39E-02	L	2.39E-02	mg/L
THORIUM-228	1/1			9.60E-01	9.60E-01	9.60E-01	NT	9.60E-01	pCi/L

Sample Station=GW-042

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLOROFORM	1/16	5.00E-03	1.00E-02	6.00E-04	6.00E-04	2.85E-03	N	6.00E-04	mg/L
TETRACHLOROETHENE	1/16	5.00E-03	1.00E-02	1.00E-03	1.00E-03	2.89E-03	L	1.00E-03	mg/L

Sample Station=GW-044

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1,2,2-TETRACHLOROETHANE	1/19	5.00E-03	1.00E-02	1.00E-03	1.00E-03	2.83E-03	L	1.00E-03	mg/L
CESIUM-137	1/1			7.60E+00	7.60E+00	7.60E+00	NT	7.60E+00	pCi/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-045

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TETRACHLOROETHENE	6/6			4.00E-03	1.50E-02	6.33E-03	N	9.85E-03	mg/L
TRANS-1,2-DICHLOROETHENE	1/2	5.00E-03	5.00E-03	8.60E-02	8.60E-02	4.43E-02	N	8.60E-02	mg/L
TRICHLOROETHENE	1/6	5.00E-03	5.00E-03	9.00E-03	9.00E-03	3.58E-03	N	5.77E-03	mg/L

Sample Station=GW-046

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1,1-TRICHLOROETHANE	10/10			6.00E-03	9.70E-01	3.56E-01	L	9.70E-01	mg/L
1,1-DICHLOROETHANE	10/10			8.00E-03	2.30E-01	8.98E-02	L	1.81E-01	mg/L
1,1-DICHLOROETHENE	10/10			2.00E-03	1.40E-01	4.90E-02	L	1.19E-01	mg/L
1,2-DICHLOROETHANE	8/9	5.00E-03	5.00E-03	1.00E-03	1.80E-02	7.75E-03	L	1.30E-02	mg/L
1,2-DICHLOROETHENE	4/4			3.60E-02	2.60E+00	1.53E+00	N	2.60E+00	mg/L
4-METHYL-2-PENTANONE	1/9	1.00E-02	1.00E-02	2.20E-02	2.20E-02	6.89E-03	N	1.04E-02	mg/L
BENZENE	10/10			3.00E-03	1.00E-01	2.86E-02	L	6.46E-02	mg/L
BROMOFORM	6/9	5.00E-03	5.00E-03	2.00E-03	2.00E-02	6.23E-03	L	1.14E-02	mg/L
CARBON TETRACHLORIDE	1/8	5.00E-03	5.00E-03	1.10E-02	1.10E-02	3.56E-03	N	5.58E-03	mg/L
CHLOROFORM	9/10	5.00E-03	5.00E-03	4.00E-03	5.90E-02	2.03E-02	L	3.66E-02	mg/L
METHYLENE CHLORIDE	10/10			1.00E-03	5.40E-02	2.24E-02	N	3.25E-02	mg/L
TETRACHLOROETHENE	10/10			2.20E-02	2.00E+00	6.27E-01	L	1.60E+00	mg/L
TRANS-1,2-DICHLOROETHENE	6/6			1.70E-01	1.14E+00	5.95E-01	N	9.43E-01	mg/L
TRICHLOROETHENE	10/10			8.00E-03	8.00E-01	2.71E-01	L	7.25E-01	mg/L
VINYL CHLORIDE	9/10	1.00E-02	1.00E-02	9.00E-03	5.30E-01	1.65E-01	L	3.99E-01	mg/L

Sample Station=GW-047

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CADMIUM	1/1			3.50E-03	3.50E-03	3.50E-03	NT	3.50E-03	mg/L
ZINC	4/4			5.90E-03	1.10E+00	3.21E-01	N	9.39E-01	mg/L

Sample Station=GW-052

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	5/5			3.40E-02	1.30E+00	2.95E-01	N	8.31E-01	mg/L
NITRATE (AS N)	5/5			6.30E+00	2.80E+01	1.56E+01	N	2.37E+01	mg/L
TOTAL URANIUM	5/5			4.20E-02	8.90E-02	6.62E-02	N	8.28E-02	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-053

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	14/14			2.40E-01	4.40E-01	3.20E-01	L	3.43E-01	mg/L
1,1-DICHLOROETHENE	3/14	5.00E-03	1.00E-02	8.00E-04	1.10E-02	1.36E-03	L	2.99E-03	mg/L
1,2-DICHLOROETHANE	5/14	5.00E-03	1.00E-02	1.00E-03	2.00E-03	1.52E-03	L	1.90E-03	mg/L
1,2-DICHLOROETHENE	13/14	5.00E-03	5.00E-03	1.00E-02	3.30E-02	2.07E-02	N	2.45E-02	mg/L
BENZENE	5/14	5.00E-03	1.00E-02	6.00E-04	2.00E-03	1.10E-03	L	1.50E-03	mg/L
METHYLENE CHLORIDE	6/14	5.00E-03	1.00E-02	7.00E-04	1.80E-02	2.78E-03	L	5.37E-03	mg/L
TETRACHLOROETHENE	8/14	5.00E-03	5.00E-03	7.00E-04	1.00E-03	9.73E-04	L	1.00E-03	mg/L
TRICHLOROETHENE	13/14	5.00E-03	5.00E-03	1.00E-03	4.00E-03	2.89E-03	N	3.29E-03	mg/L
VINYL CHLORIDE	14/14			6.00E-03	2.60E-02	1.50E-02	L	1.91E-02	mg/L

Sample Station=GW-054

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	10/10			7.30E-01	1.10E+00	9.27E-01	N	9.80E-01	mg/L
METHYLENE CHLORIDE	1/10	5.00E-03	5.00E-03	2.30E-02	2.30E-02	4.55E-03	N	8.31E-03	mg/L

Sample Station=GW-056

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLOROFORM	2/17	5.00E-03	1.00E-02	9.00E-04	2.00E-03	1.45E-03	L	1.98E-03	mg/L
METHYLENE CHLORIDE	4/17	5.00E-03	1.00E-02	1.00E-03	2.20E-02	1.51E-03	L	4.51E-03	mg/L

Sample Station=GW-057

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
METHYLENE CHLORIDE	3/11	5.00E-03	1.00E-02	1.00E-03	2.20E-02	1.91E-03	L	8.09E-03	mg/L

Sample Station=GW-058

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TOTAL URANIUM	10/10			8.00E-03	3.20E-02	1.96E-02	L	2.57E-02	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-058 (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZENE	1/11	5.00E-03	5.00E-03	9.00E-04	9.00E-04	2.35E-03	N	9.00E-04	mg/L
METHYLENE CHLORIDE	4/11	5.00E-03	5.00E-03	1.00E-03	1.70E-02	2.13E-03	L	4.27E-03	mg/L

Sample Station=GW-061

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	15/15			6.00E+00	2.72E+01	1.40E+01	L	1.76E+01	mg/L
TOTAL URANIUM	15/15			1.70E-02	8.80E-02	4.43E-02	L	5.65E-02	mg/L
BENZENE	1/15	5.00E-03	1.00E-02	9.00E-04	9.00E-04	2.92E-03	L	9.00E-04	mg/L

Sample Station=GW-063

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHROMIUM	9/11	1.00E-02	1.00E-02	1.60E-02	3.40E-01	8.57E-02	L	1.96E-01	mg/L
BENZENE	1/12	5.00E-03	5.00E-03	9.00E-04	9.00E-04	2.37E-03	N	9.00E-04	mg/L
CARBON TETRACHLORIDE	4/12	5.00E-03	5.00E-03	9.00E-04	2.00E-03	2.08E-03	N	2.00E-03	mg/L
CHLOROFORM	4/12	5.00E-03	5.00E-03	8.00E-04	1.00E-03	9.65E-04	L	1.00E-03	mg/L
TRICHLOROETHENE	12/12			1.30E-02	3.70E-02	2.32E-02	L	2.67E-02	mg/L

Sample Station=GW-064

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	19/19			5.80E-01	1.20E+01	7.20E+00	N	8.37E+00	mg/L
1,2-DICHLOROETHENE	20/20			5.00E-03	9.80E-02	1.13E-02	L	1.45E-02	mg/L
CARBON TETRACHLORIDE	18/20	5.00E-03	1.00E-02	1.00E-03	5.00E-03	3.23E-03	N	3.68E-03	mg/L
CHLOROFORM	12/20	2.00E-03	1.00E-02	2.00E-03	4.00E-03	2.45E-03	L	3.05E-03	mg/L
TETRACHLOROETHENE	10/20	5.00E-03	1.00E-02	1.00E-03	2.00E-03	1.32E-03	L	1.53E-03	mg/L
TRICHLOROETHENE	20/20			6.40E-02	1.30E-01	9.79E-02	L	1.05E-01	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-067

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1-DICHLOROETHENE	1/11	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.45E-03	N	2.00E-03	mg/L
1,2-DICHLOROETHANE	1/11	5.00E-03	5.00E-03	6.00E-04	6.00E-04	2.33E-03	N	6.00E-04	mg/L
BENZENE	1/11	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.45E-03	N	2.00E-03	mg/L
CHLOROFORM	5/11	5.00E-03	5.00E-03	4.00E-04	3.00E-03	2.31E-03	N	2.77E-03	mg/L
TETRACHLOROETHENE	2/11	5.00E-03	5.00E-03	9.00E-04	1.00E-03	9.74E-04	L	1.00E-03	mg/L
TRICHLOROETHENE	1/11	5.00E-03	5.00E-03	3.00E-03	3.00E-03	2.55E-03	N	2.63E-03	mg/L

Sample Station=GW-068

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1-DICHLOROETHANE	8/8			4.00E-01	7.50E-01	5.79E-01	L	6.71E-01	mg/L
1,1-DICHLOROETHENE	8/8			6.00E-02	1.10E-01	8.54E-02	L	9.70E-02	mg/L
1,2-DICHLOROETHANE	5/8	5.00E-03	2.50E-02	2.00E-03	4.00E-03	2.97E-03	L	3.80E-03	mg/L
1,2-DICHLOROETHENE	2/2			3.80E-01	3.90E-01	3.85E-01	N	3.90E-01	mg/L
BENZENE	8/8			2.00E-02	4.30E-02	3.24E-02	N	3.81E-02	mg/L
CARBON TETRACHLORIDE	1/8	5.00E-03	2.50E-02	8.00E-03	8.00E-03	5.69E-03	N	8.00E-03	mg/L
CHLOROFORM	7/8	2.50E-02	2.50E-02	1.00E-02	3.30E-02	2.05E-02	L	2.66E-02	mg/L
METHYLENE CHLORIDE	7/8	2.50E-02	2.50E-02	2.00E-03	6.00E-03	4.37E-03	L	5.85E-03	mg/L
TETRACHLOROETHENE	8/8			7.10E-02	2.20E-01	1.48E-01	N	1.85E-01	mg/L
TRANS-1,2-DICHLOROETHENE	6/6			3.90E-01	5.50E-01	4.63E-01	N	5.20E-01	mg/L
TRICHLOROETHENE	8/8			1.60E-01	7.20E-01	4.74E-01	N	6.01E-01	mg/L
VINYL CHLORIDE	8/8			7.00E-02	2.30E-01	1.71E-01	N	2.08E-01	mg/L

Sample Station=GW-069

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	19/19			3.30E-01	4.40E-01	3.77E-01	L	3.88E-01	mg/L
VINYL CHLORIDE	4/19	1.00E-02	1.00E-02	1.00E-03	2.00E-03	1.95E-03	L	2.00E-03	mg/L

Sample Station=GW-071

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1,1-TRICHLOROETHANE	6/6			8.00E-03	3.30E-01	9.32E-02	N	1.93E-01	mg/L
1,1-DICHLOROETHANE	6/6			2.80E-01	8.20E-01	4.63E-01	N	6.15E-01	mg/L
1,1-DICHLOROETHENE	5/6	2.50E-02	2.50E-02	1.10E-02	1.60E-02	1.31E-02	N	1.45E-02	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-071 (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,2-DICHLOROETHENE	5/6	2.50E-02	2.50E-02	4.20E-02	5.80E-02	4.08E-02	N	5.32E-02	mg/L
BENZENE	6/6			6.90E-02	4.20E-01	1.63E-01	N	2.68E-01	mg/L
TETRACHLOROETHENE	6/6			4.00E-01	5.90E-01	5.05E-01	N	5.63E-01	mg/L
TRICHLOROETHENE	6/6			4.10E-01	6.50E-01	4.93E-01	N	5.66E-01	mg/L

Sample Station=GW-073

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1-DICHLOROETHENE	4/13	5.00E-03	5.00E-03	1.00E-03	3.00E-03	2.27E-03	N	2.57E-03	mg/L
CHLOROFORM	2/13	5.00E-03	5.00E-03	2.00E-03	3.00E-03	2.50E-03	N	2.60E-03	mg/L
METHYLENE CHLORIDE	4/13	5.00E-03	5.00E-03	2.00E-03	2.40E-02	2.37E-03	L	5.77E-03	mg/L
TETRACHLOROETHENE	6/13	5.00E-03	5.00E-03	9.00E-04	6.00E-03	1.85E-03	L	2.58E-03	mg/L
TRICHLOROETHENE	5/13	5.00E-03	5.00E-03	7.00E-04	2.00E-03	2.05E-03	N	2.00E-03	mg/L

Sample Station=GW-078

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLOROFORM	1/5	5.00E-03	5.00E-03	5.00E-04	5.00E-04	2.10E-03	N	5.00E-04	mg/L

Sample Station=GW-079

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZENE	1/10	5.00E-03	1.00E-02	1.00E-03	1.00E-03	3.16E-03	L	1.00E-03	mg/L

Sample Station=GW-080

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CADMIUM	12/15	2.00E-03	2.00E-03	2.20E-03	2.20E-02	4.58E-03	L	7.18E-03	mg/L
BENZENE	1/15	5.00E-03	1.00E-02	9.00E-04	9.00E-04	2.92E-03	L	9.00E-04	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-082

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,2-DICHLOROETHENE	13/16	5.00E-03	1.00E-02	1.00E-02	9.00E-02	3.29E-02	N	4.43E-02	mg/L
TRICHLOROETHENE	1/16	5.00E-03	1.00E-02	2.00E-03	2.00E-03	2.62E-03	L	2.00E-03	mg/L
VINYL CHLORIDE	11/16	1.00E-02	2.00E-02	1.00E-03	3.10E-02	8.47E-03	L	1.40E-02	mg/L

Sample Station=GW-085

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	16/16			1.15E+02	3.13E+02	1.96E+02	L	2.24E+02	mg/L
BROMODICHLOROMETHANE	2/20	5.00E-03	1.00E-02	2.00E-03	3.00E-03	2.10E-03	L	2.52E-03	mg/L
CHLOROFORM	2/20	5.00E-03	1.00E-02	1.50E-02	2.50E-02	1.59E-04	L	1.02E-02	mg/L

Sample Station=GW-086

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM	6/7	3.00E-04	3.00E-04	6.30E-04	1.50E-03	9.47E-04	N	1.27E-03	mg/L
CHROMIUM	7/7			3.10E-02	1.10E-01	5.24E-02	L	6.90E-02	mg/L
VANADIUM	5/7	5.00E-03	5.00E-03	1.00E-02	3.60E-02	1.54E-02	N	2.46E-02	mg/L

Sample Station=GW-087

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TOTAL URANIUM	4/4			1.40E-01	5.22E-01	3.94E-01	N	5.22E-01	mg/L
1,1,2,2-TETRACHLOROETHANE	1/9	5.00E-03	1.00E-02	4.10E-02	4.10E-02	5.69E-03	L	1.04E-02	mg/L
1,1,2-TRICHLOROETHANE	3/9	5.00E-03	1.00E-02	7.00E-03	1.00E-02	3.41E-03	L	9.00E-03	mg/L
1,1-DICHLOROETHENE	7/9	5.00E-03	5.00E-03	4.00E-03	1.70E-02	8.09E-03	L	1.26E-02	mg/L
1,2-DICHLOROETHANE	9/9			6.00E-03	2.70E-02	1.68E-02	N	2.16E-02	mg/L
1,2-DICHLOROETHENE	3/3			9.80E-02	1.90E-01	1.43E-01	N	1.90E-01	mg/L
BENZENE	9/9			5.00E-03	5.30E-02	3.12E-02	N	3.98E-02	mg/L
CHLOROFORM	9/9			2.60E-02	8.40E-02	4.69E-02	L	6.03E-02	mg/L
METHYLENE CHLORIDE	7/9	5.00E-03	5.00E-03	1.00E-03	3.40E+00	2.38E-02	L	1.29E-01	mg/L
TETRACHLOROETHENE	9/9			2.40E-01	1.60E+00	6.84E-01	L	1.05E+00	mg/L
TRANS-1,2-DICHLOROETHENE	6/6			1.10E-01	2.40E-01	1.57E-01	N	1.96E-01	mg/L
TRICHLOROETHENE	9/9			1.70E-01	8.00E-01	3.86E-01	L	4.90E-01	mg/L
VINYL CHLORIDE	3/9	1.00E-02	2.00E-02	2.00E-03	7.00E-03	3.67E-03	L	5.22E-03	mg/L
NEPTUNIUM-237	1/1			2.40E-01	2.40E-01	2.40E-01	NT	2.40E-01	pCi/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-087 (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TECHNETIUM-99	1/1			3.60E+01	3.60E+01	3.60E+01	NT	3.60E+01	pCi/L
URANIUM-234	1/1			1.30E+02	1.30E+02	1.30E+02	NT	1.30E+02	pCi/L
URANIUM-235	1/1			8.40E+00	8.40E+00	8.40E+00	NT	8.40E+00	pCi/L
URANIUM-238	1/1			3.80E+02	3.80E+02	3.80E+02	NT	3.80E+02	pCi/L

Sample Station=GW-089

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	10/10			3.10E-02	9.20E-01	1.29E-01	L	2.26E-01	mg/L
BENZENE	2/10	5.00E-03	5.00E-03	7.00E-04	9.00E-04	8.45E-04	L	9.00E-04	mg/L
VINYL CHLORIDE	8/10	1.00E-02	1.00E-02	2.00E-03	5.00E-03	3.60E-03	N	4.28E-03	mg/L

Sample Station=GW-094

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLOROFORM	1/13	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.46E-03	N	2.00E-03	mg/L

Sample Station=GW-097

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZENE	2/13	5.00E-03	5.00E-03	4.00E-04	1.00E-03	2.22E-03	N	1.00E-03	mg/L
CHLOROFORM	2/13	5.00E-03	5.00E-03	5.00E-04	2.00E-03	2.31E-03	N	2.00E-03	mg/L
METHYLENE CHLORIDE	6/13	5.00E-03	5.00E-03	4.00E-04	6.00E-03	2.76E-03	N	3.38E-03	mg/L
TETRACHLOROETHENE	2/13	5.00E-03	5.00E-03	3.00E-03	3.00E-03	2.58E-03	N	2.67E-03	mg/L
TRICHLOROETHENE	2/13	5.00E-03	5.00E-03	5.00E-04	2.00E-03	2.31E-03	N	2.00E-03	mg/L
VINYL CHLORIDE	1/13	1.00E-02	1.00E-02	2.00E-03	2.00E-03	4.77E-03	N	2.00E-03	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-098

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1-DICHLOROETHENE	11/13	5.00E-03	5.00E-03	1.00E-03	4.00E-03	2.54E-03	N	2.91E-03	mg/L
1,2-DICHLOROETHENE	6/6			2.10E-02	3.50E-02	2.82E-02	N	3.27E-02	mg/L
CHLOROFORM	3/13	5.00E-03	5.00E-03	6.00E-04	3.00E-03	2.35E-03	N	2.63E-03	mg/L
TETRACHLOROETHENE	5/13	5.00E-03	5.00E-03	9.00E-04	2.00E-03	1.99E-03	N	2.00E-03	mg/L
TRICHLOROETHENE	12/13	5.00E-03	5.00E-03	6.00E-03	1.20E-02	7.88E-03	N	9.08E-03	mg/L

Sample Station=GW-100

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ANTIMONY	1/2	5.00E-02	5.00E-02	1.30E-01	1.30E-01	7.75E-02	N	1.30E-01	mg/L
BARIUM	6/6			6.40E-01	1.20E+00	1.03E+00	N	1.20E+00	mg/L
CADMIUM	8/11	2.00E-03	2.00E-03	2.40E-03	6.00E-02	9.00E-03	L	2.35E-02	mg/L
NITRATE (AS N)	12/12			2.16E+02	4.57E+02	3.63E+02	N	4.02E+02	mg/L
TOTAL URANIUM	10/12	1.00E-03	1.00E-03	1.00E-03	7.40E-02	1.01E-02	L	2.48E-02	mg/L
CHLOROFORM	3/13	5.00E-03	5.00E-03	2.00E-03	3.00E-03	2.46E-03	N	2.58E-03	mg/L
TETRACHLOROETHENE	1/13	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.38E-03	N	1.00E-03	mg/L

Sample Station=GW-101

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	4/4			2.40E+00	6.60E+00	5.30E+00	N	6.60E+00	mg/L
CADMIUM	4/4			4.30E-03	1.40E-01	3.86E-02	N	1.18E-01	mg/L
MANGANESE	4/4			4.90E+00	7.60E+00	6.55E+00	N	7.60E+00	mg/L
MERCURY	4/4			1.40E-03	1.20E-02	5.53E-03	N	1.13E-02	mg/L
NICKEL	1/2	1.00E-02	1.00E-02	1.20E-01	1.20E-01	6.25E-02	N	1.20E-01	mg/L
NITRATE (AS N)	4/4			1.42E+03	2.51E+03	2.19E+03	N	2.51E+03	mg/L
STRONTIUM	4/4			6.60E+00	1.40E+01	1.09E+01	N	1.40E+01	mg/L
TOTAL URANIUM	4/4			4.30E-02	6.20E-02	4.85E-02	N	5.91E-02	mg/L

Sample Station=GW-103

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM	1/1			6.40E-02	6.40E-02	6.40E-02	NT	6.40E-02	mg/L
MANGANESE	1/1			1.10E+02	1.10E+02	1.10E+02	NT	1.10E+02	mg/L
MERCURY	1/1			1.60E-02	1.60E-02	1.60E-02	NT	1.60E-02	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-103 (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NICKEL	1/1			1.80E+01	1.80E+01	1.80E+01	NT	1.80E+01	mg/L
NITRATE (AS N)	1/1			2.05E+03	2.05E+03	2.05E+03	NT	2.05E+03	mg/L
TOTAL URANIUM	1/1			3.26E+01	3.26E+01	3.26E+01	NT	3.26E+01	mg/L
ZINC	1/1			5.10E+00	5.10E+00	5.10E+00	NT	5.10E+00	mg/L
CHLOROFORM	1/2	5.00E-03	5.00E-03	9.00E-03	9.00E-03	5.75E-03	N	9.00E-03	mg/L
METHYLENE CHLORIDE	2/2			5.00E-03	2.20E-02	1.35E-02	N	2.20E-02	mg/L
TETRACHLOROETHENE	2/2			7.60E-02	5.20E-01	2.98E-01	N	5.20E-01	mg/L

Sample Station=GW-104

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1-DICHLOROETHENE	1/2	5.00E-03	5.00E-03	5.00E-03	5.00E-03	3.75E-03	N	5.00E-03	mg/L
CHLOROFORM	2/2			2.50E-02	6.80E-02	4.65E-02	N	6.80E-02	mg/L
METHYLENE CHLORIDE	2/2			1.10E-02	7.30E-02	4.20E-02	N	7.30E-02	mg/L
TETRACHLOROETHENE	2/2			3.40E-01	3.70E-01	3.55E-01	N	3.70E-01	mg/L

Sample Station=GW-115

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TETRACHLOROETHENE	1/18	5.00E-03	1.00E-02	1.00E-03	1.00E-03	2.57E-03	L	1.00E-03	mg/L

Sample Station=GW-117

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1-DICHLOROETHENE	1/11	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.45E-03	N	2.00E-03	mg/L
BENZENE	1/11	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.36E-03	N	1.00E-03	mg/L
TETRACHLOROETHENE	11/11			9.00E-03	2.20E-02	1.49E-02	L	1.69E-02	mg/L
TRICHLOROETHENE	11/11			3.00E-03	6.00E-03	4.18E-03	N	4.77E-03	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-118

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZENE	7/16	5.00E-03	5.00E-03	7.00E-04	2.00E-03	1.93E-03	N	2.00E-03	mg/L

Sample Station=GW-119

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TETRACHLOROETHENE	11/11			1.00E-03	5.00E-03	2.55E-03	N	3.16E-03	mg/L
TRICHLOROETHENE	7/11	5.00E-03	5.00E-03	8.00E-04	3.00E-03	1.98E-03	N	2.38E-03	mg/L

Sample Station=GW-120

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLOROFORM	1/12	5.00E-03	5.00E-03	4.00E-03	4.00E-03	2.63E-03	N	2.85E-03	mg/L
METHYLENE CHLORIDE	2/12	5.00E-03	5.00E-03	2.00E-03	1.00E-02	1.29E-03	L	4.41E-03	mg/L

Sample Station=GW-122

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	5/5			8.20E+00	1.00E+01	9.18E+00	N	9.92E+00	mg/L
BORON	3/3			3.40E-01	3.90E-01	3.70E-01	N	3.90E-01	mg/L
NITRATE (AS N)	5/5			6.60E+02	9.18E+02	7.49E+02	N	8.51E+02	mg/L
STRONTIUM	4/4			1.90E+01	2.30E+01	2.03E+01	N	2.25E+01	mg/L
TETRACHLOROETHENE	1/6	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.25E-03	N	1.00E-03	mg/L

Sample Station=GW-123

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZENE	4/11	5.00E-03	5.00E-03	5.00E-04	2.00E-03	1.95E-03	N	2.00E-03	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-124

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CADMIUM	6/10	2.00E-03	2.00E-03	2.50E-03	9.00E-03	3.35E-03	L	6.90E-03	mg/L
NITRATE (AS N)	8/8			1.60E+02	3.46E+02	2.64E+02	L	3.24E+02	mg/L
CHLOROFORM	13/14	5.00E-03	5.00E-03	2.00E-03	6.00E-03	3.18E-03	L	3.75E-03	mg/L
TETRACHLOROETHENE	14/14			8.00E-03	2.10E-02	1.63E-02	N	1.79E-02	mg/L
TRICHLOROETHENE	14/14			5.00E-03	1.20E-02	8.45E-03	L	9.47E-03	mg/L

Sample Station=GW-125

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZENE	3/11	5.00E-03	5.00E-03	2.00E-04	8.00E-04	6.08E-04	L	8.00E-04	mg/L

Sample Station=GW-126

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,2-DICHLOROETHANE	1/13	5.00E-03	5.00E-03	4.00E-03	4.00E-03	2.62E-03	N	2.82E-03	mg/L
BENZENE	1/13	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.38E-03	N	1.00E-03	mg/L
CHLOROFORM	3/13	5.00E-03	5.00E-03	2.00E-03	3.00E-03	2.54E-03	N	2.66E-03	mg/L
METHYLENE CHLORIDE	4/13	5.00E-03	5.00E-03	1.00E-03	6.00E-03	2.06E-03	L	3.17E-03	mg/L
TETRACHLOROETHENE	2/13	5.00E-03	5.00E-03	1.60E-02	2.10E-02	4.96E-03	N	7.97E-03	mg/L
TRICHLOROETHENE	2/13	5.00E-03	5.00E-03	1.00E-03	7.10E-02	4.10E-04	L	8.27E-03	mg/L

Sample Station=GW-127

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM	1/1			7.00E-04	7.00E-04	7.00E-04	NT	7.00E-04	mg/L
CADMIUM	8/8			2.70E-03	9.40E-03	5.86E-03	N	7.54E-03	mg/L
FLUORIDE	9/9			8.00E-01	1.10E+00	9.61E-01	L	1.02E+00	mg/L
MANGANESE	1/1			2.70E+00	2.70E+00	2.70E+00	NT	2.70E+00	mg/L
NITRATE (AS N)	10/10			5.00E+00	6.34E+01	1.28E+01	L	1.96E+01	mg/L
TOTAL URANIUM	10/10			2.00E-03	8.85E-01	4.82E-01	N	6.17E-01	mg/L
VANADIUM	1/1			2.30E-02	2.30E-02	2.30E-02	NT	2.30E-02	mg/L
BENZENE	1/10	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.35E-03	N	1.00E-03	mg/L
CHLOROFORM	3/10	5.00E-03	5.00E-03	4.00E-04	1.00E-03	7.49E-04	L	1.00E-03	mg/L
TETRACHLOROETHENE	5/10	5.00E-03	5.00E-03	8.00E-04	4.20E-02	2.58E-03	L	6.12E-03	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-162

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CESIUM-137	1/1			1.00E+01	1.00E+01	1.00E+01	NT	1.00E+01	pCi/L

Sample Station=GW-165

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
METHYLENE CHLORIDE	1/5	5.00E-03	5.00E-03	2.20E-02	2.20E-02	6.40E-03	N	1.47E-02	mg/L

Sample Station=GW-166

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
METHYLENE CHLORIDE	1/5	5.00E-03	5.00E-03	2.30E-02	2.30E-02	6.60E-03	N	1.53E-02	mg/L

Sample Station=GW-210

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ZINC	4/4			1.10E+00	5.10E+00	2.73E+00	N	4.73E+00	mg/L
1,1-DICHLOROETHENE	1/5	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.20E-03	N	1.00E-03	mg/L
BENZENE	1/5	5.00E-03	5.00E-03	8.00E-04	8.00E-04	2.16E-03	N	8.00E-04	mg/L
TRICHLOROETHENE	1/5	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.40E-03	N	2.00E-03	mg/L

Sample Station=GW-225

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	11/11			7.20E+01	1.05E+02	8.37E+01	L	8.92E+01	mg/L
1,1-DICHLOROETHENE	9/11	1.00E-02	2.50E-02	3.00E-03	6.00E-03	5.48E-03	L	6.00E-03	mg/L
BENZENE	1/10	5.00E-03	2.50E-02	2.00E-03	2.00E-03	5.53E-03	L	2.00E-03	mg/L
CARBON TETRACHLORIDE	11/11			2.00E-03	9.00E-03	7.00E-03	N	8.12E-03	mg/L
CHLOROFORM	6/10	2.00E-03	2.50E-02	2.00E-03	5.00E-03	3.07E-03	L	4.43E-03	mg/L
TETRACHLOROETHENE	9/11	1.00E-02	2.00E-02	2.00E-03	7.00E-03	5.64E-03	N	6.82E-03	mg/L
TRICHLOROETHENE	11/11			3.00E-01	4.60E-01	3.68E-01	N	3.93E-01	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-226

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	5/5			4.00E-01	7.10E-01	5.46E-01	N	6.55E-01	mg/L
MANGANESE	5/5			7.50E+00	1.60E+01	1.09E+01	N	1.43E+01	mg/L
TOTAL URANIUM	6/6			1.40E-02	9.20E-02	5.75E-02	N	8.17E-02	mg/L
1,1-DICHLOROETHENE	3/6	5.00E-03	5.00E-03	1.00E-03	3.00E-03	2.25E-03	N	2.82E-03	mg/L
1,2-DICHLOROETHENE	6/6			1.50E-02	3.70E-02	2.78E-02	N	3.60E-02	mg/L
BENZENE	3/6	5.00E-03	5.00E-03	4.00E-04	2.00E-03	1.82E-03	N	2.00E-03	mg/L
CHLOROBENZENE	4/6	5.00E-03	5.00E-03	4.00E-03	8.00E-03	4.67E-03	N	6.42E-03	mg/L
TRICHLOROETHENE	6/6			3.00E-03	2.20E-02	8.83E-03	N	1.46E-02	mg/L

Sample Station=GW-227

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	10/10			9.40E+00	4.50E+01	2.32E+01	L	3.13E+01	mg/L
TOTAL URANIUM	10/10			2.40E-02	1.96E-01	6.14E-02	L	8.75E-02	mg/L
BENZENE	1/11	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.36E-03	N	1.00E-03	mg/L
CARBON TETRACHLORIDE	1/11	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.45E-03	N	2.00E-03	mg/L
CHLOROFORM	1/11	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.36E-03	N	1.00E-03	mg/L
TRICHLOROETHENE	11/11			3.00E-03	8.80E-02	1.26E-02	L	2.14E-02	mg/L

Sample Station=GW-228

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	13/13			1.29E+00	3.70E+01	2.47E+01	N	2.89E+01	mg/L
1,1-DICHLOROETHENE	2/17	5.00E-03	1.00E-02	9.00E-04	5.00E-03	1.27E-03	L	2.59E-03	mg/L
1,2-DICHLOROETHANE	1/17	5.00E-03	1.00E-02	4.00E-04	4.00E-04	2.52E-03	N	4.00E-04	mg/L
CARBON TETRACHLORIDE	3/17	5.00E-03	1.00E-02	6.00E-04	2.00E-03	2.40E-03	N	2.00E-03	mg/L
CHLOROFORM	13/17	5.00E-03	5.00E-03	9.00E-04	6.00E-03	2.13E-03	L	2.73E-03	mg/L
TETRACHLOROETHENE	13/17	5.00E-03	5.00E-03	1.00E-03	3.60E-02	2.78E-03	L	4.14E-03	mg/L
TRICHLOROETHENE	17/17			6.00E-02	1.60E-01	8.08E-02	L	8.84E-02	mg/L

Sample Station=GW-229

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	4/4			9.20E-01	3.00E+00	2.13E+00	N	3.00E+00	mg/L
MANGANESE	6/6			4.40E+00	8.10E+00	6.22E+00	N	7.46E+00	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-229 (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TOTAL URANIUM	14/14			1.10E-02	4.20E-02	2.00E-02	L	2.37E-02	mg/L
1,1-DICHLOROETHENE	6/17	5.00E-03	1.00E-02	1.00E-03	4.00E-03	2.53E-03	N	2.95E-03	mg/L
1,2-DICHLOROETHANE	1/17	5.00E-03	1.00E-02	5.00E-04	5.00E-04	2.53E-03	N	5.00E-04	mg/L
1,2-DICHLOROETHENE	6/6			7.00E-04	3.80E-02	2.40E-02	N	3.44E-02	mg/L
BENZENE	16/17	5.00E-03	5.00E-03	2.00E-03	1.00E-02	6.87E-03	L	8.53E-03	mg/L
CHLOROBENZENE	13/17	5.00E-03	5.00E-03	2.00E-03	6.00E-03	3.43E-03	L	4.06E-03	mg/L
CHLOROFORM	3/17	5.00E-03	5.00E-03	6.00E-04	3.00E-03	2.33E-03	N	2.58E-03	mg/L
TETRACHLOROETHENE	3/17	5.00E-03	1.00E-02	4.00E-04	2.40E-02	8.46E-04	L	2.82E-03	mg/L
TRICHLOROETHENE	5/17	5.00E-03	1.00E-02	2.00E-03	4.00E-03	2.37E-03	L	2.80E-03	mg/L
VINYL CHLORIDE	16/17	1.00E-02	1.00E-02	1.40E-02	3.50E-02	1.95E-02	N	2.26E-02	mg/L

Sample Station=GW-236

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CADMIUM	2/2			3.50E-02	1.02E+00	5.28E-01	N	1.02E+00	mg/L
MERCURY	2/2			6.00E-04	1.90E-03	1.25E-03	N	1.90E-03	mg/L
NITRATE (AS N)	2/2			3.61E+02	3.85E+02	3.73E+02	N	3.85E+02	mg/L
TOTAL URANIUM	1/2	1.00E-03	1.00E-03	5.10E-02	5.10E-02	2.58E-02	N	5.10E-02	mg/L
1,1-DICHLOROETHENE	2/7	5.00E-03	5.00E-03	1.00E-03	5.00E-03	1.80E-03	L	3.51E-03	mg/L
TETRACHLOROETHENE	5/7	5.00E-03	5.00E-03	9.00E-04	2.00E-03	1.70E-03	N	2.00E-03	mg/L

Sample Station=GW-242

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,2-DICHLOROETHENE	6/6			4.20E-02	1.30E-01	9.05E-02	N	1.17E-01	mg/L
METHYLENE CHLORIDE	2/10	5.00E-03	5.00E-03	3.00E-03	6.00E-03	1.87E-03	L	4.14E-03	mg/L
TETRACHLOROETHENE	3/10	5.00E-03	5.00E-03	3.00E-03	8.00E-03	2.51E-03	L	4.90E-03	mg/L
TRANS-1,2-DICHLOROETHENE	3/4	5.00E-03	5.00E-03	6.20E-02	9.80E-02	6.31E-02	N	9.80E-02	mg/L
TRICHLOROETHENE	7/10	5.00E-03	5.00E-03	1.00E-03	3.10E-02	4.62E-03	L	8.30E-03	mg/L
VINYL CHLORIDE	9/10	1.00E-02	1.00E-02	5.00E-03	7.30E-02	3.75E-02	N	5.11E-02	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-243

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	6/6			4.80E+00	9.30E+00	6.98E+00	N	8.47E+00	mg/L
BERYLLIUM	5/5			3.60E-02	7.80E-02	6.18E-02	N	7.70E-02	mg/L
BORON	6/6			7.50E-01	2.10E+00	1.48E+00	N	1.84E+00	mg/L
CADMIUM	6/6			1.90E+00	4.00E+00	2.58E+00	N	3.20E+00	mg/L
CHROMIUM	6/6			1.90E-01	3.10E-01	2.52E-01	N	2.87E-01	mg/L
FLUORIDE	6/6			4.00E-01	1.10E+02	1.87E+01	N	5.55E+01	mg/L
MANGANESE	6/6			1.70E+02	2.20E+02	2.03E+02	N	2.20E+02	mg/L
MERCURY	6/6			2.30E-03	1.10E-01	7.12E-02	N	1.09E-01	mg/L
NICKEL	6/6			1.50E+01	2.00E+01	1.80E+01	N	1.97E+01	mg/L
NITRATE (AS N)	6/6			5.87E+03	6.66E+03	6.36E+03	N	6.60E+03	mg/L
STRONTIUM	6/6			9.70E+00	1.20E+01	1.15E+01	N	1.20E+01	mg/L
TOTAL URANIUM	6/6			1.90E+00	4.40E+01	2.73E+01	N	4.22E+01	mg/L
ZINC	6/6			3.00E+00	4.60E+00	3.60E+00	N	4.09E+00	mg/L
1,2-DICHLOROETHENE	5/5			5.20E-02	1.00E-01	6.92E-02	N	8.78E-02	mg/L
4-METHYL-2-PENTANONE	1/1			9.70E-02	9.70E-02	9.70E-02	NT	9.70E-02	mg/L
ACETONE	6/6			4.60E-01	6.00E+00	1.79E+00	N	3.54E+00	mg/L
CHLOROFORM	4/4			3.30E-02	6.90E-02	4.33E-02	N	6.36E-02	mg/L
METHYLENE CHLORIDE	8/8			1.60E-01	5.60E-01	3.24E-01	L	4.08E-01	mg/L
TETRACHLOROETHENE	8/8			3.70E+00	9.00E+00	6.38E+00	N	7.50E+00	mg/L
TRICHLOROETHENE	1/1			1.60E-02	1.60E-02	1.60E-02	NT	1.60E-02	mg/L
AMERICIUM-241	5/6	2.50E-01	2.50E-01	2.70E+01	3.80E+01	2.67E+01	N	3.80E+01	pCi/L
NEPTUNIUM-237	7/8	4.17E+01	4.17E+01	4.00E+01	1.09E+03	4.66E+02	N	7.04E+02	pCi/L
RADIUM (TOTAL ALPHA)	1/1			3.51E+01	3.51E+01	3.51E+01	NT	3.51E+01	pCi/L
STRONTIUM-90	7/8	5.60E-01	5.60E-01	7.40E+00	2.54E+02	1.43E+02	N	2.09E+02	pCi/L
TECHNETIUM-99	8/8			2.31E+04	8.04E+04	6.41E+04	N	7.62E+04	pCi/L
THORIUM-228	1/1			3.20E+00	3.20E+00	3.20E+00	NT	3.20E+00	pCi/L
TRITIUM	8/9	0.00E+00	0.00E+00	1.90E+03	5.41E+03	3.60E+03	N	4.62E+03	pCi/L
URANIUM-234	8/8			8.80E+01	4.65E+03	2.54E+03	N	3.74E+03	pCi/L
URANIUM-235	7/8	4.75E+02	4.75E+02	5.20E+00	5.47E+02	2.86E+02	N	4.20E+02	pCi/L
URANIUM-238	8/8			2.30E+02	1.36E+04	5.96E+03	N	8.94E+03	pCi/L

Sample Station=GW-244

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CADMIUM	7/7			6.00E-03	1.27E+00	8.12E-01	N	1.17E+00	mg/L
FLUORIDE	4/4			7.00E+00	3.20E+01	1.41E+01	N	2.82E+01	mg/L
MERCURY	7/7			8.00E-04	7.00E-03	2.37E-03	L	4.20E-03	mg/L
NITRATE (AS N)	4/4			5.20E+03	6.20E+03	5.73E+03	N	6.20E+03	mg/L
TOTAL URANIUM	3/5	1.00E-03	1.00E-03	1.50E-02	1.11E-01	2.88E-02	N	7.32E-02	mg/L
CHLOROFORM	9/9			8.00E-03	1.70E-02	1.41E-02	N	1.58E-02	mg/L
METHYLENE CHLORIDE	8/9	5.00E-03	5.00E-03	6.00E-03	1.00E-02	6.94E-03	N	8.19E-03	mg/L
TETRACHLOROETHENE	3/9	5.00E-03	5.00E-03	5.00E-04	6.00E-03	2.72E-03	N	3.60E-03	mg/L
TRICHLOROETHENE	1/9	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.44E-03	N	2.00E-03	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-245

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	2/2			2.00E+01	2.20E+01	2.10E+01	N	2.20E+01	mg/L
BERYLLIUM	1/1			8.00E-03	8.00E-03	8.00E-03	NT	8.00E-03	mg/L
CADMIUM	9/9			9.00E-03	2.60E-01	1.80E-01	N	2.25E-01	mg/L
FLUORIDE	6/6			4.00E+00	1.40E+01	7.17E+00	N	1.05E+01	mg/L
MANGANESE	1/1			4.30E+01	4.30E+01	4.30E+01	NT	4.30E+01	mg/L
NICKEL	1/1			1.50E+00	1.50E+00	1.50E+00	NT	1.50E+00	mg/L
NITRATE (AS N)	6/6			2.69E+03	3.81E+03	3.26E+03	N	3.64E+03	mg/L
STRONTIUM	1/1			1.30E+01	1.30E+01	1.30E+01	NT	1.30E+01	mg/L
TOTAL URANIUM	9/9			7.00E-02	1.88E-01	1.23E-01	L	1.45E-01	mg/L
CHLOROFORM	10/10			6.00E-03	1.10E-02	8.21E-03	L	9.01E-03	mg/L
METHYLENE CHLORIDE	10/10			5.00E-03	9.00E-03	7.11E-03	L	7.83E-03	mg/L
TETRACHLOROETHENE	9/10	5.00E-03	5.00E-03	9.00E-03	1.90E-02	1.25E-02	N	1.51E-02	mg/L

Sample Station=GW-246

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	2/2			2.50E+01	2.80E+01	2.65E+01	N	2.80E+01	mg/L
BERYLLIUM	1/1			3.50E-02	3.50E-02	3.50E-02	NT	3.50E-02	mg/L
CADMIUM	7/7			1.69E-01	5.50E-01	4.40E-01	N	5.35E-01	mg/L
FLUORIDE	4/4			1.10E+00	2.00E+00	1.45E+00	N	1.93E+00	mg/L
MANGANESE	1/1			8.80E+01	8.80E+01	8.80E+01	NT	8.80E+01	mg/L
MERCURY	7/7			1.60E-03	4.00E-03	2.91E-03	N	3.46E-03	mg/L
NICKEL	1/1			5.00E+00	5.00E+00	5.00E+00	NT	5.00E+00	mg/L
NITRATE (AS N)	4/4			2.86E+03	3.63E+03	3.30E+03	N	3.63E+03	mg/L
STRONTIUM	1/1			9.40E+00	9.40E+00	9.40E+00	NT	9.40E+00	mg/L
TOTAL URANIUM	7/7			4.64E-01	8.93E-01	6.53E-01	L	7.53E-01	mg/L
1,1-DICHLOROETHENE	5/10	5.00E-03	5.00E-03	1.00E-03	2.00E-03	1.95E-03	N	2.00E-03	mg/L
CARBON TETRACHLORIDE	1/10	5.00E-03	5.00E-03	7.00E-04	7.00E-04	2.32E-03	N	7.00E-04	mg/L
CHLOROFORM	9/10	5.00E-03	5.00E-03	1.40E-02	2.20E-02	1.74E-02	N	2.07E-02	mg/L
METHYLENE CHLORIDE	8/10	5.00E-03	5.00E-03	9.00E-03	1.30E-02	8.80E-03	N	1.09E-02	mg/L
TETRACHLOROETHENE	9/10	5.00E-03	5.00E-03	2.50E-02	4.80E-02	3.37E-02	N	4.13E-02	mg/L

Sample Station=GW-247

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	2/2			2.90E+01	3.20E+01	3.05E+01	N	3.20E+01	mg/L
CADMIUM	8/8			7.70E-02	2.10E-01	1.13E-01	L	1.36E-01	mg/L
FLUORIDE	5/5			1.60E+00	3.80E+00	2.32E+00	N	3.15E+00	mg/L
MANGANESE	1/1			2.40E+01	2.40E+01	2.40E+01	NT	2.40E+01	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-247 (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NICKEL	1/1			4.70E-01	4.70E-01	4.70E-01	NT	4.70E-01	mg/L
NITRATE (AS N)	5/5			3.07E+03	3.88E+03	3.43E+03	N	3.71E+03	mg/L
STRONTIUM	1/1			1.30E+01	1.30E+01	1.30E+01	NT	1.30E+01	mg/L
TOTAL URANIUM	8/8			2.10E-02	3.60E-02	2.89E-02	N	3.18E-02	mg/L
CHLOROFORM	10/10			7.00E-03	1.00E-02	7.90E-03	L	8.42E-03	mg/L
METHYLENE CHLORIDE	10/10			7.00E-03	1.10E-02	8.11E-03	L	8.76E-03	mg/L
TETRACHLOROETHENE	10/10			2.00E-03	5.00E-03	3.12E-03	L	3.69E-03	mg/L

Sample Station=GW-248

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TETRACHLOROETHENE	1/4	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.13E-03	N	1.00E-03	mg/L

Sample Station=GW-250

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CARBON TETRACHLORIDE	2/10	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.20E-03	N	1.00E-03	mg/L
CHLOROFORM	1/10	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.35E-03	N	1.00E-03	mg/L
METHYLENE CHLORIDE	3/10	5.00E-03	5.00E-03	3.00E-03	6.00E-03	2.53E-03	L	4.41E-03	mg/L
TETRACHLOROETHENE	2/10	5.00E-03	5.00E-03	5.00E-04	4.00E-03	2.45E-03	N	2.93E-03	mg/L
TRICHLOROETHENE	1/10	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.45E-03	N	2.00E-03	mg/L

Sample Station=GW-257

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLOROMETHANE	1/4	1.00E-02	1.00E-02	8.00E-03	8.00E-03	5.75E-03	N	7.52E-03	mg/L
TETRACHLOROETHENE	4/4			1.30E-01	2.10E-01	1.80E-01	N	2.10E-01	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-258

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TETRACHLOROETHENE	4/4			4.00E-03	2.30E-02	1.43E-02	N	2.30E-02	mg/L
TRICHLOROETHENE	1/4	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.38E-03	N	2.00E-03	mg/L

Sample Station=GW-259

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZENE	1/3	5.00E-03	5.00E-03	5.00E-03	5.00E-03	3.33E-03	N	5.00E-03	mg/L
TETRACHLOROETHENE	4/4			1.30E+00	2.10E+00	1.75E+00	N	2.10E+00	mg/L
TRICHLOROETHENE	4/4			2.30E-02	2.90E-02	2.55E-02	N	2.86E-02	mg/L

Sample Station=GW-276

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	10/10			6.10E-01	8.70E+00	4.60E+00	N	6.32E+00	mg/L
BERYLLIUM	7/7			9.90E-03	1.10E-01	6.54E-02	N	9.41E-02	mg/L
CADMIUM	5/5			6.00E-02	2.90E-01	1.45E-01	N	2.32E-01	mg/L
FLUORIDE	10/10			2.00E-01	6.20E+00	1.22E+00	L	2.14E+00	mg/L
MANGANESE	7/7			9.50E+00	7.90E+01	5.26E+01	N	7.45E+01	mg/L
MERCURY	7/10	2.00E-04	2.00E-04	7.00E-04	2.50E-03	1.11E-03	N	1.63E-03	mg/L
NICKEL	7/7			6.00E-01	6.90E+00	4.57E+00	N	6.61E+00	mg/L
NITRATE (AS N)	10/10			1.47E+02	1.58E+03	8.98E+02	N	1.23E+03	mg/L
NITRITE (AS N)	1/4	3.05E+01	3.30E+01	6.70E+00	6.70E+00	1.37E+01	N	6.70E+00	mg/L
STRONTIUM	7/7			3.10E-01	2.70E+00	1.61E+00	N	2.28E+00	mg/L
TOTAL URANIUM	10/10			2.90E-02	1.35E+01	6.39E+00	N	9.20E+00	mg/L
ZINC	7/7			2.10E-01	2.40E+00	1.41E+00	N	2.05E+00	mg/L
1,1,2-TRICHLOROETHANE	1/16	5.00E-03	1.00E-02	1.00E-03	1.00E-03	2.58E-03	L	1.00E-03	mg/L
1,1-DICHLOROETHENE	5/16	5.00E-03	1.00E-02	2.00E-03	3.00E-03	2.30E-03	L	2.55E-03	mg/L
1,2-DICHLOROETHANE	1/16	5.00E-03	1.00E-02	4.00E-03	4.00E-03	2.74E-03	L	2.99E-03	mg/L
2,4-DINITROPHENOL	2/5	2.50E-02	5.00E-02	1.10E-02	7.70E-02	2.76E-02	N	5.45E-02	mg/L
BENZENE	9/16	5.00E-03	1.00E-02	6.00E-04	3.00E-03	2.13E-03	N	2.63E-03	mg/L
BIS(2-ETHYLHEXYL)PHTHALATE	3/5	5.00E-03	5.00E-03	9.00E-03	2.10E-02	1.08E-02	N	1.92E-02	mg/L
BROMODICHLOROMETHANE	1/16	5.00E-03	1.00E-02	3.00E-03	3.00E-03	2.68E-03	L	2.89E-03	mg/L
CHLOROFORM	15/16	5.00E-03	5.00E-03	1.00E-03	1.00E-02	4.97E-03	N	6.11E-03	mg/L
DI-N-OCTYLPHTHALATE	1/5	5.00E-03	1.00E-02	2.00E-03	2.00E-03	3.40E-03	N	2.00E-03	mg/L
DIBROMOCHLOROMETHANE	1/16	5.00E-03	1.00E-02	1.00E-03	1.00E-03	2.58E-03	L	1.00E-03	mg/L
METHYLENE CHLORIDE	13/16	5.00E-03	1.00E-02	3.00E-03	2.40E-02	6.41E-03	L	8.50E-03	mg/L
TETRACHLOROETHENE	16/16			8.00E-03	2.50E-01	1.49E-01	N	1.84E-01	mg/L
TRICHLOROETHENE	9/16	5.00E-03	1.00E-02	8.00E-04	7.00E-03	1.91E-03	L	2.58E-03	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-277

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	7/7			8.00E+00	1.30E+01	9.79E+00	L	1.09E+01	mg/L
MANGANESE	3/3			5.30E+00	8.50E+00	6.87E+00	N	8.50E+00	mg/L
NITRATE (AS N)	12/12			1.46E+03	2.72E+03	2.00E+03	L	2.17E+03	mg/L
STRONTIUM	3/3			6.50E+00	7.50E+00	7.10E+00	N	7.50E+00	mg/L
TOTAL URANIUM	12/12			7.00E-03	9.20E-02	1.86E-02	L	2.63E-02	mg/L
BIS(2-ETHYLHEXYL)PHTHALATE	3/5	5.00E-03	1.00E-02	1.00E-03	3.20E-02	1.01E-02	N	2.22E-02	mg/L
CHLOROFORM	14/14			1.00E-03	4.00E-03	2.71E-03	N	3.18E-03	mg/L
CHLOROMETHANE	1/14	1.00E-02	1.00E-02	1.00E-02	1.00E-02	5.36E-03	N	5.99E-03	mg/L
DI-N-OCTYLPHTHALATE	1/5	5.00E-03	1.00E-02	3.00E-03	3.00E-03	3.60E-03	N	3.00E-03	mg/L
METHYLENE CHLORIDE	11/14	5.00E-03	5.00E-03	2.00E-03	6.00E-03	3.71E-03	L	4.41E-03	mg/L
TETRACHLOROETHENE	11/14	5.00E-03	5.00E-03	2.00E-03	1.70E-02	6.89E-03	L	1.03E-02	mg/L

Sample Station=GW-286

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TRICHLOROETHENE	1/11	5.00E-03	5.00E-03	3.00E-03	3.00E-03	2.55E-03	N	2.63E-03	mg/L

Sample Station=GW-287

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TETRACHLOROETHENE	3/15	5.00E-03	1.00E-02	7.00E-04	2.00E-03	1.52E-03	L	2.00E-03	mg/L

Sample Station=GW-288

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLOROFORM	2/8	5.00E-03	2.50E-02	5.00E-04	1.00E-03	8.40E-04	L	1.00E-03	mg/L
TETRACHLOROETHENE	8/9	5.00E-03	5.00E-03	9.10E-01	1.60E+00	1.09E+00	N	1.39E+00	mg/L
TRICHLOROETHENE	9/9			1.00E-03	1.50E-02	1.06E-02	N	1.29E-02	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-289

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TETRACHLOROETHENE	9/9			5.70E-01	1.30E+00	8.19E-01	L	9.51E-01	mg/L
TRICHLOROETHENE	6/8	5.00E-03	2.50E-02	5.00E-03	8.00E-03	6.72E-03	L	8.00E-03	mg/L

Sample Station=GW-290

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	5/5			4.30E-01	8.80E-01	7.00E-01	N	8.57E-01	mg/L
TETRACHLOROETHENE	5/9	5.00E-03	5.00E-03	2.00E-03	7.00E-03	2.91E-03	L	4.07E-03	mg/L
TRICHLOROETHENE	1/9	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.44E-03	N	2.00E-03	mg/L

Sample Station=GW-291

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	6/6			2.10E+00	5.10E+00	4.20E+00	N	5.10E+00	mg/L
CHLOROFORM	2/9	5.00E-03	2.50E-02	8.00E-04	9.00E-04	8.74E-04	L	9.00E-04	mg/L
TETRACHLOROETHENE	9/9			2.40E-01	6.70E-01	4.94E-01	N	5.84E-01	mg/L
TRICHLOROETHENE	9/9			4.30E-02	1.10E-01	6.69E-02	L	7.82E-02	mg/L
CESIUM-137	1/1			1.10E+01	1.10E+01	1.10E+01	NT	1.10E+01	pCi/L
TRITIUM	1/1			6.20E+02	6.20E+02	6.20E+02	NT	6.20E+02	pCi/L

Sample Station=GW-306

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	6/6			7.00E+00	1.20E+01	1.03E+01	N	1.20E+01	mg/L
CARBON TETRACHLORIDE	5/6	5.00E-03	5.00E-03	1.00E-03	3.00E-03	2.08E-03	N	2.63E-03	mg/L
CHLOROFORM	3/6	3.00E-03	5.00E-03	4.00E-03	4.00E-03	2.92E-03	N	3.94E-03	mg/L
TRICHLOROETHENE	6/6			6.50E-02	8.30E-02	7.13E-02	N	7.69E-02	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-307

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	5/5			1.10E+01	2.10E+01	1.56E+01	N	1.95E+01	mg/L
CARBON TETRACHLORIDE	4/6	5.00E-03	5.00E-03	2.00E-03	4.00E-03	3.17E-03	N	3.93E-03	mg/L
CHLOROFORM	4/6	4.00E-03	5.00E-03	5.00E-03	6.00E-03	4.58E-03	N	6.00E-03	mg/L
TETRACHLOROETHENE	5/6	5.00E-03	5.00E-03	1.00E-03	2.00E-03	1.75E-03	N	2.00E-03	mg/L
TRICHLOROETHENE	6/6			3.70E-02	6.70E-02	5.22E-02	N	6.09E-02	mg/L

Sample Station=GW-308

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	5/5			8.00E+00	1.90E+01	1.32E+01	N	1.71E+01	mg/L
CARBON TETRACHLORIDE	3/6	5.00E-03	5.00E-03	1.00E-03	4.00E-03	2.75E-03	N	3.68E-03	mg/L
CHLOROFORM	3/6	4.00E-03	5.00E-03	4.00E-03	5.00E-03	3.33E-03	N	4.30E-03	mg/L
TETRACHLOROETHENE	4/6	5.00E-03	5.00E-03	7.00E-04	1.00E-03	1.45E-03	N	1.00E-03	mg/L
TRICHLOROETHENE	6/6			3.00E-02	5.40E-02	3.98E-02	N	4.71E-02	mg/L

Sample Station=GW-309

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
MANGANESE	11/11			2.40E+00	3.80E+00	3.06E+00	N	3.32E+00	mg/L
NITRATE (AS N)	11/11			1.05E+01	2.30E+01	1.63E+01	N	1.80E+01	mg/L
TETRACHLOROETHENE	7/11	5.00E-03	5.00E-03	1.00E-03	2.00E-03	1.91E-03	N	2.00E-03	mg/L
TRICHLOROETHENE	11/11			3.00E-03	2.50E-02	1.12E-02	L	1.56E-02	mg/L

Sample Station=GW-310

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	6/6			5.00E+00	4.80E+01	1.85E+01	N	3.15E+01	mg/L
1,2-DICHLOROETHENE	6/6			9.00E-03	3.40E-02	2.18E-02	N	2.97E-02	mg/L
CHLOROFORM	1/6	5.00E-03	5.00E-03	7.00E-04	7.00E-04	2.20E-03	N	7.00E-04	mg/L
TETRACHLOROETHENE	5/6	5.00E-03	5.00E-03	1.00E-03	4.00E-03	2.58E-03	N	3.42E-03	mg/L
TRICHLOROETHENE	6/6			1.70E-02	5.20E-02	3.48E-02	N	4.69E-02	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-311

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CARBON TETRACHLORIDE	13/14	1.00E-02	1.00E-02	7.00E-04	4.00E-03	2.33E-03	N	2.95E-03	mg/L
CHLOROFORM	12/14	1.00E-03	5.00E-03	8.00E-04	2.00E-03	1.30E-03	L	1.59E-03	mg/L
TRICHLOROETHENE	14/14			1.00E-02	3.80E-02	2.33E-02	L	2.80E-02	mg/L

Sample Station=GW-312

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CARBON TETRACHLORIDE	1/14	5.00E-03	1.00E-02	1.00E-03	1.00E-03	2.95E-03	L	1.00E-03	mg/L
CHLOROFORM	9/14	8.00E-04	5.00E-03	5.00E-04	2.00E-03	9.91E-04	L	1.29E-03	mg/L
TRICHLOROETHENE	14/14			1.00E-02	8.30E-02	6.01E-02	N	6.97E-02	mg/L

Sample Station=GW-313

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,2-DICHLOROETHENE	9/11	5.00E-03	5.00E-03	3.00E-03	1.20E-01	1.19E-02	L	2.31E-02	mg/L
CHLOROFORM	1/11	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.45E-03	N	2.00E-03	mg/L
TETRACHLOROETHENE	11/11			8.00E-04	1.80E-02	9.89E-03	N	1.33E-02	mg/L
TRICHLOROETHENE	10/11	5.00E-03	5.00E-03	1.00E-03	1.00E-02	5.14E-03	N	6.79E-03	mg/L

Sample Station=GW-314

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,2-DICHLOROETHENE	10/11	5.00E-03	5.00E-03	3.00E-03	1.40E-01	1.43E-02	L	2.64E-02	mg/L
TETRACHLOROETHENE	10/11	5.00E-03	5.00E-03	5.00E-03	2.40E-02	1.26E-02	L	1.87E-02	mg/L
TRICHLOROETHENE	10/11	5.00E-03	5.00E-03	2.00E-03	1.00E-02	5.47E-03	L	7.40E-03	mg/L

Sample Station=GW-315

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	20/20			2.00E+00	3.41E+01	1.69E+01	L	2.37E+01	mg/L
1,2-DICHLOROETHENE	17/20	5.00E-03	5.00E-03	2.00E-03	4.50E-02	1.31E-02	L	2.00E-02	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-315 (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BROMODICHLOROMETHANE	6/20	5.00E-03	1.00E-02	1.00E-03	4.00E-03	1.86E-03	L	2.33E-03	mg/L
CHLOROFORM	11/20	5.00E-03	5.00E-03	7.00E-04	1.10E-02	3.39E-03	L	5.19E-03	mg/L
TETRACHLOROETHENE	19/20	5.00E-03	5.00E-03	5.00E-03	5.50E-02	1.98E-02	L	2.72E-02	mg/L
TRICHLOROETHENE	19/20	5.00E-03	5.00E-03	1.00E-03	2.20E-02	9.00E-03	L	1.24E-02	mg/L

Sample Station=GW-345

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	5/5			1.90E+00	1.86E+02	4.83E+01	N	1.23E+02	mg/L
CHLOROFORM	2/11	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.41E-03	N	2.00E-03	mg/L

Sample Station=GW-346

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	4/4			1.60E+00	2.20E+00	1.85E+00	N	2.16E+00	mg/L
NITRATE (AS N)	5/5			8.06E+02	1.00E+03	8.82E+02	N	9.61E+02	mg/L

Sample Station=GW-348

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	17/17			4.00E+00	1.40E+01	9.80E+00	N	1.06E+01	mg/L
TETRACHLOROETHENE	2/18	5.00E-03	1.00E-02	4.00E-04	9.00E-04	2.71E-03	N	9.00E-04	mg/L
TRICHLOROETHENE	3/18	5.00E-03	1.00E-02	5.00E-04	6.00E-03	2.75E-03	N	3.31E-03	mg/L

Sample Station=GW-364

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM	8/15	3.00E-04	3.00E-04	4.60E-04	1.40E-03	5.76E-04	N	8.00E-04	mg/L
1,1-DICHLOROETHENE	14/16	5.00E-03	5.00E-03	2.00E-03	9.00E-03	5.13E-03	L	6.23E-03	mg/L
TRICHLOROETHENE	16/16			6.00E-03	2.10E-02	1.33E-02	N	1.49E-02	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-365

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1-DICHLOROETHENE	16/16			7.00E-03	3.60E-02	1.72E-02	L	2.06E-02	mg/L
1,2-DICHLOROETHENE	15/16	5.00E-03	5.00E-03	1.20E-02	6.90E-02	3.45E-02	N	4.30E-02	mg/L
BENZENE	1/16	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.41E-03	N	1.00E-03	mg/L
CHLOROFORM	1/16	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.41E-03	N	1.00E-03	mg/L
TETRACHLOROETHENE	11/16	5.00E-03	5.00E-03	9.00E-04	4.00E-03	1.90E-03	N	2.28E-03	mg/L
TRICHLOROETHENE	16/16			1.50E-02	8.90E-02	4.55E-02	L	6.03E-02	mg/L
VINYL CHLORIDE	3/16	1.00E-02	1.00E-02	2.00E-03	3.00E-03	4.50E-03	N	3.00E-03	mg/L

Sample Station=GW-366

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZENE	1/11	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.36E-03	N	1.00E-03	mg/L
TRICHLOROETHENE	7/11	5.00E-03	5.00E-03	5.00E-04	2.00E-03	1.28E-03	L	1.69E-03	mg/L

Sample Station=GW-367

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZENE	1/6	5.00E-03	5.00E-03	8.00E-04	8.00E-04	2.22E-03	N	8.00E-04	mg/L
TRICHLOROETHENE	6/6			1.60E-02	2.30E-02	1.85E-02	N	2.06E-02	mg/L

Sample Station=GW-368

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1-DICHLOROETHENE	2/7	5.00E-03	5.00E-03	7.00E-04	8.00E-04	7.74E-04	L	8.00E-04	mg/L
CARBON TETRACHLORIDE	6/7	5.00E-03	5.00E-03	1.00E-03	7.00E-03	3.79E-03	N	5.19E-03	mg/L
CHLOROFORM	4/7	5.00E-03	5.00E-03	9.00E-04	2.00E-03	1.77E-03	N	2.00E-03	mg/L
TRICHLOROETHENE	7/7			9.20E-02	1.30E-01	1.16E-01	N	1.25E-01	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-369

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	5/5			6.90E+00	1.50E+01	1.08E+01	N	1.40E+01	mg/L
CARBON TETRACHLORIDE	5/6	5.00E-03	5.00E-03	1.00E-03	3.00E-03	1.75E-03	N	2.47E-03	mg/L
CHLOROFORM	3/6	5.00E-03	5.00E-03	8.00E-04	1.00E-03	1.70E-03	N	1.00E-03	mg/L
TRICHLOROETHENE	6/6			3.20E-02	9.60E-02	5.78E-02	N	7.57E-02	mg/L

Sample Station=GW-371

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLOROFORM	1/11	5.00E-03	5.00E-03	6.00E-04	6.00E-04	2.33E-03	N	6.00E-04	mg/L

Sample Station=GW-374

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLOROFORM	1/7	5.00E-03	5.00E-03	3.00E-04	3.00E-04	2.19E-03	N	3.00E-04	mg/L

Sample Station=GW-375

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLOROFORM	1/7	5.00E-03	5.00E-03	3.00E-04	3.00E-04	2.19E-03	N	3.00E-04	mg/L
TRICHLOROETHENE	1/7	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.43E-03	N	2.00E-03	mg/L

Sample Station=GW-376

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TETRACHLOROETHENE	1/2	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.25E-03	N	2.00E-03	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-502

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZENE	1/4	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.38E-03	N	2.00E-03	mg/L

Sample Station=GW-520

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1,2,2-TETRACHLOROETHANE	1/10	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.35E-03	N	1.00E-03	mg/L
CHLOROFORM	1/10	8.00E-04	5.00E-03	9.00E-04	9.00E-04	2.29E-03	L	9.00E-04	mg/L
TRICHLOROETHENE	4/10	5.00E-03	5.00E-03	6.00E-04	2.00E-03	1.96E-03	N	2.00E-03	mg/L

Sample Station=GW-526

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	13/13			6.60E+00	1.10E+01	9.33E+00	N	1.02E+01	mg/L
NITRATE (AS N)	13/13			6.57E+02	1.12E+03	9.03E+02	L	9.73E+02	mg/L
STRONTIUM	12/12			8.50E+00	1.40E+01	1.17E+01	N	1.26E+01	mg/L
CHLOROFORM	1/16	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.47E-03	N	2.00E-03	mg/L
TRICHLOROETHENE	1/16	5.00E-03	5.00E-03	6.00E-03	6.00E-03	2.72E-03	N	3.10E-03	mg/L

Sample Station=GW-531

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM	1/1			4.90E-04	4.90E-04	4.90E-04	NT	4.90E-04	mg/L
BENZENE	1/6	5.00E-03	5.00E-03	9.00E-04	9.00E-04	2.23E-03	N	9.00E-04	mg/L

Sample Station=GW-532

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZENE	1/6	5.00E-03	5.00E-03	9.00E-04	9.00E-04	2.23E-03	N	9.00E-04	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-533

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZENE	1/3	5.00E-03	5.00E-03	9.00E-04	9.00E-04	1.97E-03	N	9.00E-04	mg/L

Sample Station=GW-535

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZENE	1/6	5.00E-03	5.00E-03	9.00E-04	9.00E-04	2.23E-03	N	9.00E-04	mg/L
TETRACHLOROETHENE	1/6	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.25E-03	N	1.00E-03	mg/L

Sample Station=GW-536

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BIS(2-ETHYLHEXYL)PHTHALATE	1/2	1.00E-02	1.00E-02	1.70E-02	1.70E-02	1.10E-02	N	1.70E-02	mg/L

Sample Station=GW-537

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	18/18			5.25E+02	1.13E+03	7.57E+02	L	8.10E+02	mg/L
CHLOROFORM	8/20	1.00E-03	1.00E-02	6.00E-04	1.00E-03	8.60E-04	L	9.86E-04	mg/L
RADIUM (TOTAL ALPHA)	1/1			1.20E+00	1.20E+00	1.20E+00	NT	1.20E+00	pCi/L
TECHNETIUM-99	1/1			1.30E+03	1.30E+03	1.30E+03	NT	1.30E+03	pCi/L
URANIUM-234	1/1			1.50E+00	1.50E+00	1.50E+00	NT	1.50E+00	pCi/L

Sample Station=GW-538

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZENE	1/3	5.00E-03	5.00E-03	9.00E-04	9.00E-04	1.97E-03	N	9.00E-04	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-601

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	17/17			1.60E+01	4.16E+01	3.22E+01	N	3.45E+01	mg/L
1,1-DICHLOROETHENE	7/17	5.00E-03	5.00E-03	7.00E-04	1.00E-03	8.95E-04	L	9.81E-04	mg/L
CARBON TETRACHLORIDE	15/17	5.00E-03	5.00E-03	2.00E-03	5.00E-03	3.63E-03	L	4.15E-03	mg/L
CHLOROFORM	8/17	1.00E-03	5.00E-03	6.00E-04	1.00E-03	8.34E-04	L	9.92E-04	mg/L
TETRACHLOROETHENE	10/17	5.00E-03	5.00E-03	1.00E-03	2.00E-03	1.68E-03	N	1.99E-03	mg/L
TRICHLOROETHENE	17/17			9.80E-02	1.80E-01	1.44E-01	N	1.54E-01	mg/L

Sample Station=GW-613

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CESIUM-137	1/1			9.70E+00	9.70E+00	9.70E+00	NT	9.70E+00	pCi/L

Sample Station=GW-615

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	7/7			3.10E+02	3.80E+02	3.44E+02	L	3.59E+02	mg/L
BORON	7/7			7.60E-01	4.40E+00	1.50E+00	L	2.27E+00	mg/L
CADMIUM	8/8			7.40E-03	2.00E-01	9.37E-02	N	1.42E-01	mg/L
MANGANESE	7/7			1.80E+01	2.40E+01	1.99E+01	L	2.12E+01	mg/L
NICKEL	1/1			2.50E-01	2.50E-01	2.50E-01	NT	2.50E-01	mg/L
NITRATE (AS N)	8/8			7.72E+03	1.34E+04	1.01E+04	N	1.15E+04	mg/L
STRONTIUM	7/7			2.90E+02	3.40E+02	3.13E+02	L	3.23E+02	mg/L
TOTAL URANIUM	8/8			3.70E-01	6.53E-01	4.70E-01	L	5.35E-01	mg/L
ZINC	4/4			1.50E-01	2.00E+01	5.40E+00	N	1.69E+01	mg/L
METHYLENE CHLORIDE	5/10	2.00E-03	8.00E-03	4.00E-03	6.00E-03	3.45E-03	N	4.35E-03	mg/L
TETRACHLOROETHENE	3/10	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.05E-03	N	1.00E-03	mg/L
TRICHLOROETHENE	1/10	5.00E-03	5.00E-03	4.00E-03	4.00E-03	2.65E-03	N	2.92E-03	mg/L
CESIUM-137	1/1			6.00E+00	6.00E+00	6.00E+00	NT	6.00E+00	pCi/L
STRONTIUM-90	1/1			3.60E+00	3.60E+00	3.60E+00	NT	3.60E+00	pCi/L
TECHNETIUM-99	1/1			5.00E+01	5.00E+01	5.00E+01	NT	5.00E+01	pCi/L
TRITIUM	1/1			6.20E+02	6.20E+02	6.20E+02	NT	6.20E+02	pCi/L
URANIUM-234	1/1			8.00E+01	8.00E+01	8.00E+01	NT	8.00E+01	pCi/L
URANIUM-235	1/1			3.60E+00	3.60E+00	3.60E+00	NT	3.60E+00	pCi/L
URANIUM-238	1/1			1.90E+02	1.90E+02	1.90E+02	NT	1.90E+02	pCi/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-616

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	8/8			2.02E+02	3.20E+02	2.50E+02	L	2.74E+02	mg/L

Sample Station=GW-621

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHROMIUM	17/18	1.00E-02	1.00E-02	2.90E-02	2.50E-01	1.01E-01	L	1.46E-01	mg/L
NICKEL	17/17			3.80E-02	1.60E-01	7.30E-02	L	8.76E-02	mg/L
NITRATE (AS N)	18/18			4.00E+00	1.80E+01	7.38E+00	L	8.78E+00	mg/L
TOTAL URANIUM	15/17	1.00E-03	3.00E-03	2.00E-03	1.80E-02	7.44E-03	L	1.13E-02	mg/L
CARBON TETRACHLORIDE	1/18	5.00E-03	1.00E-02	2.00E-03	2.00E-03	2.61E-03	L	2.00E-03	mg/L
TRICHLOROETHENE	1/18	5.00E-03	1.00E-02	2.00E-03	2.00E-03	2.61E-03	L	2.00E-03	mg/L

Sample Station=GW-623

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1,1-TRICHLOROETHANE	7/8	5.00E-03	5.00E-03	8.60E-02	6.10E-01	2.54E-01	N	3.91E-01	mg/L
1,1,2-TRICHLOROETHANE	1/4	5.00E-03	5.00E-03	8.00E-03	8.00E-03	3.88E-03	N	7.11E-03	mg/L
1,1-DICHLOROETHANE	8/8			1.10E-02	4.20E+00	1.86E+00	N	2.82E+00	mg/L
1,1-DICHLOROETHENE	5/6	5.00E-03	5.00E-03	3.30E-02	6.60E-01	2.31E-01	N	4.25E-01	mg/L
1,2-DICHLOROETHANE	2/4	5.00E-03	5.00E-03	3.00E-03	8.00E-03	4.00E-03	N	7.15E-03	mg/L
1,2-DICHLOROETHENE	3/4	5.00E-03	5.00E-03	2.10E-02	5.80E-01	2.08E-01	N	5.24E-01	mg/L
BENZENE	2/4	5.00E-03	5.00E-03	3.00E-03	7.00E-03	3.75E-03	N	6.31E-03	mg/L
CARBON TETRACHLORIDE	1/4	5.00E-03	5.00E-03	1.30E-02	1.30E-02	5.13E-03	N	1.13E-02	mg/L
CHLOROFORM	1/5	2.00E-03	5.00E-03	3.80E-02	3.80E-02	9.30E-03	N	2.46E-02	mg/L
METHYLENE CHLORIDE	2/5	5.00E-03	2.20E-02	6.10E-02	3.40E-01	8.36E-02	N	2.22E-01	mg/L
TETRACHLOROETHENE	8/8			1.00E-03	2.90E+01	1.57E+01	N	2.37E+01	mg/L
TOLUENE	3/5	5.00E-03	5.00E-03	4.00E-03	6.70E-01	1.38E-01	N	4.21E-01	mg/L
TRICHLOROETHENE	8/8			3.00E-03	2.40E+01	1.06E+01	N	1.62E+01	mg/L
VINYL CHLORIDE	3/4	1.00E-02	1.00E-02	1.10E-02	1.50E-01	5.40E-02	N	1.33E-01	mg/L
URANIUM-234	1/1			1.70E+00	1.70E+00	1.70E+00	NT	1.70E+00	pCi/L
URANIUM-238	1/1			7.90E-01	7.90E-01	7.90E-01	NT	7.90E-01	pCi/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-624

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1-DICHLOROETHANE	5/5			2.20E-02	2.70E-01	1.24E-01	N	2.23E-01	mg/L
1,1-DICHLOROETHENE	5/5			6.00E-03	7.60E-02	3.68E-02	N	6.46E-02	mg/L
1,2-DICHLOROETHANE	2/3	1.00E-02	1.00E-02	4.00E-03	1.10E-02	6.67E-03	N	1.10E-02	mg/L
1,2-DICHLOROETHENE	5/5			3.30E-01	5.40E+00	2.39E+00	N	4.43E+00	mg/L
BENZENE	3/4	1.00E-02	1.00E-02	4.00E-03	2.10E-02	1.10E-02	N	2.05E-02	mg/L
CHLOROFORM	2/4	3.00E-03	3.00E-03	1.20E-02	1.80E-02	8.25E-03	N	1.79E-02	mg/L
TETRACHLOROETHENE	5/5			7.10E-02	7.90E-01	3.62E-01	N	6.54E-01	mg/L
TRICHLOROETHENE	5/5			6.80E-02	6.90E-01	3.44E-01	N	5.96E-01	mg/L
VINYL CHLORIDE	5/5			2.90E-02	9.70E-01	4.24E-01	N	8.15E-01	mg/L
THORIUM-228	1/1			3.80E-01	3.80E-01	3.80E-01	NT	3.80E-01	pCi/L

Sample Station=GW-626

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1,1-TRICHLOROETHANE	14/16	2.00E-03	5.00E-03	6.00E-04	2.90E-01	1.07E-02	L	2.13E-02	mg/L
1,1-DICHLOROETHENE	13/16	5.00E-03	5.00E-03	2.00E-03	3.40E-01	1.62E-02	L	3.07E-02	mg/L
1,2-DICHLOROETHANE	6/13	5.00E-03	1.00E-02	8.00E-04	5.00E-03	3.10E-03	N	3.74E-03	mg/L
1,2-DICHLOROETHENE	16/16			5.00E-03	1.40E+00	5.68E-01	L	1.40E+00	mg/L
4-METHYL-2-PENTANONE	1/15	3.00E-03	5.00E-02	2.00E-02	2.00E-02	8.96E-03	L	1.23E-02	mg/L
BENZENE	1/13	5.00E-03	1.00E-02	3.00E-03	3.00E-03	3.51E-03	L	3.00E-03	mg/L
BROMODICHLOROMETHANE	1/13	5.00E-03	1.00E-02	2.00E-03	2.00E-03	3.44E-03	L	2.00E-03	mg/L
CARBON TETRACHLORIDE	1/13	5.00E-03	1.00E-02	5.00E-02	5.00E-02	5.78E-03	L	8.89E-03	mg/L
CHLOROFORM	3/13	5.00E-03	1.00E-02	9.00E-04	5.00E-03	1.88E-03	L	2.95E-03	mg/L
TETRACHLOROETHENE	16/16			1.00E-03	7.30E-01	1.40E-01	L	4.88E-01	mg/L
TRICHLOROETHENE	16/16			2.00E-03	8.90E-01	1.15E-01	L	3.24E-01	mg/L
VINYL CHLORIDE	3/16	1.00E-02	5.00E-02	4.70E-02	1.20E-01	2.03E-03	L	2.98E-02	mg/L

Sample Station=GW-627

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TETRACHLOROETHENE	19/20	5.00E-03	5.00E-03	1.00E-03	7.40E-02	2.69E-02	N	3.47E-02	mg/L
TRICHLOROETHENE	14/20	5.00E-03	5.00E-03	2.00E-03	1.00E-02	4.77E-03	L	6.13E-03	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-629

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1-DICHLOROETHENE	1/5	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.20E-03	N	1.00E-03	mg/L
BENZENE	1/5	5.00E-03	5.00E-03	2.00E-03	2.00E-03	2.40E-03	N	2.00E-03	mg/L
TETRACHLOROETHENE	3/5	5.00E-03	5.00E-03	8.00E-03	1.10E-01	3.96E-02	N	8.72E-02	mg/L
TRICHLOROETHENE	3/5	5.00E-03	5.00E-03	3.00E-03	1.20E-02	5.40E-03	N	9.35E-03	mg/L

Sample Station=GW-630

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZENE	1/10	5.00E-03	5.00E-03	9.00E-04	9.00E-04	2.34E-03	N	9.00E-04	mg/L

Sample Station=GW-636

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	12/12			1.70E-01	4.30E-01	3.65E-01	N	4.00E-01	mg/L

Sample Station=GW-639

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZENE	1/13	5.00E-03	5.00E-03	9.00E-04	9.00E-04	2.38E-03	N	9.00E-04	mg/L

Sample Station=GW-641

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZENE	1/13	5.00E-03	5.00E-03	8.00E-04	8.00E-04	2.37E-03	N	8.00E-04	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-645

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
VANADIUM	4/7	5.00E-03	5.00E-03	5.10E-03	9.60E-02	8.65E-03	L	3.02E-02	mg/L

Sample Station=GW-652

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TRICHLOROETHENE	1/16	5.00E-03	1.00E-02	9.00E-03	9.00E-03	3.34E-03	L	3.96E-03	mg/L

Sample Station=GW-653

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
TETRACHLOROETHENE	15/16	5.00E-03	5.00E-03	2.00E-03	5.00E-03	2.83E-03	L	3.21E-03	mg/L
TRICHLOROETHENE	5/16	5.00E-03	1.00E-02	6.00E-04	2.00E-03	1.09E-03	L	1.47E-03	mg/L

Sample Station=GW-654

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
FLUORIDE	16/16			2.00E-01	6.00E-01	4.25E-01	N	4.84E-01	mg/L

Sample Station=GW-683

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	13/13			1.10E-02	6.60E-01	1.08E-01	L	1.86E-01	mg/L
NITRATE (AS N)	12/13	2.00E-01	2.00E-01	5.00E-01	3.20E+01	1.10E+01	N	1.58E+01	mg/L
TOTAL URANIUM	13/13			4.00E-03	1.10E-01	5.51E-02	N	7.23E-02	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-684

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	12/12			2.70E-02	1.40E+00	1.46E-01	L	2.71E-01	mg/L
NITRATE (AS N)	12/12			4.10E+00	1.89E+01	1.16E+01	N	1.47E+01	mg/L
TOTAL URANIUM	12/12			1.90E-02	1.14E-01	5.77E-02	N	7.37E-02	mg/L
URANIUM-234	1/1			7.40E+00	7.40E+00	7.40E+00	NT	7.40E+00	pCi/L
URANIUM-238	1/1			1.40E+01	1.40E+01	1.40E+01	NT	1.40E+01	pCi/L

Sample Station=GW-694

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	13/13			3.80E-02	5.30E-01	1.72E-01	L	2.33E-01	mg/L
NITRATE (AS N)	13/13			7.90E+00	4.89E+01	2.76E+01	N	3.49E+01	mg/L
TOTAL URANIUM	13/13			4.70E-02	3.00E-01	1.59E-01	N	1.93E-01	mg/L
1,1-DICHLOROETHENE	4/13	5.00E-03	1.00E-02	1.00E-03	4.00E-03	2.54E-03	N	3.06E-03	mg/L
1,2-DICHLOROETHENE	11/13	5.00E-03	5.00E-03	7.00E-03	3.80E-02	1.30E-02	L	1.90E-02	mg/L
BENZENE	1/13	5.00E-03	1.00E-02	9.00E-04	9.00E-04	2.60E-03	L	9.00E-04	mg/L
CARBON TETRACHLORIDE	1/13	5.00E-03	1.00E-02	9.00E-04	9.00E-04	2.60E-03	L	9.00E-04	mg/L
TETRACHLOROETHENE	1/13	5.00E-03	1.00E-02	2.00E-03	2.00E-03	2.65E-03	L	2.00E-03	mg/L
TRICHLOROETHENE	12/13	5.00E-03	5.00E-03	6.00E-03	4.10E-02	1.56E-02	L	2.14E-02	mg/L

Sample Station=GW-695

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1-DICHLOROETHENE	1/13	5.00E-03	1.00E-02	5.00E-04	5.00E-04	2.54E-03	N	5.00E-04	mg/L
TRICHLOROETHENE	10/13	5.00E-03	5.00E-03	2.00E-03	4.00E-03	3.18E-03	L	3.78E-03	mg/L

Sample Station=GW-703

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	13/13			5.67E+00	2.38E+01	1.48E+01	N	1.86E+01	mg/L
1,1-DICHLOROETHENE	4/13	5.00E-03	1.00E-02	1.00E-03	2.00E-03	1.59E-03	L	2.00E-03	mg/L
CARBON TETRACHLORIDE	1/13	5.00E-03	1.00E-02	4.00E-04	4.00E-04	2.53E-03	N	4.00E-04	mg/L
CHLOROFORM	2/13	5.00E-03	1.00E-02	5.00E-04	5.00E-04	2.38E-03	N	5.00E-04	mg/L
TRICHLOROETHENE	13/13			1.50E-02	2.80E-02	2.22E-02	N	2.41E-02	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-704

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1-DICHLOROETHENE	13/13			4.00E-03	8.00E-03	5.39E-03	L	5.92E-03	mg/L
CARBON TETRACHLORIDE	9/13	5.00E-03	5.00E-03	7.00E-04	2.00E-03	1.75E-03	N	2.00E-03	mg/L
CHLOROFORM	2/13	5.00E-03	1.00E-02	4.00E-04	4.00E-04	2.37E-03	N	4.00E-04	mg/L
TRICHLOROETHENE	13/13			5.50E-02	1.20E-01	8.23E-02	L	9.08E-02	mg/L

Sample Station=GW-706

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	13/13			2.40E-02	4.30E-01	1.82E-01	N	2.34E-01	mg/L
NITRATE (AS N)	11/13	2.00E-01	2.00E-01	1.00E+01	8.42E+01	3.01E+01	N	4.12E+01	mg/L
TOTAL URANIUM	13/13			2.00E-03	2.30E-01	1.03E-01	N	1.39E-01	mg/L
1,1-DICHLOROETHENE	4/13	5.00E-03	1.00E-02	1.00E-03	4.00E-03	1.97E-03	L	2.60E-03	mg/L
1,2-DICHLOROETHENE	10/13	5.00E-03	5.00E-03	5.00E-03	3.40E-02	1.05E-02	L	1.68E-02	mg/L
TETRACHLOROETHENE	1/13	5.00E-03	1.00E-02	1.00E-03	1.00E-03	2.60E-03	L	1.00E-03	mg/L
TRICHLOROETHENE	11/13	5.00E-03	5.00E-03	3.00E-03	3.00E-02	9.98E-03	L	1.51E-02	mg/L
TECHNETIUM-99	1/1			3.90E+01	3.90E+01	3.90E+01	NT	3.90E+01	pCi/L
URANIUM-234	1/1			2.20E+01	2.20E+01	2.20E+01	NT	2.20E+01	pCi/L
URANIUM-238	1/1			4.20E+01	4.20E+01	4.20E+01	NT	4.20E+01	pCi/L

Sample Station=GW-710

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	10/10			8.60E-02	3.40E-01	2.77E-01	N	3.20E-01	mg/L
STRONTIUM	10/10			6.30E+00	9.70E+00	8.51E+00	N	9.01E+00	mg/L
CESIUM-137	1/1			8.80E+00	8.80E+00	8.80E+00	NT	8.80E+00	pCi/L
RADIUM (TOTAL ALPHA)	1/1			5.40E+00	5.40E+00	5.40E+00	NT	5.40E+00	pCi/L
RADIUM-228	1/1			2.40E+00	2.40E+00	2.40E+00	NT	2.40E+00	pCi/L

Sample Station=GW-711

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	9/9			8.30E-01	1.40E+00	1.16E+00	N	1.27E+00	mg/L
STRONTIUM	9/9			1.10E+01	1.50E+01	1.28E+01	L	1.35E+01	mg/L
RADIUM (TOTAL ALPHA)	1/1			4.30E+00	4.30E+00	4.30E+00	NT	4.30E+00	pCi/L
RADIUM-228	1/1			7.80E+00	7.80E+00	7.80E+00	NT	7.80E+00	pCi/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-711 (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
THORIUM-228	1/1			9.20E-01	9.20E-01	9.20E-01	NT	9.20E-01	pCi/L

Sample Station=GW-712

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
THORIUM-228	1/1			2.60E-01	2.60E-01	2.60E-01	NT	2.60E-01	pCi/L

Sample Station=GW-713

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
RADIUM (TOTAL ALPHA)	1/1			1.00E+00	1.00E+00	1.00E+00	NT	1.00E+00	pCi/L

Sample Station=GW-714

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CESIUM-137	1/1			5.60E+00	5.60E+00	5.60E+00	NT	5.60E+00	pCi/L
RADIUM (TOTAL ALPHA)	1/1			8.80E-01	8.80E-01	8.80E-01	NT	8.80E-01	pCi/L
URANIUM-234	1/1			1.50E+00	1.50E+00	1.50E+00	NT	1.50E+00	pCi/L
URANIUM-238	1/1			1.00E+00	1.00E+00	1.00E+00	NT	1.00E+00	pCi/L

Sample Station=GW-715

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CESIUM-137	1/1			6.40E+00	6.40E+00	6.40E+00	NT	6.40E+00	pCi/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-723

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	9/9			6.39E+00	2.00E+01	1.23E+01	L	1.55E+01	mg/L
CARBON TETRACHLORIDE	1/9	5.00E-03	1.00E-02	1.00E-03	1.00E-03	2.65E-03	L	1.00E-03	mg/L
TRICHLOROETHENE	9/9			3.00E-03	2.20E-02	1.01E-02	L	1.59E-02	mg/L

Sample Station=GW-724

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	9/9			2.50E+01	6.20E+01	4.52E+01	N	5.17E+01	mg/L
CARBON TETRACHLORIDE	1/9	5.00E-03	1.00E-02	2.00E-03	2.00E-03	2.72E-03	L	2.00E-03	mg/L
CHLOROFORM	1/9	5.00E-03	1.00E-02	7.00E-03	7.00E-03	3.27E-03	L	4.07E-03	mg/L
TETRACHLOROETHENE	7/9	5.00E-03	5.00E-03	1.00E-03	3.00E-03	2.00E-03	N	2.41E-03	mg/L
TRICHLOROETHENE	9/9			3.00E-03	1.40E-01	7.24E-02	N	9.70E-02	mg/L

Sample Station=GW-725

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	9/9			3.40E+01	1.06E+02	5.69E+01	L	6.72E+01	mg/L
1,1-DICHLOROETHENE	1/9	5.00E-03	5.00E-03	1.00E-03	1.00E-03	2.33E-03	N	1.00E-03	mg/L
BENZENE	2/9	5.00E-03	1.00E-02	1.00E-03	1.00E-03	2.50E-03	L	1.00E-03	mg/L
CARBON TETRACHLORIDE	1/9	5.00E-03	1.00E-02	9.00E-04	9.00E-04	2.65E-03	L	9.00E-04	mg/L
CHLOROFORM	1/9	5.00E-03	1.00E-02	1.00E-03	1.00E-03	2.65E-03	L	1.00E-03	mg/L
TETRACHLOROETHENE	4/9	5.00E-03	1.00E-02	8.00E-04	2.00E-03	1.56E-03	L	2.00E-03	mg/L
TRICHLOROETHENE	9/9			1.90E-02	8.20E-02	4.74E-02	L	6.17E-02	mg/L

Sample Station=GW-736

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	9/9			3.40E+01	6.10E+01	4.51E+01	L	5.01E+01	mg/L
1,1,2-TRICHLOROETHANE	1/9	5.00E-03	1.00E-02	1.00E-03	1.00E-03	2.65E-03	L	1.00E-03	mg/L
1,1-DICHLOROETHENE	2/9	5.00E-03	1.00E-02	1.00E-03	2.00E-03	1.57E-03	L	2.00E-03	mg/L
CARBON TETRACHLORIDE	2/9	5.00E-03	1.00E-02	1.00E-03	2.00E-03	1.57E-03	L	2.00E-03	mg/L
CHLOROFORM	3/9	5.00E-03	1.00E-02	2.00E-03	2.00E-03	2.61E-03	L	2.00E-03	mg/L
TETRACHLOROETHENE	7/9	4.00E-03	1.00E-02	1.00E-03	7.00E-03	2.92E-03	L	4.29E-03	mg/L
TRICHLOROETHENE	9/9			4.00E-03	2.10E-02	1.23E-02	N	1.59E-02	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-737

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	9/9			3.40E+01	6.10E+01	4.71E+01	L	5.25E+01	mg/L
CARBON TETRACHLORIDE	2/9	5.00E-03	1.00E-02	1.00E-03	1.00E-03	2.50E-03	L	1.00E-03	mg/L
CHLOROFORM	5/9	5.00E-03	1.00E-02	1.00E-03	2.00E-03	1.94E-03	L	2.00E-03	mg/L
TETRACHLOROETHENE	8/9	5.00E-03	5.00E-03	2.00E-03	4.00E-03	3.30E-03	L	3.75E-03	mg/L
TRICHLOROETHENE	9/9			4.00E-03	2.10E-02	1.20E-02	N	1.52E-02	mg/L

Sample Station=GW-738

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	9/9			1.50E+00	4.04E+01	2.13E+01	N	2.78E+01	mg/L
CARBON TETRACHLORIDE	6/9	5.00E-03	1.00E-02	1.00E-03	2.00E-03	1.83E-03	L	2.00E-03	mg/L
CHLOROFORM	7/9	2.00E-03	1.00E-02	1.00E-03	2.00E-03	1.95E-03	L	2.00E-03	mg/L
TETRACHLOROETHENE	1/9	5.00E-03	1.00E-02	8.00E-04	8.00E-04	2.59E-03	N	8.00E-04	mg/L
TRICHLOROETHENE	9/9			2.00E-02	9.60E-02	5.51E-02	N	6.75E-02	mg/L

Sample Station=GW-739

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	9/9			4.17E+00	8.76E+00	6.92E+00	N	7.84E+00	mg/L
CARBON TETRACHLORIDE	5/9	5.00E-03	1.00E-02	1.00E-03	2.00E-03	1.32E-03	L	1.63E-03	mg/L
CHLOROFORM	1/9	1.00E-03	1.00E-02	1.00E-03	1.00E-03	2.39E-03	N	1.00E-03	mg/L
TRICHLOROETHENE	9/9			3.20E-02	5.80E-02	4.02E-02	L	4.45E-02	mg/L

Sample Station=GW-740

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CARBON TETRACHLORIDE	4/9	5.00E-03	1.00E-02	1.00E-03	3.00E-03	1.78E-03	L	2.43E-03	mg/L
CHLOROFORM	7/9	1.00E-03	2.00E-03	1.00E-03	2.00E-03	1.42E-03	L	1.93E-03	mg/L
TRICHLOROETHENE	9/9			2.80E-02	7.70E-02	4.97E-02	L	6.11E-02	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-794

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CESIUM-137	1/1			4.60E+00	4.60E+00	4.60E+00	NT	4.60E+00	pCi/L

Sample Station=SEEP C-WEST TOE

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	2/2			3.80E-01	5.24E-01	4.52E-01	N	5.24E-01	mg/L
BERYLLIUM	1/2	2.00E-02	2.00E-02	3.00E-03	3.00E-03	6.50E-03	N	3.00E-03	mg/L
BORON	2/2			5.60E+01	6.33E+01	5.97E+01	N	6.33E+01	mg/L
MANGANESE	2/2			8.83E+00	1.01E+01	9.47E+00	N	1.01E+01	mg/L
MOLYBDENUM	1/2	3.00E-01	3.00E-01	3.00E-02	3.00E-02	9.00E-02	N	3.00E-02	mg/L
TOTAL URANIUM	2/2			3.40E-02	4.40E-02	3.90E-02	N	4.40E-02	mg/L
1,1-DICHLOROETHANE	2/2			6.80E-02	1.30E-01	9.90E-02	N	1.30E-01	mg/L
1,1-DICHLOROETHENE	1/2	1.00E-02	1.00E-02	8.00E-03	8.00E-03	6.50E-03	N	8.00E-03	mg/L
1,2-DICHLOROETHANE	2/2			2.00E-03	7.00E-03	4.50E-03	N	7.00E-03	mg/L
1,4-DICHLOROBENZENE	2/2			1.10E-02	1.40E-02	1.25E-02	N	1.40E-02	mg/L
1,4-DIOXANE	1/1			1.90E-01	1.90E-01	1.90E-01	NT	1.90E-01	mg/L
2,4-DIMETHYLPHENOL	1/1			5.20E-02	5.20E-02	5.20E-02	NT	5.20E-02	mg/L
BENZENE	2/2			3.00E-03	3.90E-02	2.10E-02	N	3.90E-02	mg/L
BIS(2-ETHYLHEXYL)PHTHALATE	1/1			7.00E-03	7.00E-03	7.00E-03	NT	7.00E-03	mg/L
CIS-1,2-DICHLOROETHENE	2/2			2.80E-02	1.90E-01	1.09E-01	N	1.90E-01	mg/L
METHYLENE CHLORIDE	2/2			8.00E-03	4.70E-02	2.75E-02	N	4.70E-02	mg/L
POLYCHLORINATED BIPHENYL	2/2			4.90E-03	1.80E-02	1.15E-02	N	1.80E-02	mg/L
TETRACHLOROETHENE	1/2	1.00E-02	1.00E-02	8.00E-03	8.00E-03	6.50E-03	N	8.00E-03	mg/L
TRICHLOROETHENE	1/2	1.00E-02	1.00E-02	2.30E-02	2.30E-02	1.40E-02	N	2.30E-02	mg/L
VINYL CHLORIDE	2/2			9.00E-03	5.60E-02	3.25E-02	N	5.60E-02	mg/L
NEPTUNIUM-237	1/1			5.20E-01	5.20E-01	5.20E-01	NT	5.20E-01	pCi/L
RADIUM (TOTAL ALPHA)	1/1			6.50E-01	6.50E-01	6.50E-01	NT	6.50E-01	pCi/L
TRITIUM	1/1			2.40E+03	2.40E+03	2.40E+03	NT	2.40E+03	pCi/L
URANIUM-234	1/1			3.90E+00	3.90E+00	3.90E+00	NT	3.90E+00	pCi/L
URANIUM-238	1/1			6.10E+00	6.10E+00	6.10E+00	NT	6.10E+00	pCi/L

Sample Station=SEEP1

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
1,1,2-TRICHLOROETHANE	1/1			3.00E-03	3.00E-03	3.00E-03	NT	3.00E-03	mg/L
1,1-DICHLOROETHANE	1/1			4.00E-01	4.00E-01	4.00E-01	NT	4.00E-01	mg/L
1,1-DICHLOROETHENE	1/1			1.30E-02	1.30E-02	1.30E-02	NT	1.30E-02	mg/L
1,2-DICHLOROETHANE	1/1			7.00E-03	7.00E-03	7.00E-03	NT	7.00E-03	mg/L
2,4-DIMETHYLPHENOL	1/1			2.10E-01	2.10E-01	2.10E-01	NT	2.10E-01	mg/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=SEEP1 (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
2,4-DINITROTOLUENE	1/1			1.00E-03	1.00E-03	1.00E-03	NT	1.00E-03	mg/L
2,6-DINITROTOLUENE	1/1			2.00E-03	2.00E-03	2.00E-03	NT	2.00E-03	mg/L
BENZENE	1/1			1.90E-02	1.90E-02	1.90E-02	NT	1.90E-02	mg/L
BENZIDINE	1/1			5.00E-03	5.00E-03	5.00E-03	NT	5.00E-03	mg/L
BIS(2-ETHYLHEXYL)PHTHALATE	1/1			3.30E-02	3.30E-02	3.30E-02	NT	3.30E-02	mg/L
CHLOROFORM	1/1			4.00E-03	4.00E-03	4.00E-03	NT	4.00E-03	mg/L
CIS-1,2-DICHLOROETHENE	1/1			4.90E+00	4.90E+00	4.90E+00	NT	4.90E+00	mg/L
DI-N-OCTYLPHTHALATE	1/1			4.00E-03	4.00E-03	4.00E-03	NT	4.00E-03	mg/L
DIBROMOCHLOROMETHANE	1/1			4.00E-03	4.00E-03	4.00E-03	NT	4.00E-03	mg/L
PENTACHLOROPHENOL	1/1			6.00E-03	6.00E-03	6.00E-03	NT	6.00E-03	mg/L
POLYCHLORINATED BIPHENYL	1/1			3.20E-01	3.20E-01	3.20E-01	NT	3.20E-01	mg/L
TRICHLOROETHENE	1/1			2.00E-03	2.00E-03	2.00E-03	NT	2.00E-03	mg/L
VINYL CHLORIDE	1/1			9.90E-01	9.90E-01	9.90E-01	NT	9.90E-01	mg/L
CESIUM-137	1/1			6.10E+00	6.10E+00	6.10E+00	NT	6.10E+00	pCi/L
NEPTUNIUM-237	1/1			7.50E-01	7.50E-01	7.50E-01	NT	7.50E-01	pCi/L
URANIUM-234	1/1			6.30E+00	6.30E+00	6.30E+00	NT	6.30E+00	pCi/L
URANIUM-238	1/1			4.70E+00	4.70E+00	4.70E+00	NT	4.70E+00	pCi/L

Sample Station=SEEP2

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	1/2	2.00E+00	2.00E+00	8.00E-01	8.00E-01	9.00E-01	N	8.00E-01	mg/L
BARIUM	2/2			1.10E-01	2.89E+00	1.50E+00	N	2.89E+00	mg/L
BERYLLIUM	1/2	2.00E-02	2.00E-02	1.11E+00	1.11E+00	5.60E-01	N	1.11E+00	mg/L
BORON	2/2			1.21E+01	1.75E+01	1.48E+01	N	1.75E+01	mg/L
CHROMIUM	1/2	3.00E-01	3.00E-01	2.80E-01	2.80E-01	2.15E-01	N	2.80E-01	mg/L
MANGANESE	2/2			2.70E-01	1.87E+01	9.49E+00	N	1.87E+01	mg/L
MOLYBDENUM	1/2	3.00E-01	3.00E-01	7.00E-02	7.00E-02	1.10E-01	N	7.00E-02	mg/L
NICKEL	1/2	4.00E-01	4.00E-01	3.60E-01	3.60E-01	2.80E-01	N	3.60E-01	mg/L
TOTAL URANIUM	2/2			1.45E+00	1.49E+00	1.47E+00	N	1.49E+00	mg/L
VANADIUM	1/2	2.00E-01	2.00E-01	8.90E-01	8.90E-01	4.95E-01	N	8.90E-01	mg/L
ZINC	1/2	5.00E-01	5.00E-01	3.20E+00	3.20E+00	1.73E+00	N	3.20E+00	mg/L
1,1-DICHLOROETHANE	2/2			3.10E-02	8.10E-02	5.60E-02	N	8.10E-02	mg/L
1,2-DICHLOROETHANE	2/2			1.00E-03	2.00E-03	1.50E-03	N	2.00E-03	mg/L
1,4-DIOXANE	1/1			1.80E-01	1.80E-01	1.80E-01	NT	1.80E-01	mg/L
BENZENE	1/2	1.00E-02	1.00E-02	4.00E-03	4.00E-03	4.50E-03	N	4.00E-03	mg/L
METHYLENE CHLORIDE	2/2			2.00E-02	5.60E-02	3.80E-02	N	5.60E-02	mg/L
VINYL CHLORIDE	2/2			3.00E-03	1.00E-02	6.50E-03	N	1.00E-02	mg/L
NEPTUNIUM-237	1/1			8.50E-01	8.50E-01	8.50E-01	NT	8.50E-01	pCi/L
TECHNETIUM-99	1/1			1.10E+02	1.10E+02	1.10E+02	NT	1.10E+02	pCi/L
TRITIUM	1/1			4.20E+03	4.20E+03	4.20E+03	NT	4.20E+03	pCi/L
URANIUM-234	1/1			5.80E+01	5.80E+01	5.80E+01	NT	5.80E+01	pCi/L

Table F.32a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=SEEP2 (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
URANIUM-235	1/1			3.90E+00	3.90E+00	3.90E+00	NT	3.90E+00	pCi/L
URANIUM-238	1/1			3.50E+02	3.50E+02	3.50E+02	NT	3.50E+02	pCi/L

Sample Station=SEEPS 3&4

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	2/2			1.28E+00	2.22E+00	1.75E+00	N	2.22E+00	mg/L
BERYLLIUM	2/2			2.00E-02	3.30E-02	2.65E-02	N	3.30E-02	mg/L
BORON	2/2			1.21E+02	1.26E+02	1.24E+02	N	1.26E+02	mg/L
MANGANESE	2/2			1.06E+01	1.35E+01	1.21E+01	N	1.35E+01	mg/L
MOLYBDENUM	1/2	3.00E-01	3.00E-01	1.40E-01	1.40E-01	1.45E-01	N	1.40E-01	mg/L
VANADIUM	1/2	2.00E-01	2.00E-01	6.00E-02	6.00E-02	8.00E-02	N	6.00E-02	mg/L
1,1,2-TRICHLOROETHANE	1/2	1.00E-02	1.00E-02	1.00E-03	1.00E-03	3.00E-03	N	1.00E-03	mg/L
1,1-DICHLOROETHANE	2/2			1.70E-01	4.10E-01	2.90E-01	N	4.10E-01	mg/L
1,1-DICHLOROETHENE	2/2			1.50E-02	3.00E-02	2.25E-02	N	3.00E-02	mg/L
1,2-DICHLOROETHANE	2/2			6.00E-03	8.00E-03	7.00E-03	N	8.00E-03	mg/L
1,4-DICHLOROBENZENE	2/2			2.10E-02	2.60E-02	2.35E-02	N	2.60E-02	mg/L
1,4-DIOXANE	1/1			2.00E-01	2.00E-01	2.00E-01	NT	2.00E-01	mg/L
BENZENE	2/2			1.60E-02	5.30E-02	3.45E-02	N	5.30E-02	mg/L
BIS(2-ETHYLHEXYL)PHTHALATE	1/1			6.00E-03	6.00E-03	6.00E-03	NT	6.00E-03	mg/L
CIS-1,2-DICHLOROETHENE	2/2			3.80E-01	9.20E-01	6.50E-01	N	9.20E-01	mg/L
METHYLENE CHLORIDE	2/2			1.50E-02	3.30E-02	2.40E-02	N	3.30E-02	mg/L
POLYCHLORINATED BIPHENYL	2/2			2.60E-03	9.50E-03	6.05E-03	N	9.50E-03	mg/L
TETRACHLOROETHENE	2/2			9.00E-03	1.80E-02	1.35E-02	N	1.80E-02	mg/L
TRICHLOROETHENE	2/2			6.00E-03	2.10E-02	1.35E-02	N	2.10E-02	mg/L
VINYL CHLORIDE	2/2			8.40E-02	1.80E-01	1.32E-01	N	1.80E-01	mg/L
URANIUM-234 (calc.)	2/2			3.43E+00	3.43E+00	3.43E+00	N	3.43E+00	pCi/L
URANIUM-238 (calc.)	2/2			3.34E+00	3.34E+00	3.34E+00	N	3.34E+00	pCi/L

Sample Station=SL1-01

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM	1/1			4.80E-04	4.80E-04	4.80E-04	NT	4.80E-04	mg/L
MANGANESE	1/1			7.58E+00	7.58E+00	7.58E+00	NT	7.58E+00	mg/L
POTASSIUM-40	1/1			1.70E+02	1.70E+02	1.70E+02	NT	1.70E+02	pCi/L
URANIUM-234	1/1			1.10E+02	1.10E+02	1.10E+02	NT	1.10E+02	pCi/L
URANIUM-235	1/1			4.60E+00	4.60E+00	4.60E+00	NT	4.60E+00	pCi/L
URANIUM-238	1/1			1.60E+02	1.60E+02	1.60E+02	NT	1.60E+02	pCi/L

Table F.32b. Summary statistics for BCV COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for Picket well aggregates)

Aggregate=PICKET-A

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	73/74	4.00E-03	4.00E-03	1.10E-02	1.40E+00	1.43E-01	L	1.88E-01	mg/L
NITRATE (AS N)	52/76	2.00E-01	2.00E-01	2.00E-01	3.20E+01	2.13E+00	L	3.64E+00	mg/L
TOTAL URANIUM	64/74	1.00E-03	1.00E-03	1.00E-03	1.14E-01	1.31E-02	L	1.94E-02	mg/L
METHYLENE CHLORIDE	9/77	8.00E-04	1.60E-02	1.00E-03	2.30E-02	3.67E-03	N	4.52E-03	mg/L
URANIUM-234	1/1			7.40E+00	7.40E+00	7.40E+00	NT	7.40E+00	pCi/L
URANIUM-238	1/1			1.40E+01	1.40E+01	1.40E+01	NT	1.40E+01	pCi/L

Aggregate=PICKET-B

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	79/80	4.00E-03	4.00E-03	8.80E-03	1.20E+00	1.09E-01	L	1.32E-01	mg/L
CHROMIUM	21/71	1.00E-02	1.00E-02	1.20E-02	2.50E-01	2.72E-02	N	3.68E-02	mg/L
NICKEL	30/80	1.00E-02	1.00E-02	1.00E-02	1.60E-01	2.22E-02	N	2.85E-02	mg/L
NITRATE (AS N)	79/81	2.00E-01	2.00E-01	2.30E-01	8.42E+01	1.86E+01	L	2.39E+01	mg/L
TOTAL URANIUM	70/77	1.00E-03	3.00E-03	1.00E-03	3.00E-01	2.15E-02	L	3.32E-02	mg/L
1,1-DICHLOROETHENE	26/83	5.00E-03	1.00E-02	5.00E-04	8.00E-03	2.14E-03	L	2.60E-03	mg/L
1,2-DICHLOROETHENE	47/83	5.00E-03	1.00E-02	1.00E-03	3.80E-02	4.99E-03	L	6.22E-03	mg/L
CARBON TETRACHLORIDE	12/83	5.00E-03	1.00E-02	4.00E-04	2.00E-03	2.48E-03	N	2.00E-03	mg/L
TRICHLOROETHENE	60/83	5.00E-03	1.00E-02	2.00E-03	1.20E-01	1.59E-02	L	2.19E-02	mg/L
TECHNETIUM-99	1/1			3.90E+01	3.90E+01	3.90E+01	NT	3.90E+01	pCi/L
URANIUM-234	1/1			2.20E+01	2.20E+01	2.20E+01	NT	2.20E+01	pCi/L
URANIUM-238	1/1			4.20E+01	4.20E+01	4.20E+01	NT	4.20E+01	pCi/L

Aggregate=PICKET-C

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	91/91			5.80E-01	1.06E+02	2.84E+01	L	3.61E+01	mg/L
1,2-DICHLOROETHENE	78/92	5.00E-03	1.00E-02	1.00E-03	9.80E-02	4.95E-03	L	5.72E-03	mg/L
CARBON TETRACHLORIDE	40/92	5.00E-03	1.00E-02	9.00E-04	5.00E-03	2.05E-03	L	2.29E-03	mg/L
CHLOROFORM	37/92	6.00E-04	1.00E-02	1.00E-03	7.00E-03	1.76E-03	L	2.02E-03	mg/L
TETRACHLOROETHENE	37/92	4.00E-03	1.00E-02	8.00E-04	7.00E-03	1.90E-03	L	2.13E-03	mg/L
TRICHLOROETHENE	92/92			3.00E-03	1.40E-01	5.04E-02	N	5.67E-02	mg/L

Table F.32b. Summary statistics for BCV COPCs that will be evaluated quantitatively
Medium: GROUNDWATER (for Picket well aggregates)

Aggregate=PICKET-W

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	52/52			2.50E-02	1.40E+00	2.95E-01	L	4.06E-01	mg/L
STRONTIUM	52/52			6.50E-02	1.50E+01	8.56E+00	L	1.50E+01	mg/L
CESIUM-137	3/6	1.40E+00	3.40E+00	5.60E+00	8.80E+00	4.77E+00	N	6.97E+00	pCi/L
RADIUM (TOTAL ALPHA)	4/6	4.10E-01	4.40E-01	8.80E-01	5.40E+00	2.07E+00	N	3.88E+00	pCi/L
RADIUM-228	2/6	0.00E+00	0.00E+00	2.40E+00	7.80E+00	1.70E+00	N	4.28E+00	pCi/L
THORIUM-228	2/6	6.80E-02	1.70E-01	2.60E-01	9.20E-01	2.77E-01	N	5.42E-01	pCi/L
URANIUM-234	3/6	1.10E-02	2.20E-01	5.80E-01	1.50E+00	5.09E-01	N	9.67E-01	pCi/L
URANIUM-238	2/6	0.00E+00	3.40E-01	3.40E-01	1.00E+00	3.16E-01	N	6.16E-01	pCi/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=BG-01

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			6.09E+00	6.09E+00	6.09E+00	NT	6.09E+00	mg/L

Sample Station=BG-02

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			3.06E+01	3.06E+01	3.06E+01	NT	3.06E+01	mg/L
COBALT	1/1			5.80E-02	5.80E-02	5.80E-02	NT	5.80E-02	mg/L
COPPER	1/1			5.34E-02	5.34E-02	5.34E-02	NT	5.34E-02	mg/L
LEAD	1/1			1.80E-02	1.80E-02	1.80E-02	NT	1.80E-02	mg/L

Sample Station=BG-03

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			5.48E+00	5.48E+00	5.48E+00	NT	5.48E+00	mg/L
CHLORIDE	1/1			3.80E+01	3.80E+01	3.80E+01	NT	3.80E+01	mg/L

Sample Station=BG-04

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
LEAD	1/1			3.23E-02	3.23E-02	3.23E-02	NT	3.23E-02	mg/L

Sample Station=BG-12

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			1.64E+01	1.64E+01	1.64E+01	NT	1.64E+01	mg/L
LEAD	1/1			2.07E-02	2.07E-02	2.07E-02	NT	2.07E-02	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=BG-13

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			2.41E+01	2.41E+01	2.41E+01	NT	2.41E+01	mg/L
COBALT	1/1			3.20E-02	3.20E-02	3.20E-02	NT	3.20E-02	mg/L
COPPER	1/1			3.98E-02	3.98E-02	3.98E-02	NT	3.98E-02	mg/L

Sample Station=BY-01

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COPPER	1/1			1.37E-02	1.37E-02	1.37E-02	NT	1.37E-02	mg/L
SULFATE	1/1			1.30E+02	1.30E+02	1.30E+02	NT	1.30E+02	mg/L

Sample Station=BY-02

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
SULFATE	1/1			5.00E+01	5.00E+01	5.00E+01	NT	5.00E+01	mg/L

Sample Station=BY-03

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			1.92E+01	1.92E+01	1.92E+01	NT	1.92E+01	mg/L
CHLORIDE	1/1			3.50E+01	3.50E+01	3.50E+01	NT	3.50E+01	mg/L
COBALT	1/1			3.47E-02	3.47E-02	3.47E-02	NT	3.47E-02	mg/L
COPPER	1/1			5.24E-02	5.24E-02	5.24E-02	NT	5.24E-02	mg/L
LEAD	1/1			6.01E-02	6.01E-02	6.01E-02	NT	6.01E-02	mg/L
SULFATE	1/1			1.02E+02	1.02E+02	1.02E+02	NT	1.02E+02	mg/L

Sample Station=BY-04

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
SULFATE	1/1			1.20E+02	1.20E+02	1.20E+02	NT	1.20E+02	mg/L
PHENANTHRENE	1/1			1.00E-03	1.00E-03	1.00E-03	NT	1.00E-03	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=BY-05

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			1.49E+01	1.49E+01	1.49E+01	NT	1.49E+01	mg/L
COBALT	1/1			2.49E-02	2.49E-02	2.49E-02	NT	2.49E-02	mg/L
SULFATE	1/1			5.70E+01	5.70E+01	5.70E+01	NT	5.70E+01	mg/L
PHENANTHRENE	1/1			3.00E-03	3.00E-03	3.00E-03	NT	3.00E-03	mg/L

Sample Station=BY-06

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			5.63E+00	5.63E+00	5.63E+00	NT	5.63E+00	mg/L
SULFATE	1/1			3.00E+02	3.00E+02	3.00E+02	NT	3.00E+02	mg/L

Sample Station=BY-09

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COPPER	1/1			1.21E-01	1.21E-01	1.21E-01	NT	1.21E-01	mg/L
LEAD	1/1			1.18E-01	1.18E-01	1.18E-01	NT	1.18E-01	mg/L
PHENANTHRENE	1/1			1.00E-03	1.00E-03	1.00E-03	NT	1.00E-03	mg/L

Sample Station=GW-003

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	2/2			3.50E+01	3.70E+01	3.60E+01	N	3.70E+01	mg/L

Sample Station=GW-005

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COPPER	5/5			6.50E-03	5.60E-02	2.71E-02	N	4.61E-02	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-007

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	7/7			1.60E+01	2.50E+01	1.98E+01	N	2.23E+01	mg/L
LEAD	10/10			4.40E-03	6.40E-01	9.04E-02	L	2.32E-01	mg/L
2-HEXANONE	1/10	1.00E-02	1.00E-02	2.00E-03	2.00E-03	4.70E-03	N	2.00E-03	mg/L

Sample Station=GW-010

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			4.30E+01	4.30E+01	4.30E+01	NT	4.30E+01	mg/L
COBALT	1/1			9.10E-02	9.10E-02	9.10E-02	NT	9.10E-02	mg/L
COPPER	1/1			4.10E-02	4.10E-02	4.10E-02	NT	4.10E-02	mg/L
LEAD	10/10			7.90E-03	8.50E-02	3.19E-02	L	5.08E-02	mg/L
SILICON	1/1			2.40E+01	2.40E+01	2.40E+01	NT	2.40E+01	mg/L
TITANIUM	1/1			2.90E-01	2.90E-01	2.90E-01	NT	2.90E-01	mg/L
2-HEXANONE	1/10	1.00E-02	1.00E-02	1.00E-03	1.00E-03	4.60E-03	N	1.00E-03	mg/L

Sample Station=GW-014

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	5/5			9.80E+01	1.26E+02	1.14E+02	N	1.25E+02	mg/L
LEAD	5/5			5.00E-03	2.75E-01	1.01E-01	N	2.13E-01	mg/L
LITHIUM	1/1			3.20E-01	3.20E-01	3.20E-01	NT	3.20E-01	mg/L
NIOBIUM	1/1			1.40E-02	1.40E-02	1.40E-02	NT	1.40E-02	mg/L
2-HEXANONE	2/6	1.00E-02	1.00E-02	2.00E-03	1.00E-02	5.33E-03	N	7.46E-03	mg/L
CIS-1,3-DICHLOROPROPENE	1/6	5.00E-03	5.00E-03	4.00E-03	4.00E-03	2.75E-03	N	3.25E-03	mg/L
PHENOLS	2/4	1.00E-03	1.00E-03	2.00E-03	5.00E-03	2.00E-03	N	4.50E-03	mg/L

Sample Station=GW-021

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
LEAD	4/4			9.00E-03	5.30E-01	1.42E-01	N	4.46E-01	mg/L
2-HEXANONE	1/4	1.00E-02	1.00E-02	5.00E-03	5.00E-03	5.00E-03	N	5.00E-03	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-027

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	3/3			2.77E+02	3.17E+02	2.95E+02	N	3.17E+02	mg/L
COBALT	1/1			7.80E-02	7.80E-02	7.80E-02	NT	7.80E-02	mg/L
COPPER	1/1			1.50E-02	1.50E-02	1.50E-02	NT	1.50E-02	mg/L
LITHIUM	1/1			9.90E-01	9.90E-01	9.90E-01	NT	9.90E-01	mg/L
2-HEXANONE	3/6	1.00E-02	1.00E-02	7.00E-03	2.20E-01	6.37E-02	N	1.41E-01	mg/L
PHENOLS	1/1			5.10E-02	5.10E-02	5.10E-02	NT	5.10E-02	mg/L

Sample Station=GW-039

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	5/5			1.17E+02	1.32E+02	1.22E+02	N	1.28E+02	mg/L
LEAD	8/8			4.00E-03	1.10E-01	6.14E-02	L	1.10E-01	mg/L
SILICON	1/1			9.60E+00	9.60E+00	9.60E+00	NT	9.60E+00	mg/L
2-HEXANONE	1/8	1.00E-02	1.00E-02	1.00E-03	1.00E-03	4.50E-03	N	1.00E-03	mg/L
PHENOLS	1/1			3.00E-03	3.00E-03	3.00E-03	NT	3.00E-03	mg/L
TRANS-1,3-DICHLOROPROPENE	1/8	5.00E-03	5.00E-03	1.50E-02	1.50E-02	4.06E-03	N	7.02E-03	mg/L

Sample Station=GW-040

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
LEAD	14/14			5.50E-03	4.40E-02	2.02E-02	L	2.84E-02	mg/L
2-HEXANONE	1/14	1.00E-02	1.00E-02	1.00E-03	1.00E-03	4.71E-03	N	1.00E-03	mg/L

Sample Station=GW-045

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
LEAD	5/5			4.50E-03	3.10E-02	1.34E-02	N	2.34E-02	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-046

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	9/9			8.50E+00	2.80E+01	1.78E+01	N	2.22E+01	mg/L
LEAD	7/9	4.00E-03	4.00E-03	4.00E-03	2.57E-01	2.47E-02	L	7.23E-02	mg/L
LITHIUM	1/1			1.00E-01	1.00E-01	1.00E-01	NT	1.00E-01	mg/L
NIOBIUM	1/1			7.70E-03	7.70E-03	7.70E-03	NT	7.70E-03	mg/L
2-HEXANONE	1/8	1.00E-02	1.00E-02	4.00E-03	4.00E-03	4.88E-03	N	4.00E-03	mg/L

Sample Station=GW-052

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	5/5			1.20E+01	1.85E+01	1.54E+01	N	1.81E+01	mg/L
LEAD	5/5			7.90E-03	7.80E-02	3.10E-02	N	5.69E-02	mg/L
SULFATE	5/5			1.87E+01	2.87E+01	2.31E+01	N	2.68E+01	mg/L

Sample Station=GW-054

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
LEAD	8/10	4.00E-03	4.00E-03	4.30E-03	7.30E-02	2.18E-02	L	4.72E-02	mg/L

Sample Station=GW-057

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	11/11			4.90E+01	3.41E+02	1.32E+02	L	1.79E+02	mg/L

Sample Station=GW-063

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COPPER	10/11	4.00E-03	4.00E-03	6.20E-03	1.90E-01	3.01E-02	L	5.84E-02	mg/L
LEAD	9/11	4.00E-03	2.00E-02	5.00E-03	1.40E-01	2.22E-02	L	4.13E-02	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-067

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COPPER	1/1			1.70E-02	1.70E-02	1.70E-02	NT	1.70E-02	mg/L
LEAD	11/11			2.00E-02	2.30E-01	7.29E-02	L	1.11E-01	mg/L

Sample Station=GW-068

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
2-HEXANONE	1/8	1.00E-02	5.00E-02	1.00E-03	1.00E-03	1.04E-02	L	1.00E-03	mg/L
CIS-1,3-DICHLOROPROPENE	1/8	5.00E-03	2.50E-02	1.00E-03	1.00E-03	4.89E-03	L	1.00E-03	mg/L
PHENOLS	3/4	1.00E-03	1.00E-03	2.00E-03	9.00E-03	3.63E-03	N	8.01E-03	mg/L

Sample Station=GW-069

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	19/19			3.00E+01	4.90E+01	3.92E+01	L	4.10E+01	mg/L

Sample Station=GW-071

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	6/6			2.80E+01	4.40E+01	3.80E+01	N	4.32E+01	mg/L

Sample Station=GW-073

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
2-HEXANONE	1/13	1.00E-02	1.00E-02	1.00E-03	1.00E-03	4.69E-03	N	1.00E-03	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-080

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COPPER	15/15			1.00E-02	7.00E-01	6.10E-02	L	1.02E-01	mg/L
LEAD	13/15	4.00E-03	4.00E-03	4.20E-03	2.10E-01	2.44E-02	L	4.61E-02	mg/L

Sample Station=GW-086

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
LEAD	7/7			8.90E-03	3.80E-02	1.70E-02	L	2.33E-02	mg/L

Sample Station=GW-087

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			3.10E+00	3.10E+00	3.10E+00	NT	3.10E+00	mg/L
CHLORIDE	4/4			2.00E+01	3.30E+01	2.95E+01	N	3.30E+01	mg/L
COPPER	1/1			3.50E-02	3.50E-02	3.50E-02	NT	3.50E-02	mg/L
LEAD	4/4			1.20E-02	2.60E-02	1.73E-02	N	2.48E-02	mg/L
2-HEXANONE	1/9	1.00E-02	2.00E-02	2.00E-03	2.00E-03	5.30E-03	L	2.00E-03	mg/L
PHENOLS	1/4	1.00E-03	1.00E-03	2.00E-03	2.00E-03	8.75E-04	N	1.76E-03	mg/L

Sample Station=GW-089

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
LEAD	9/10	4.00E-03	4.00E-03	4.30E-03	1.28E-01	2.03E-02	L	3.97E-02	mg/L

Sample Station=GW-094

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
LITHIUM	1/1			8.50E-02	8.50E-02	8.50E-02	NT	8.50E-02	mg/L
PHENOLS	1/4	1.00E-03	1.00E-03	2.00E-03	2.00E-03	8.75E-04	N	1.76E-03	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-097

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PHENOLS	1/4	1.00E-03	1.00E-03	3.00E-03	3.00E-03	1.13E-03	N	2.60E-03	mg/L

Sample Station=GW-098

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
2-HEXANONE	1/13	1.00E-02	1.00E-02	1.00E-03	1.00E-03	4.69E-03	N	1.00E-03	mg/L

Sample Station=GW-100

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	12/12			2.00E+01	7.80E+01	4.39E+01	L	5.48E+01	mg/L
COPPER	2/2			6.80E-03	2.50E-02	1.59E-02	N	2.50E-02	mg/L
NIOBIUM	1/2	7.00E-03	7.00E-03	2.20E-02	2.20E-02	1.28E-02	N	2.20E-02	mg/L
SULFATE	11/11			1.02E+01	3.70E+01	2.25E+01	N	2.71E+01	mg/L
2-HEXANONE	1/13	1.00E-02	1.00E-02	1.00E-03	1.00E-03	4.69E-03	N	1.00E-03	mg/L
PHENOLS	1/4	1.00E-03	1.00E-03	4.00E-03	4.00E-03	1.38E-03	N	3.43E-03	mg/L

Sample Station=GW-101

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	3/3			2.80E+01	3.80E+01	3.37E+01	N	3.80E+01	mg/L
COPPER	3/4	4.00E-03	4.00E-03	8.00E-02	1.20E-01	7.80E-02	N	1.20E-01	mg/L
SULFATE	4/4			6.20E+01	1.20E+02	7.80E+01	N	1.11E+02	mg/L

Sample Station=GW-103

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			6.90E+02	6.90E+02	6.90E+02	NT	6.90E+02	mg/L
CHLORIDE	1/1			2.67E+02	2.67E+02	2.67E+02	NT	2.67E+02	mg/L
COBALT	1/1			2.30E+00	2.30E+00	2.30E+00	NT	2.30E+00	mg/L
COPPER	1/1			3.10E+00	3.10E+00	3.10E+00	NT	3.10E+00	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-103 (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
KJELDAHL NITROGEN	1/1			1.74E+00	1.74E+00	1.74E+00	NT	1.74E+00	mg/L
LEAD	1/1			1.60E-01	1.60E-01	1.60E-01	NT	1.60E-01	mg/L
LITHIUM	1/1			3.50E+00	3.50E+00	3.50E+00	NT	3.50E+00	mg/L
SILICON	1/1			3.70E+01	3.70E+01	3.70E+01	NT	3.70E+01	mg/L
SULFATE	1/1			8.30E+02	8.30E+02	8.30E+02	NT	8.30E+02	mg/L
THORIUM	1/1			2.80E-01	2.80E-01	2.80E-01	NT	2.80E-01	mg/L
TITANIUM	1/1			3.40E-01	3.40E-01	3.40E-01	NT	3.40E-01	mg/L

Sample Station=GW-118

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COPPER	3/5	2.00E-02	2.00E-02	1.70E-02	4.30E-02	1.96E-02	N	3.26E-02	mg/L

Sample Station=GW-120

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
2-HEXANONE	1/12	1.00E-02	1.00E-02	1.00E-03	1.00E-03	4.67E-03	N	1.00E-03	mg/L
PHENOLS	1/1			3.00E-03	3.00E-03	3.00E-03	NT	3.00E-03	mg/L

Sample Station=GW-122

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	5/5			1.19E+02	1.75E+02	1.36E+02	N	1.59E+02	mg/L
COPPER	3/3			1.10E-02	4.60E-02	2.97E-02	N	4.60E-02	mg/L

Sample Station=GW-124

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
KJELDAHL NITROGEN	1/1			1.20E+00	1.20E+00	1.20E+00	NT	1.20E+00	mg/L
NIOBIUM	1/2	7.00E-03	7.00E-03	8.10E-03	8.10E-03	5.80E-03	N	8.10E-03	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-126

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
LITHIUM	1/1			8.60E-02	8.60E-02	8.60E-02	NT	8.60E-02	mg/L
2-HEXANONE	1/13	1.00E-02	1.00E-02	1.00E-03	1.00E-03	4.69E-03	N	1.00E-03	mg/L

Sample Station=GW-127

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			2.40E+01	2.40E+01	2.40E+01	NT	2.40E+01	mg/L
CHLORIDE	10/10			1.07E+02	3.39E+02	2.37E+02	N	2.82E+02	mg/L
COPPER	1/1			1.20E-01	1.20E-01	1.20E-01	NT	1.20E-01	mg/L
KJELDAHL NITROGEN	1/1			2.00E-01	2.00E-01	2.00E-01	NT	2.00E-01	mg/L
NIOBIUM	1/1			1.70E-02	1.70E-02	1.70E-02	NT	1.70E-02	mg/L
SILICON	1/1			3.90E+01	3.90E+01	3.90E+01	NT	3.90E+01	mg/L
SULFATE	10/10			2.70E+01	2.61E+02	1.85E+02	N	2.21E+02	mg/L
TITANIUM	1/1			8.50E-01	8.50E-01	8.50E-01	NT	8.50E-01	mg/L
2-CHLOROETHYLVINYL ETHER	1/4	1.00E-02	1.00E-02	4.00E-03	4.00E-03	4.75E-03	N	4.00E-03	mg/L

Sample Station=GW-209

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
LEAD	3/3			1.20E-02	1.60E-02	1.40E-02	N	1.60E-02	mg/L

Sample Station=GW-210

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
SULFATE	4/4			3.80E+01	4.20E+01	3.98E+01	N	4.20E+01	mg/L
2-HEXANONE	1/5	1.00E-02	1.00E-02	5.00E-03	5.00E-03	5.00E-03	N	5.00E-03	mg/L

Sample Station=GW-211

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
SULFATE	3/3			8.50E+02	1.04E+03	9.24E+02	N	1.04E+03	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-226

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COBALT	5/5			1.90E-02	1.40E-01	4.76E-02	N	9.70E-02	mg/L
COPPER	4/5	4.00E-03	4.00E-03	6.90E-03	1.90E-02	1.12E-02	N	1.76E-02	mg/L

Sample Station=GW-228

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
KJELDAHL NITROGEN	1/2	5.00E-02	5.00E-02	3.40E-01	3.40E-01	1.83E-01	N	3.40E-01	mg/L
2-HEXANONE	2/17	1.00E-02	1.00E-02	1.00E-03	4.00E-03	4.71E-03	N	4.00E-03	mg/L
PHENOLS	1/4	1.00E-03	1.00E-03	4.00E-03	4.00E-03	1.38E-03	N	3.43E-03	mg/L

Sample Station=GW-229

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
AMMONIA NITROGEN	1/3	2.43E-01	2.43E-01	3.53E+00	3.53E+00	1.26E+00	N	3.53E+00	mg/L
KJELDAHL NITROGEN	3/3			2.66E+00	4.90E+00	3.89E+00	N	4.90E+00	mg/L
NIOBIUM	2/4	7.00E-03	7.00E-03	2.60E-02	2.90E-02	1.55E-02	N	2.90E-02	mg/L
PHENOLS	3/4	1.00E-03	1.00E-03	3.00E-03	6.00E-03	3.63E-03	N	6.00E-03	mg/L

Sample Station=GW-236

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
LEAD	2/2			2.20E-02	3.20E-02	2.70E-02	N	3.20E-02	mg/L

Sample Station=GW-242

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
LEAD	7/7			8.50E-03	5.20E-02	2.18E-02	L	3.32E-02	mg/L
2-HEXANONE	1/10	1.00E-02	1.00E-02	3.00E-03	3.00E-03	4.80E-03	N	3.00E-03	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-243

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	6/6			6.80E+02	8.00E+02	7.50E+02	N	7.91E+02	mg/L
CHLORIDE	3/3			3.97E+02	4.44E+02	4.14E+02	N	4.44E+02	mg/L
COBALT	6/6			1.20E+00	1.90E+00	1.58E+00	N	1.85E+00	mg/L
COPPER	6/6			8.90E-01	1.40E+00	1.12E+00	N	1.32E+00	mg/L
SULFATE	4/4			5.52E+02	1.80E+03	1.14E+03	N	1.80E+03	mg/L

Sample Station=GW-244

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	4/4			1.61E+02	2.23E+02	1.85E+02	N	2.17E+02	mg/L
LEAD	7/7			5.00E-03	1.06E-01	2.13E-02	L	4.56E-02	mg/L
2-HEXANONE	1/9	1.00E-02	1.00E-02	3.00E-03	3.00E-03	4.78E-03	N	3.00E-03	mg/L

Sample Station=GW-245

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			1.30E+01	1.30E+01	1.30E+01	NT	1.30E+01	mg/L
CHLORIDE	6/6			2.23E+02	3.66E+02	2.86E+02	N	3.25E+02	mg/L
COBALT	1/1			1.40E-01	1.40E-01	1.40E-01	NT	1.40E-01	mg/L
LITHIUM	1/1			6.20E-01	6.20E-01	6.20E-01	NT	6.20E-01	mg/L
2-HEXANONE	2/10	1.00E-02	1.00E-02	1.00E-03	4.00E-03	4.50E-03	N	4.00E-03	mg/L

Sample Station=GW-246

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			9.90E+01	9.90E+01	9.90E+01	NT	9.90E+01	mg/L
CHLORIDE	4/4			2.88E+02	1.34E+03	5.98E+02	N	1.18E+03	mg/L
COBALT	1/1			4.80E-01	4.80E-01	4.80E-01	NT	4.80E-01	mg/L
LITHIUM	1/1			1.20E+00	1.20E+00	1.20E+00	NT	1.20E+00	mg/L
NIOBIUM	1/1			1.00E-01	1.00E-01	1.00E-01	NT	1.00E-01	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-247

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	5/5			2.69E+02	3.04E+02	2.86E+02	N	3.02E+02	mg/L
LITHIUM	1/1			5.00E-01	5.00E-01	5.00E-01	NT	5.00E-01	mg/L
2-HEXANONE	1/10	1.00E-02	1.00E-02	2.00E-03	2.00E-03	4.70E-03	N	2.00E-03	mg/L

Sample Station=GW-248

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NIOBIUM	2/4	7.00E-03	7.00E-03	8.30E-03	1.20E-02	6.83E-03	N	1.17E-02	mg/L
SULFATE	8/8			3.40E+01	4.30E+01	3.80E+01	N	4.02E+01	mg/L
PHENOLS	2/8	1.00E-03	3.00E-02	1.00E-03	3.00E-03	1.43E-03	L	3.00E-03	mg/L

Sample Station=GW-249

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
SULFATE	5/5			2.90E+01	6.90E+01	4.42E+01	N	5.83E+01	mg/L

Sample Station=GW-250

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
SULFATE	8/8			2.19E+02	3.44E+02	2.60E+02	L	2.86E+02	mg/L

Sample Station=GW-257

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	5/5			7.90E-01	2.20E+01	7.84E+00	N	1.63E+01	mg/L
LEAD	5/5			5.50E-03	7.10E-02	2.67E-02	N	5.17E-02	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-258

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NIOBIUM	1/4	7.00E-03	7.00E-03	8.50E-03	8.50E-03	4.75E-03	N	7.69E-03	mg/L
PHENOLS	2/8	1.00E-03	3.00E-02	6.00E-03	3.30E-02	1.53E-03	L	1.90E-02	mg/L

Sample Station=GW-259

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NIOBIUM	1/4	7.00E-03	7.00E-03	1.00E-02	1.00E-02	5.13E-03	N	8.95E-03	mg/L
PHENOLS	3/8	1.00E-03	3.00E-02	1.00E-03	2.00E-01	4.19E-03	L	5.02E-02	mg/L

Sample Station=GW-276

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	7/7			1.50E+01	3.80E+02	2.32E+02	N	3.48E+02	mg/L
AMMONIA NITROGEN	4/5	2.43E-01	2.43E-01	4.99E+00	5.79E+00	4.42E+00	N	5.79E+00	mg/L
CHLORIDE	10/10			1.01E+02	2.00E+02	1.50E+02	L	1.72E+02	mg/L
COBALT	7/7			2.10E-01	1.40E+00	9.89E-01	N	1.39E+00	mg/L
COPPER	7/7			3.70E-02	3.90E-01	2.65E-01	N	3.84E-01	mg/L
KJELDAHL NITROGEN	3/5	1.00E-01	1.00E-01	9.00E-01	1.80E+00	8.00E-01	N	1.52E+00	mg/L
LEAD	8/10	4.00E-03	8.00E-03	1.00E-02	2.80E-01	4.98E-02	L	1.36E-01	mg/L
LITHIUM	5/5			1.90E-01	2.70E-01	2.34E-01	N	2.65E-01	mg/L
NIOBIUM	3/5	7.00E-03	7.00E-03	7.50E-03	1.50E-02	7.76E-03	N	1.23E-02	mg/L
2-NITROPHENOL	5/5			1.80E-02	7.10E-02	4.70E-02	N	6.53E-02	mg/L
4-NITROPHENOL	5/5			2.20E-02	1.20E-01	6.62E-02	N	1.09E-01	mg/L
PHENOLS	1/5	1.00E-03	1.00E-03	2.00E-03	2.00E-03	8.00E-04	N	1.44E-03	mg/L

Sample Station=GW-277

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
AMMONIA NITROGEN	1/3	2.43E-01	2.43E-01	1.82E+00	1.82E+00	6.89E-01	N	1.82E+00	mg/L
CHLORIDE	12/12			1.14E+02	2.25E+02	1.47E+02	L	1.61E+02	mg/L
KJELDAHL NITROGEN	1/3	1.00E-01	2.00E-01	4.00E-01	4.00E-01	1.83E-01	N	4.00E-01	mg/L
LITHIUM	3/3			1.00E-01	1.30E-01	1.13E-01	N	1.30E-01	mg/L
NIOBIUM	1/2	7.00E-03	7.00E-03	1.20E-02	1.20E-02	7.75E-03	N	1.20E-02	mg/L
THALLIUM	1/3	1.00E-02	1.00E-02	1.00E-02	1.00E-02	6.67E-03	N	1.00E-02	mg/L
TITANIUM	2/3	3.00E-03	3.00E-03	1.60E-01	2.50E-01	1.37E-01	N	2.50E-01	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-277 (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PHENOLS	1/5	1.00E-03	1.00E-03	1.00E-03	1.00E-03	6.00E-04	N	8.13E-04	mg/L

Sample Station=GW-288

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NIOBIUM	1/4	7.00E-03	7.00E-03	1.30E-02	1.30E-02	5.88E-03	N	1.15E-02	mg/L
PHENOLS	1/4	1.00E-03	3.00E-02	4.00E-03	4.00E-03	5.00E-03	N	4.00E-03	mg/L

Sample Station=GW-290

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NIOBIUM	1/4	7.00E-03	7.00E-03	1.70E-02	1.70E-02	6.88E-03	N	1.48E-02	mg/L
PHENOLS	3/4	1.00E-03	1.00E-03	4.00E-03	1.71E-02	7.40E-03	N	1.58E-02	mg/L

Sample Station=GW-291

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COPPER	6/6			1.50E-02	6.60E+00	1.50E+00	N	3.65E+00	mg/L
NIOBIUM	1/4	7.00E-03	7.00E-03	1.40E-02	1.40E-02	6.13E-03	N	1.23E-02	mg/L
PHENOLS	2/4	1.00E-03	3.00E-02	1.00E-03	2.00E-03	4.63E-03	N	2.00E-03	mg/L

Sample Station=GW-307

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COPPER	4/5	4.00E-03	4.00E-03	5.10E-03	3.40E-02	1.76E-02	N	3.18E-02	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-308

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COPPER	5/5			1.80E-02	8.00E-02	3.36E-02	N	5.84E-02	mg/L

Sample Station=GW-345

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	5/5			4.80E+00	1.50E+01	7.44E+00	N	1.16E+01	mg/L

Sample Station=GW-346

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	5/5			7.00E+00	6.50E+01	3.38E+01	N	5.36E+01	mg/L

Sample Station=GW-348

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	18/18			7.70E+00	1.00E+01	8.75E+00	L	9.03E+00	mg/L

Sample Station=GW-364

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	15/15			1.50E-01	2.40E+01	1.02E+01	L	2.40E+01	mg/L
LEAD	10/16	4.00E-03	4.00E-03	8.40E-03	4.30E-02	1.17E-02	L	2.44E-02	mg/L
SILICON	5/5			6.30E+00	2.20E+01	1.52E+01	N	2.20E+01	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-366

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
SILICON	5/5			6.30E+00	1.60E+01	1.00E+01	N	1.37E+01	mg/L

Sample Station=GW-520

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COPPER	4/4			6.00E-03	1.70E-02	1.25E-02	N	1.70E-02	mg/L
LEAD	4/4			6.30E-03	5.70E-02	2.67E-02	N	5.50E-02	mg/L
2-HEXANONE	1/10	1.00E-02	1.00E-02	3.00E-03	3.00E-03	4.80E-03	N	3.00E-03	mg/L

Sample Station=GW-526

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COPPER	4/5	8.00E-03	8.00E-03	3.10E-02	4.60E-01	1.19E-01	N	3.02E-01	mg/L

Sample Station=GW-531

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
LEAD	1/1			3.10E-02	3.10E-02	3.10E-02	NT	3.10E-02	mg/L

Sample Station=GW-537

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COPPER	6/11	4.00E-03	2.00E-02	1.30E-02	3.20E-02	1.53E-02	N	2.10E-02	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-538

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	3/3			7.80E-01	1.00E+01	5.06E+00	N	1.00E+01	mg/L

Sample Station=GW-602

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
SULFATE	10/10			2.23E+02	3.51E+02	2.79E+02	L	2.99E+02	mg/L

Sample Station=GW-615

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	3/3			4.70E+01	7.10E+01	5.92E+01	N	7.10E+01	mg/L
COBALT	4/4			1.30E-01	7.70E-01	4.03E-01	N	7.50E-01	mg/L
COPPER	3/3			4.10E-01	1.60E+00	9.97E-01	N	1.60E+00	mg/L
SULFATE	1/1			2.20E+03	2.20E+03	2.20E+03	NT	2.20E+03	mg/L

Sample Station=GW-626

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PHENOLS	1/5	3.00E-02	5.00E-02	9.40E-02	9.40E-02	3.28E-02	N	6.57E-02	mg/L

Sample Station=GW-627

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PHENOLS	1/5	3.00E-02	5.00E-02	5.00E-02	5.00E-02	2.40E-02	N	3.85E-02	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-644

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	9/10	1.00E+00	1.00E+00	2.00E+00	3.00E+00	2.23E+00	N	2.65E+00	mg/L

Sample Station=GW-646

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
SULFATE	6/6			2.71E+02	4.74E+02	3.96E+02	N	4.61E+02	mg/L

Sample Station=GW-705

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	7/7			4.30E+01	1.45E+02	6.56E+01	L	8.69E+01	mg/L

Sample Station=GW-710

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	10/10			2.95E+02	5.77E+02	4.06E+02	L	4.59E+02	mg/L
SULFATE	10/10			1.54E+03	2.44E+03	1.99E+03	N	2.14E+03	mg/L

Sample Station=GW-711

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	9/9			1.58E+03	2.18E+03	1.86E+03	L	1.98E+03	mg/L
SULFATE	9/9			1.58E+03	2.83E+03	2.02E+03	L	2.22E+03	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=GW-712

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
SULFATE	11/11			1.68E+02	4.18E+02	2.89E+02	N	3.38E+02	mg/L

Sample Station=GW-737

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
2-HEXANONE	1/9	1.00E-03	1.00E-02	3.00E-03	3.00E-03	4.28E-03	N	3.00E-03	mg/L

Sample Station=SEEP C-WEST TOE

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/2	2.00E+00	2.00E+00	3.00E-01	3.00E-01	6.50E-01	N	3.00E-01	mg/L
CALCIUM	2/2			1.16E+02	1.20E+02	1.18E+02	N	1.20E+02	mg/L
COBALT	1/2	1.00E-01	1.00E-01	2.00E-02	2.00E-02	3.50E-02	N	2.00E-02	mg/L
IRON	2/2			1.50E+01	8.41E+01	4.96E+01	N	8.41E+01	mg/L
LITHIUM	2/2			1.28E+01	1.48E+01	1.38E+01	N	1.48E+01	mg/L
MAGNESIUM	2/2			2.10E+01	2.12E+01	2.11E+01	N	2.12E+01	mg/L
PHOSPHORUS	1/2	3.00E+00	3.00E+00	1.10E+00	1.10E+00	1.30E+00	N	1.10E+00	mg/L
POTASSIUM	1/2	3.00E+01	3.00E+01	1.00E+01	1.00E+01	1.25E+01	N	1.00E+01	mg/L
SODIUM	2/2			1.90E+01	2.14E+01	2.02E+01	N	2.14E+01	mg/L
1,2-DICHLORO-1,1,2-TRIFLUOROETHANE	1/1			2.70E-02	2.70E-02	2.70E-02	NT	2.70E-02	mg/L
1,3,5-CYCLOHEPTATRIENE	1/1			4.00E-03	4.00E-03	4.00E-03	NT	4.00E-03	mg/L
1,3-DICHLOROBENZENE	1/2	1.00E-02	1.00E-02	4.00E-03	4.00E-03	4.50E-03	N	4.00E-03	mg/L
2-METHYL-2,4-PENTANEDIOL	1/1			2.70E-01	2.70E-01	2.70E-01	NT	2.70E-01	mg/L
3,5-DIMETHYLPHENOL	1/1			7.90E-02	7.90E-02	7.90E-02	NT	7.90E-02	mg/L
4-HYDROXY-4-METHYL-2-PENTANONE	1/1			1.20E-01	1.20E-01	1.20E-01	NT	1.20E-01	mg/L
BIS(2-BUTOXYETHYL)ETHER	1/1			9.20E-02	9.20E-02	9.20E-02	NT	9.20E-02	mg/L
DICHLOROACETIC ACID	1/1			5.00E-03	5.00E-03	5.00E-03	NT	5.00E-03	mg/L
ETHANOL, 2-CHLORO-, PHOSPHATE (3:1)	1/1			5.60E-02	5.60E-02	5.60E-02	NT	5.60E-02	mg/L
HEXADECANOIC ACID	1/1			3.10E-02	3.10E-02	3.10E-02	NT	3.10E-02	mg/L
N,N,4-TRIMETHYL-BENZENESULFONAMIDE	1/1			3.70E-02	3.70E-02	3.70E-02	NT	3.70E-02	mg/L

Sample Station=SEEP1

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
4-BROMOPHENYL PHENYL ETHER	1/1			1.00E-03	1.00E-03	1.00E-03	NT	1.00E-03	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=SEEP2

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/2	2.00E+00	2.00E+00	1.59E+02	1.59E+02	8.00E+01	N	1.59E+02	mg/L
CALCIUM	2/2			9.20E+01	5.31E+02	3.12E+02	N	5.31E+02	mg/L
CERIUM	1/2	8.00E-01	8.00E-01	1.22E+00	1.22E+00	8.10E-01	N	1.22E+00	mg/L
COBALT	1/2	1.00E-01	1.00E-01	2.10E-01	2.10E-01	1.30E-01	N	2.10E-01	mg/L
COPPER	1/2	3.00E-01	3.00E-01	6.40E-01	6.40E-01	3.95E-01	N	6.40E-01	mg/L
IRON	1/2	3.00E+00	3.00E+00	1.29E+03	1.29E+03	6.46E+02	N	1.29E+03	mg/L
LEAD	1/2	1.00E+00	1.00E+00	8.00E-01	8.00E-01	6.50E-01	N	8.00E-01	mg/L
LITHIUM	2/2			9.00E+00	1.19E+01	1.05E+01	N	1.19E+01	mg/L
MAGNESIUM	2/2			1.50E+01	5.09E+01	3.30E+01	N	5.09E+01	mg/L
PHOSPHORUS	1/2	3.00E+00	3.00E+00	9.10E+00	9.10E+00	5.30E+00	N	9.10E+00	mg/L
POTASSIUM	1/2	3.00E+01	3.00E+01	1.80E+01	1.80E+01	1.65E+01	N	1.80E+01	mg/L
SODIUM	2/2			4.00E+00	5.10E+00	4.55E+00	N	5.10E+00	mg/L
THORIUM	1/2	5.00E-01	5.00E-01	1.10E-01	1.10E-01	1.80E-01	N	1.10E-01	mg/L
TITANIUM	1/2	6.00E-01	6.00E-01	1.02E+00	1.02E+00	6.60E-01	N	1.02E+00	mg/L
ZIRCONIUM	1/2	2.00E-01	2.00E-01	1.60E-01	1.60E-01	1.30E-01	N	1.60E-01	mg/L
1,3,5-CYCLOHEPTATRIENE	1/1			5.00E-03	5.00E-03	5.00E-03	NT	5.00E-03	mg/L
4-HYDROXY-4-METHYL-2-PENTANONE	1/1			8.00E-02	8.00E-02	8.00E-02	NT	8.00E-02	mg/L
BIS(2-BUTOXYETHYL)ETHER	1/1			3.20E-02	3.20E-02	3.20E-02	NT	3.20E-02	mg/L
DICHLOROACETIC ACID	2/2			4.00E-03	5.00E-03	4.50E-03	N	5.00E-03	mg/L
HEXADECANOIC ACID	1/1			1.40E-02	1.40E-02	1.40E-02	NT	1.40E-02	mg/L

Sample Station=SEEPS 3&4

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	2/2			6.00E+00	1.70E+01	1.15E+01	N	1.70E+01	mg/L
CALCIUM	2/2			6.70E+01	6.74E+01	6.72E+01	N	6.74E+01	mg/L
CERIUM	1/2	8.00E-01	8.00E-01	8.00E-02	8.00E-02	2.40E-01	N	8.00E-02	mg/L
COBALT	1/2	1.00E-01	1.00E-01	6.00E-02	6.00E-02	5.50E-02	N	6.00E-02	mg/L
COPPER	1/2	3.00E-01	3.00E-01	4.00E-02	4.00E-02	9.50E-02	N	4.00E-02	mg/L
IRON	2/2			1.07E+02	3.50E+02	2.29E+02	N	3.50E+02	mg/L
LITHIUM	2/2			3.17E+01	3.24E+01	3.21E+01	N	3.24E+01	mg/L
MAGNESIUM	2/2			2.30E+01	2.31E+01	2.31E+01	N	2.31E+01	mg/L
PHOSPHORUS	2/2			4.00E+00	1.09E+01	7.45E+00	N	1.09E+01	mg/L
POTASSIUM	1/2	3.00E+01	3.00E+01	1.80E+01	1.80E+01	1.65E+01	N	1.80E+01	mg/L
SODIUM	2/2			3.40E+01	3.40E+01	3.40E+01	N	3.40E+01	mg/L
TITANIUM	1/2	6.00E-01	6.00E-01	1.70E-01	1.70E-01	2.35E-01	N	1.70E-01	mg/L
1,1-THIOBIS ETHANE	1/1			2.60E-02	2.60E-02	2.60E-02	NT	2.60E-02	mg/L
1,2-DICHLORO-1,1,2-TRIFLUOROETHANE	2/2			3.90E-02	7.30E-02	5.60E-02	N	7.30E-02	mg/L
1,3-DICHLOROBENZENE	2/2			6.00E-03	6.00E-03	6.00E-03	N	6.00E-03	mg/L
2,2,3,4-TETRAMETHYL-PENTANE	1/1			8.40E-02	8.40E-02	8.40E-02	NT	8.40E-02	mg/L
2,4,6-TRIMETHYL OCTANE	1/1			3.80E-02	3.80E-02	3.80E-02	NT	3.80E-02	mg/L
2-METHYL-2,4-PENTANEDIOL	1/1			1.10E-01	1.10E-01	1.10E-01	NT	1.10E-01	mg/L
3-(1,1-DIMETHYLETHYL)PHENOL	1/1			4.00E-02	4.00E-02	4.00E-02	NT	4.00E-02	mg/L

Table F.33a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for each sampling location)

Sample Station=SEEPS 3&4 (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
3-CHLORO-1-BUTYNE	1/1			4.00E-03	4.00E-03	4.00E-03	NT	4.00E-03	mg/L
4-(1,1-DIMETHYLETHYL)BENZOIC ACID	1/1			4.60E-02	4.60E-02	4.60E-02	NT	4.60E-02	mg/L
4-HYDROXY-4-METHYL-2-PENTANONE	1/1			7.80E-02	7.80E-02	7.80E-02	NT	7.80E-02	mg/L
BIS(2-BUTOXYETHYL)ETHER	1/1			2.49E-01	2.49E-01	2.49E-01	NT	2.49E-01	mg/L
HEXADECANOIC ACID	1/1			2.90E-02	2.90E-02	2.90E-02	NT	2.90E-02	mg/L
PHOSPHORIC ACID, TRIBUTYL ESTER	1/1			4.00E-02	4.00E-02	4.00E-02	NT	4.00E-02	mg/L

Sample Station=SL1-01

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			6.68E+00	6.68E+00	6.68E+00	NT	6.68E+00	mg/L
COBALT	1/1			2.30E-02	2.30E-02	2.30E-02	NT	2.30E-02	mg/L
SULFATE	1/1			6.70E+01	6.70E+01	6.70E+01	NT	6.70E+01	mg/L

Table F.33b. Summary statistics for BCV COPCs that will be evaluated qualitatively
Medium: GROUNDWATER (for Picket well aggregates)

Aggregate=PICKET-A

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	76/76			3.00E+00	3.41E+02	5.31E+01	L	6.93E+01	mg/L
LEAD	22/69	4.00E-03	2.00E-02	4.30E-03	7.30E-02	6.50E-03	N	8.59E-03	mg/L

Aggregate=PICKET-W

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	52/52			7.90E+00	2.18E+03	5.07E+02	L	1.06E+03	mg/L
SULFATE	52/52			6.00E+00	2.83E+03	1.98E+03	L	2.83E+03	mg/L

Table F.34a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: SURFACE WATER (for each sampling location)

Sample Location=BCK 0.63

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ANTIMONY	1/1			5.70E-02	5.70E-02	5.70E-02	NT	5.70E-02	mg/L
ARSENIC	1/1			6.00E-02	6.00E-02	6.00E-02	NT	6.00E-02	mg/L
BERYLLIUM	2/14	3.00E-04	3.00E-04	4.30E-04	6.20E-03	1.42E-05	L	9.79E-04	mg/L
NITRATE (AS N)	14/14			1.31E+00	9.90E+00	4.37E+00	L	5.98E+00	mg/L
TOTAL URANIUM	14/14			1.50E-02	5.90E-02	2.93E-02	L	3.47E-02	mg/L

Sample Location=BCK 11.97

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	1/1			5.60E-02	5.60E-02	5.60E-02	NT	5.60E-02	mg/L
BARIUM	10/10			1.20E-01	6.30E-01	3.41E-01	L	4.64E-01	mg/L
CADMIUM	5/8	2.00E-03	2.00E-03	2.10E-03	8.60E-03	3.50E-03	L	7.52E-03	mg/L
FLUORIDE	10/10			4.00E-01	1.30E+00	7.86E-01	L	9.62E-01	mg/L
NITRATE (AS N)	10/10			2.12E+01	2.39E+02	9.30E+01	L	1.40E+02	mg/L
SELENIUM	1/1			7.10E-02	7.10E-02	7.10E-02	NT	7.10E-02	mg/L
TOTAL URANIUM	10/10			8.50E-02	3.24E-01	1.80E-01	L	2.24E-01	mg/L

Sample Location=BCK 12.36

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	21/21			1.05E-01	6.25E-01	3.53E-01	N	4.09E-01	mg/L
BERYLLIUM	3/21	3.00E-04	5.00E-04	3.30E-04	9.90E-04	6.81E-05	L	2.83E-04	mg/L
FLUORIDE	21/21			2.00E-01	1.30E+00	7.22E-01	N	8.25E-01	mg/L
NICKEL	20/21	3.44E-02	3.44E-02	1.24E-02	9.21E-02	4.63E-02	L	5.70E-02	mg/L
NITRATE (AS N)	21/21			2.90E+00	1.71E+02	8.59E+01	N	1.04E+02	mg/L
VANADIUM	4/21	2.10E-03	4.00E-03	5.60E-03	3.19E-02	3.50E-04	L	3.20E-03	mg/L
TETRACHLOROETHENE	18/21	5.00E-03	5.00E-03	1.00E-03	6.00E-03	3.10E-03	L	3.80E-03	mg/L
STRONTIUM-90	7/10	2.18E-01	8.39E-01	1.05E+00	2.15E+00	1.12E+00	N	1.44E+00	pCi/L
TECHNETIUM-99	8/8			1.39E+02	4.77E+02	2.68E+02	L	3.54E+02	pCi/L
THORIUM-228	4/9	1.38E-02	1.15E-01	1.32E-01	2.50E-01	1.12E-01	N	1.60E-01	pCi/L
URANIUM-233/234	20/21	6.03E-02	6.03E-02	5.13E+00	5.40E+01	3.10E+01	N	3.70E+01	pCi/L
URANIUM-235	15/21	3.44E-02	9.49E-01	1.04E+00	4.32E+00	1.74E+00	N	2.20E+00	pCi/L
URANIUM-238	20/21	9.47E-02	9.47E-02	8.72E+00	1.35E+02	6.64E+01	N	8.02E+01	pCi/L

Table F.34a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: SURFACE WATER (for each sampling location)

Sample Location=BCK 4.55

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
FLUORIDE	64/70	1.00E-01	1.00E-01	1.00E-02	6.60E-01	1.52E-01	L	1.71E-01	mg/L
NITRATE (AS N)	192/192			2.80E-01	5.00E+02	5.98E+00	L	6.85E+00	mg/L
TOTAL URANIUM	13/14	1.00E-03	1.00E-03	1.90E-02	6.70E-02	3.13E-02	N	3.92E-02	mg/L
CESIUM-137	1/1			7.50E+00	7.50E+00	7.50E+00	NT	7.50E+00	pCi/L
URANIUM-233/234	1/1			3.20E+00	3.20E+00	3.20E+00	NT	3.20E+00	pCi/L
URANIUM-238	1/1			7.10E+00	7.10E+00	7.10E+00	NT	7.10E+00	pCi/L

Sample Location=BCK 9.40

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	13/13			1.00E-01	4.10E+00	7.67E-01	L	1.50E+00	mg/L
FLUORIDE	35/35			1.20E-01	4.00E-01	2.62E-01	N	2.80E-01	mg/L
NITRATE (AS N)	35/35			0.00E+00	4.62E+01	1.60E+01	L	2.08E+01	mg/L
TOTAL URANIUM	13/13			5.20E-02	1.52E-01	1.03E-01	N	1.17E-01	mg/L
VANADIUM	6/35	2.10E-03	5.00E-03	5.10E-03	5.75E-02	3.23E-04	L	2.35E-03	mg/L
TETRACHLOROETHENE	14/35	1.00E-03	1.00E-02	5.00E-04	4.00E-03	2.10E-03	N	2.37E-03	mg/L
TRICHLOROETHENE	7/35	1.00E-03	1.00E-02	6.00E-04	2.00E-03	2.25E-03	N	2.00E-03	mg/L
TECHNETIUM-99	2/8	1.80E+01	5.00E+01	4.60E+01	1.10E+02	2.45E+01	L	7.68E+01	pCi/L
URANIUM-233/234	22/23	3.66E-01	3.66E-01	7.57E+00	2.92E+01	1.78E+01	N	2.04E+01	pCi/L
URANIUM-235	7/23	2.85E-01	9.78E-01	3.50E-01	1.69E+00	5.94E-01	L	9.56E-01	pCi/L
URANIUM-238	22/23	3.66E-01	3.66E-01	1.87E+01	6.45E+01	3.82E+01	N	4.36E+01	pCi/L

Sample Location=BCK S3

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
FLUORIDE	1/1			4.30E-01	4.30E-01	4.30E-01	NT	4.30E-01	mg/L
URANIUM-233/234	1/1			5.28E+01	5.28E+01	5.28E+01	NT	5.28E+01	pCi/L
URANIUM-235	1/1			4.66E+00	4.66E+00	4.66E+00	NT	4.66E+00	pCi/L
URANIUM-238	1/1			1.27E+02	1.27E+02	1.27E+02	NT	1.27E+02	pCi/L

Sample Location=NT1

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	6/6			8.40E-02	1.10E+00	5.54E-01	N	8.38E-01	mg/L
CADMIUM	3/4	2.00E-03	2.00E-03	1.70E-02	2.40E-02	1.48E-02	N	2.40E-02	mg/L

Table F.34a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: SURFACE WATER (for each sampling location)

Sample Location=NT1 (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
FLUORIDE	6/6			1.00E-01	1.80E+00	1.03E+00	N	1.56E+00	mg/L
NICKEL	5/6	1.00E-02	1.00E-02	4.80E-02	1.20E-01	6.78E-02	N	9.95E-02	mg/L
NITRATE (AS N)	6/6			3.10E+01	2.86E+02	1.67E+02	N	2.53E+02	mg/L
TOTAL URANIUM	6/6			1.20E-02	1.85E-01	7.52E-02	N	1.44E-01	mg/L
TETRACHLOROETHENE	6/6			1.00E-03	6.00E-03	3.33E-03	N	4.77E-03	mg/L

Sample Location=NT2

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	21/21			5.96E-02	6.82E-01	3.19E-01	L	4.44E-01	mg/L
NITRATE (AS N)	21/21			2.90E+00	2.11E+02	9.42E+01	L	1.73E+02	mg/L
TECHNETIUM-99	2/2			1.21E+02	2.90E+02	2.06E+02	N	2.90E+02	pCi/L

Sample Location=NT3

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
FLUORIDE	21/21			2.80E-01	2.60E+00	1.60E+00	N	1.86E+00	mg/L
CHLOROMETHANE	1/13	5.00E-03	5.00E-03	7.00E-03	7.00E-03	2.85E-03	N	3.46E-03	mg/L
STRONTIUM-90	3/11	7.29E-02	8.33E-01	1.01E+00	1.94E+00	3.04E-01	L	1.18E+00	pCi/L
THORIUM-228	4/11	0.00E+00	2.02E-01	1.04E-01	3.10E-01	1.31E-01	N	1.92E-01	pCi/L
THORIUM-230	6/11	2.80E-02	1.01E-01	1.36E-01	1.95E+01	2.87E-01	L	1.26E+00	pCi/L
THORIUM-232	7/11	5.96E-02	7.89E-02	1.03E-01	1.79E+00	1.94E-01	L	3.89E-01	pCi/L
URANIUM-233/234	20/21	6.84E-01	6.84E-01	3.42E+01	4.55E+02	1.42E+02	N	1.78E+02	pCi/L
URANIUM-235	19/21	1.98E-02	1.19E-01	1.27E+00	2.74E+01	7.42E+00	N	9.87E+00	pCi/L
URANIUM-238	20/21	8.79E-01	8.79E-01	6.40E+01	9.96E+02	3.28E+02	N	4.12E+02	pCi/L

Sample Location=NT4

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
URANIUM-233/234	1/12	8.51E-02	9.33E-01	1.77E+00	1.77E+00	7.20E-01	N	9.23E-01	pCi/L
URANIUM-238	1/12	0.00E+00	7.71E-01	2.51E+00	2.51E+00	7.50E-01	N	1.06E+00	pCi/L

Table F.34a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: SURFACE WATER (for each sampling location)

Sample Location=NT5

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
FLUORIDE	4/13	1.00E-01	1.00E-01	1.10E-01	3.50E-01	5.37E-02	L	1.31E-01	mg/L
NITRATE (AS N)	7/13	1.00E-01	1.00E-01	0.00E+00	1.22E+01	2.21E-01	L	9.45E-01	mg/L
TRICHLOROETHENE	1/13	5.00E-03	5.00E-03	7.00E-03	7.00E-03	2.85E-03	N	3.46E-03	mg/L

Sample Location=NT6

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	12/21	1.00E-01	1.00E-01	1.10E-01	2.48E+01	2.57E-01	L	6.49E-01	mg/L
TETRACHLOROETHENE	4/21	5.00E-03	5.00E-03	1.00E-03	2.00E-03	2.26E-03	N	2.00E-03	mg/L
TRICHLOROETHENE	5/21	1.00E-03	5.00E-03	1.00E-03	2.00E-03	2.14E-03	N	2.00E-03	mg/L
URANIUM-233/234	21/21			1.20E+00	6.66E+00	3.64E+00	L	4.58E+00	pCi/L
URANIUM-238	21/21			1.81E+00	1.46E+01	7.06E+00	L	9.37E+00	pCi/L

Sample Location=NT7

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM	2/21	3.00E-04	6.10E-04	4.10E-04	1.30E-03	2.12E-05	L	4.58E-04	mg/L
FLUORIDE	14/21	1.00E-01	1.00E-01	1.00E-01	3.30E-01	1.26E-01	L	1.69E-01	mg/L
NITRATE (AS N)	21/21			1.30E-01	1.91E+01	2.51E+00	L	4.67E+00	mg/L
VANADIUM	6/21	2.10E-03	1.86E-02	9.00E-03	6.98E-02	1.23E-03	L	9.12E-03	mg/L
1,1-DICHLOROETHENE	20/21	5.00E-03	5.00E-03	2.00E-03	1.60E-02	8.40E-03	N	1.01E-02	mg/L
1,2-DICHLOROETHANE	3/14	5.00E-03	1.00E-02	1.00E-03	2.00E-03	1.43E-03	L	1.85E-03	mg/L
1,2-DICHLOROETHENE	21/21			3.30E-02	2.90E-01	1.57E-01	N	1.87E-01	mg/L
BENZENE	5/21	5.00E-03	1.00E-02	1.00E-03	2.00E-03	1.49E-03	L	1.82E-03	mg/L
CHLOROFORM	20/21	5.00E-03	5.00E-03	1.00E-03	8.00E-03	3.93E-03	N	4.69E-03	mg/L
TETRACHLOROETHENE	21/21			1.60E-02	1.20E-01	6.55E-02	N	7.85E-02	mg/L
TRICHLOROETHENE	21/21			8.00E-03	8.20E-02	4.20E-02	N	5.06E-02	mg/L
VINYL CHLORIDE	21/21			6.00E-03	3.30E-02	1.54E-02	L	1.91E-02	mg/L
PLUTONIUM-238	1/3	0.00E+00	1.10E-02	2.23E-01	2.23E-01	7.80E-02	N	2.23E-01	pCi/L
THORIUM-228	1/3	2.10E-02	3.40E-02	4.74E-01	4.74E-01	1.76E-01	N	4.74E-01	pCi/L
URANIUM-233/234	21/21			2.22E+00	2.56E+01	7.38E+00	L	9.47E+00	pCi/L
URANIUM-235	4/21	8.88E-03	3.57E-01	1.17E+00	1.83E+00	3.96E-02	L	4.02E-01	pCi/L
URANIUM-238	21/21			3.62E+00	5.07E+01	1.21E+01	L	1.55E+01	pCi/L

Table F.34a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: SURFACE WATER (for each sampling location)

Sample Location=NT8

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
FLUORIDE	12/12			1.20E-01	2.30E-01	1.69E-01	L	1.85E-01	mg/L
VANADIUM	3/12	2.10E-03	2.40E-03	8.20E-03	2.86E-02	7.21E-04	L	7.68E-03	mg/L
1,1,2-TRICHLOROETHANE	5/11	5.00E-03	5.00E-03	1.00E-03	2.00E-03	2.00E-03	N	2.00E-03	mg/L
1,1-DICHLOROETHENE	11/11			5.00E-03	1.10E-02	6.92E-03	L	7.82E-03	mg/L
1,2-DICHLOROETHANE	10/11	5.00E-03	5.00E-03	2.00E-03	4.00E-03	3.27E-03	L	3.63E-03	mg/L
1,2-DICHLOROETHENE	11/11			1.80E-01	4.10E-01	2.64E-01	L	2.99E-01	mg/L
BENZENE	2/11	5.00E-03	5.00E-03	1.00E-03	3.00E-03	2.41E-03	N	2.68E-03	mg/L
CHLOROFORM	11/11			1.00E-03	3.00E-03	2.27E-03	N	2.63E-03	mg/L
TETRACHLOROETHENE	11/11			2.60E-02	5.80E-02	3.56E-02	L	3.95E-02	mg/L
TRICHLOROETHENE	11/11			1.30E-02	2.90E-02	1.87E-02	L	2.07E-02	mg/L
VINYL CHLORIDE	11/11			3.00E-03	2.10E-02	8.71E-03	L	1.20E-02	mg/L
URANIUM-233/234	12/12			6.60E+00	2.74E+01	1.34E+01	L	1.62E+01	pCi/L
URANIUM-235	2/12	1.50E-01	8.11E-01	1.07E+00	1.21E+00	6.14E-01	N	7.85E-01	pCi/L
URANIUM-238	12/12			2.15E+01	4.96E+01	3.27E+01	L	3.63E+01	pCi/L

Sample Location=SS1

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BARIUM	27/27			5.37E-02	6.60E-01	1.06E-01	L	1.22E-01	mg/L
CADMIUM	1/12	2.00E-03	2.10E-03	2.40E-02	2.40E-02	1.99E-03	L	3.32E-03	mg/L
FLUORIDE	27/27			1.00E-01	8.00E-01	2.08E-01	L	2.32E-01	mg/L
MANGANESE	26/27	3.69E-02	3.69E-02	1.06E-02	4.00E+00	6.38E-02	L	9.82E-02	mg/L
NITRATE (AS N)	27/27			1.16E+01	1.42E+02	3.91E+01	L	4.55E+01	mg/L
TOTAL URANIUM	14/14			1.60E-02	4.70E-02	3.66E-02	N	4.06E-02	mg/L
TETRACHLOROETHENE	13/27	5.00E-03	1.00E-02	1.00E-03	3.00E-03	2.17E-03	N	2.44E-03	mg/L
TRICHLOROETHENE	6/27	5.00E-03	1.00E-02	6.00E-04	3.00E-03	2.34E-03	N	2.61E-03	mg/L
URANIUM-233/234	13/13			5.90E+00	1.10E+01	8.95E+00	N	9.68E+00	pCi/L
URANIUM-238	13/13			5.83E+00	1.04E+01	8.80E+00	N	9.51E+00	pCi/L

Sample Location=SS4

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
FLUORIDE	26/27	1.00E-01	1.00E-01	2.00E-01	6.00E-01	3.62E-01	N	4.02E-01	mg/L
MANGANESE	26/27	4.28E-02	4.28E-02	7.50E-03	8.09E-01	1.22E-01	L	1.81E-01	mg/L
NITRATE (AS N)	26/27	1.00E-01	1.00E-01	3.12E+00	6.76E+01	3.16E+01	N	3.76E+01	mg/L
TOTAL URANIUM	14/14			4.00E-02	2.85E-01	1.36E-01	N	1.74E-01	mg/L
1,1-DICHLOROETHENE	3/27	5.00E-03	1.00E-02	2.00E-03	3.00E-03	2.13E-03	L	2.39E-03	mg/L
TRICHLOROETHENE	26/27	5.00E-03	5.00E-03	3.00E-03	2.30E-02	9.83E-03	L	1.23E-02	mg/L
NEPTUNIUM-237	1/1			3.20E-01	3.20E-01	3.20E-01	NT	3.20E-01	pCi/L

Table F.34a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: SURFACE WATER (for each sampling location)

Sample Location=SS4 (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
RADIUM (TOTAL ALPHA)	1/1			6.50E-01	6.50E-01	6.50E-01	NT	6.50E-01	pCi/L
TECHNETIUM-99	3/4	8.79E+01	8.79E+01	1.02E+02	2.20E+02	1.52E+02	N	2.20E+02	pCi/L
URANIUM-233/234	14/14			6.76E+00	3.73E+01	2.71E+01	N	3.09E+01	pCi/L
URANIUM-235	11/14	9.80E-03	8.90E-01	1.04E+00	3.62E+00	1.56E+00	N	2.03E+00	pCi/L
URANIUM-238	14/14			1.22E+01	8.26E+01	5.69E+01	N	6.62E+01	pCi/L

Sample Location=SS5

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	26/27	1.00E-01	1.00E-01	6.50E-01	2.70E+01	1.10E+01	N	1.36E+01	mg/L
TOTAL URANIUM	14/14			5.00E-03	1.17E-01	5.81E-02	N	7.69E-02	mg/L
TRICHLOROETHENE	6/27	5.00E-03	1.00E-02	9.00E-04	2.00E-03	1.68E-03	L	1.98E-03	mg/L
CESIUM-137	1/1			7.90E+00	7.90E+00	7.90E+00	NT	7.90E+00	pCi/L
NEPTUNIUM-237	1/1			3.00E-01	3.00E-01	3.00E-01	NT	3.00E-01	pCi/L
TECHNETIUM-99	1/1			4.60E+01	4.60E+01	4.60E+01	NT	4.60E+01	pCi/L
URANIUM-233/234	14/14			5.90E+00	2.66E+01	1.40E+01	L	1.61E+01	pCi/L
URANIUM-235	4/14	2.30E-01	7.45E-01	5.10E-01	2.98E+00	4.20E-01	L	1.10E+00	pCi/L
URANIUM-238	14/14			9.90E+00	5.84E+01	2.68E+01	L	3.19E+01	pCi/L

Sample Location=SS6-E

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
NITRATE (AS N)	12/23	1.00E-01	2.00E-01	1.50E-01	6.60E+00	3.71E-01	L	8.30E-01	mg/L
URANIUM-233/234	6/12	4.50E-01	9.84E-01	1.02E+00	1.34E+00	9.59E-01	N	1.12E+00	pCi/L
URANIUM-238	8/12	5.12E-01	8.20E-01	1.11E+00	2.07E+00	1.32E+00	L	1.77E+00	pCi/L

Sample Location=SS6-W

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
URANIUM-233/234	2/2			1.10E+00	1.30E+00	1.20E+00	N	1.30E+00	pCi/L
URANIUM-238	2/2			1.70E+00	1.70E+00	1.70E+00	N	1.70E+00	pCi/L

Table F.34a. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Medium: SURFACE WATER (for each sampling location)

Sample Location=SS7

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CESIUM-137	1/1			6.80E+00	6.80E+00	6.80E+00	NT	6.80E+00	pCi/L

Sample Location=SW-01

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
POTASSIUM-40	1/1			1.30E+02	1.30E+02	1.30E+02	NT	1.30E+02	pCi/L
THORIUM-228	1/1			4.80E-01	4.80E-01	4.80E-01	NT	4.80E-01	pCi/L
URANIUM-233/234	1/1			8.20E+00	8.20E+00	8.20E+00	NT	8.20E+00	pCi/L
URANIUM-238	1/1			5.40E+01	5.40E+01	5.40E+01	NT	5.40E+01	pCi/L

Sample Location=SW-02

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM	1/1			8.60E-03	8.60E-03	8.60E-03	NT	8.60E-03	mg/L
FLUORIDE	1/1			8.70E-01	8.70E-01	8.70E-01	NT	8.70E-01	mg/L
URANIUM-233/234	1/1			5.60E+01	5.60E+01	5.60E+01	NT	5.60E+01	pCi/L
URANIUM-235	1/1			6.20E+00	6.20E+00	6.20E+00	NT	6.20E+00	pCi/L
URANIUM-238	1/1			4.40E+02	4.40E+02	4.40E+02	NT	4.40E+02	pCi/L

Table F.34b. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: BCK-9.40/SS-5 SURFACE WATER AGGREGATE

Medium=SURFACE WATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BORON	26/27	4.00E-03	4.00E-03	1.70E-02	4.10E+00	2.89E-01	L	4.97E-01	mg/L
FLUORIDE	59/62	1.00E-01	1.00E-01	1.00E-01	4.40E-01	2.37E-01	N	2.54E-01	mg/L
NITRATE (AS N)	61/62	1.00E-01	1.00E-01	0.00E+00	4.62E+01	1.30E+01	N	1.50E+01	mg/L
TOTAL URANIUM	27/27			5.00E-03	1.52E-01	7.96E-02	N	9.30E-02	mg/L
VANADIUM	7/62	2.10E-03	5.00E-03	3.70E-03	5.75E-02	1.16E-04	L	9.98E-04	mg/L
TETRACHLOROETHENE	14/62	1.00E-03	1.00E-02	5.00E-04	4.00E-03	2.31E-03	N	2.49E-03	mg/L
TRICHLOROETHENE	13/62	1.00E-03	1.00E-02	6.00E-04	2.00E-03	2.32E-03	N	2.00E-03	mg/L
CESIUM-137	1/2	1.40E+00	1.40E+00	7.90E+00	7.90E+00	4.65E+00	N	7.90E+00	pCi/L
NEPTUNIUM-237	1/2	3.70E-02	3.70E-02	3.00E-01	3.00E-01	1.69E-01	N	3.00E-01	pCi/L
TECHNETIUM-99	3/12	1.80E+01	5.90E+01	4.60E+01	1.10E+02	2.87E+01	L	5.81E+01	pCi/L
URANIUM-234	36/37	3.66E-01	3.66E-01	5.90E+00	2.92E+01	1.63E+01	N	1.81E+01	pCi/L
URANIUM-235	11/37	2.30E-01	9.78E-01	3.50E-01	2.98E+00	5.21E-01	L	8.25E-01	pCi/L
URANIUM-238	36/37	3.66E-01	3.66E-01	9.90E+00	6.45E+01	3.38E+01	N	3.79E+01	pCi/L

Table F.35a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: SURFACE WATER (for each sampling location)

Sample Location=BCK 0.63

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	13/13			2.00E+00	1.30E+01	6.65E+00	L	8.61E+00	mg/L
COPPER	3/14	4.00E-03	4.00E-03	5.60E-03	1.10E-02	1.24E-03	L	4.96E-03	mg/L

Sample Location=BCK 11.97

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	10/10			1.90E+01	8.10E+01	4.61E+01	L	5.96E+01	mg/L
COPPER	4/10	4.00E-03	4.00E-03	4.30E-03	1.20E-02	3.28E-03	L	7.89E-03	mg/L
SULFATE	10/10			2.90E+01	7.00E+01	4.92E+01	N	5.54E+01	mg/L

Sample Location=BCK 12.36

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	17/21	8.04E-02	6.86E-01	8.88E-02	1.78E+01	9.37E-01	L	1.79E+00	mg/L
CHLORIDE	20/21	1.00E+00	1.00E+00	1.85E+01	1.33E+02	6.69E+01	N	7.97E+01	mg/L
SULFATE	20/21	1.00E+01	1.00E+01	1.35E+01	8.45E+01	4.54E+01	N	5.18E+01	mg/L
2-HEXANONE	2/21	5.00E-03	5.00E-03	3.00E-03	8.00E-03	8.24E-04	L	3.93E-03	mg/L

Sample Location=BCK 4.55

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	69/70	2.00E+00	2.00E+00	2.00E+00	1.50E+01	7.47E+00	N	8.06E+00	mg/L
TITANIUM	16/56	2.00E-02	2.00E-02	1.00E-02	5.00E-02	1.50E-02	N	1.72E-02	mg/L

Sample Location=BCK 9.40

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	26/35	3.71E-02	2.89E-01	3.10E-02	2.98E+01	4.35E-01	L	8.45E-01	mg/L
CHLORIDE	34/34			5.60E+00	3.44E+01	1.73E+01	L	1.98E+01	mg/L
LITHIUM	7/7			2.82E-02	9.10E-02	6.03E-02	N	7.64E-02	mg/L

Table F.35a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: SURFACE WATER (for each sampling location)

Sample Location=BCK S3

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	1/1			1.22E+03	1.22E+03	1.22E+03	NT	1.22E+03	mg/L
SULFATE	1/1			6.88E+01	6.88E+01	6.88E+01	NT	6.88E+01	mg/L

Sample Location=NT1

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	6/6			9.90E+00	4.40E+01	2.74E+01	N	3.85E+01	mg/L
SULFATE	6/6			1.99E+01	7.40E+01	4.68E+01	N	6.57E+01	mg/L

Sample Location=NT2

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	18/21	2.70E-02	7.00E-01	6.13E-02	7.75E+00	8.96E-01	L	1.62E+00	mg/L
CHLORIDE	21/21			1.20E+00	1.00E+01	4.77E+00	L	6.26E+00	mg/L

Sample Location=NT3

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	21/21			1.00E+00	5.80E+00	2.37E+00	L	2.79E+00	mg/L
LITHIUM	7/7			5.69E-02	1.75E-01	1.35E-01	N	1.71E-01	mg/L
SULFATE	20/21	5.00E+00	5.00E+00	9.90E+00	1.14E+02	6.58E+01	N	7.78E+01	mg/L

Sample Location=NT4

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	12/12			2.80E+00	5.20E+00	4.17E+00	N	4.52E+00	mg/L

Table F.35a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: SURFACE WATER (for each sampling location)

Sample Location=NT5

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	13/13			1.60E+00	1.52E+01	3.12E+00	L	4.09E+00	mg/L

Sample Location=NT6

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	21/21			2.20E+00	7.50E+00	4.21E+00	L	4.76E+00	mg/L

Sample Location=NT7

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	12/21	2.26E-02	2.21E-01	4.09E-02	3.01E+01	5.31E-01	L	2.49E+00	mg/L
CHLORIDE	21/21			3.40E+00	3.63E+01	1.84E+01	L	2.40E+01	mg/L
SULFATE	19/21	5.00E+00	1.00E+01	6.10E+00	7.88E+01	1.93E+01	L	2.53E+01	mg/L

Sample Location=NT8

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	5/12	1.70E-02	1.40E-01	6.96E-02	8.30E+00	1.52E-01	L	1.63E+00	mg/L
CHLORIDE	12/12			6.20E+00	1.87E+01	1.37E+01	N	1.58E+01	mg/L
LITHIUM	7/7			1.34E-01	1.88E-01	1.56E-01	L	1.70E-01	mg/L

Sample Location=SS1

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	20/27	2.58E-02	2.11E-01	3.61E-02	3.28E+00	1.98E-01	L	3.52E-01	mg/L
CHLORIDE	27/27			1.40E+01	9.86E+01	5.51E+01	N	6.13E+01	mg/L
LEAD	1/12	4.00E-03	4.20E-03	2.60E-02	2.60E-02	3.27E-03	L	4.84E-03	mg/L
SULFATE	27/27			1.40E+01	9.90E+01	5.12E+01	N	5.67E+01	mg/L

Table F.35a. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Medium: SURFACE WATER (for each sampling location)

Sample Location=SS4

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	19/27	2.09E-02	5.66E-02	2.80E-02	2.98E+00	2.07E-01	L	4.09E-01	mg/L
CHLORIDE	26/26			2.30E+00	4.15E+01	2.59E+01	N	2.95E+01	mg/L
SULFATE	26/27	5.00E+00	5.00E+00	1.13E+01	4.50E+01	2.77E+01	N	3.09E+01	mg/L

Sample Location=SS5

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	26/26			3.00E+00	2.39E+01	1.35E+01	N	1.55E+01	mg/L
SULFATE	27/27			4.00E+00	2.90E+01	1.68E+01	N	1.88E+01	mg/L

Sample Location=SS6-E

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	18/24	2.09E-02	1.03E-01	2.50E-02	3.77E+00	1.32E-01	L	2.25E-01	mg/L
COPPER	2/24	2.10E-03	7.30E-03	4.60E-03	4.90E-02	3.62E-05	L	6.86E-03	mg/L

Sample Location=SW-02

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CHLORIDE	1/1			7.40E+00	7.40E+00	7.40E+00	NT	7.40E+00	mg/L

Table F.35b. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: BCK-9.40/SS-5 SURFACE WATER AGGREGATE

Medium=SURFACE WATER

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	43/62	1.70E-02	2.89E-01	3.10E-02	2.98E+01	2.15E-01	L	3.46E-01	mg/L
CHLORIDE	60/60			3.00E+00	3.44E+01	1.55E+01	N	1.71E+01	mg/L
LITHIUM	14/14			8.50E-03	9.10E-02	3.73E-02	L	6.08E-02	mg/L
SULFATE	60/62	1.00E+01	2.00E+01	4.00E+00	2.96E+01	1.93E+01	N	2.07E+01	mg/L

Table F.36. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: TRANSECT-BY-TRANSECT (Soil from creek floodplain)

Location=TRANSECT-01 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CADMIUM	2/4	2.00E-01	5.70E-01	2.90E+00	9.30E+00	3.15E+00	N	8.20E+00	mg/kg
MERCURY	3/3			4.30E-01	7.30E+00	3.11E+00	N	7.30E+00	mg/kg
BENZO(A)PYRENE	2/4	4.10E-01	4.90E-01	5.10E-02	1.00E-01	1.50E-01	N	1.00E-01	mg/kg
PCB-1254	2/4	4.90E-02	7.00E-02	1.90E-01	7.80E-01	2.57E-01	N	6.77E-01	mg/kg
PCB-1260	2/4	4.20E-02	4.30E-02	3.50E-02	2.00E-01	6.94E-02	N	1.72E-01	mg/kg
URANIUM-234	4/4			4.64E+00	4.41E+01	1.74E+01	N	3.90E+01	pCi/g
URANIUM-235	4/4			1.10E-01	2.66E+00	8.43E-01	N	2.27E+00	pCi/g
URANIUM-238	4/4			2.39E+00	6.70E+01	2.10E+01	N	5.73E+01	pCi/g

Location=TRANSECT-02 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
URANIUM-235	2/2			8.00E-02	2.50E-01	1.65E-01	N	2.50E-01	pCi/g
URANIUM-238	2/2			1.44E+00	5.45E+00	3.45E+00	N	5.45E+00	pCi/g

Location=TRANSECT-03 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
CADMIUM	4/4			8.60E+00	1.11E+01	9.83E+00	N	1.11E+01	mg/kg
MERCURY	4/4			1.60E+00	2.50E+00	2.05E+00	N	2.50E+00	mg/kg
BENZO(A)PYRENE	2/4	4.30E-01	4.50E-01	9.20E-02	9.70E-02	1.57E-01	N	9.70E-02	mg/kg
PCB-1260	4/4			8.20E-02	1.70E-01	1.33E-01	N	1.70E-01	mg/kg
URANIUM-234	4/4			1.96E+01	3.28E+01	2.54E+01	N	3.27E+01	pCi/g
URANIUM-235	4/4			1.34E+00	1.89E+00	1.62E+00	N	1.88E+00	pCi/g
URANIUM-238	4/4			3.70E+01	5.19E+01	4.46E+01	N	5.19E+01	pCi/g

Location=TRANSECT-04 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM	4/4			9.20E-01	3.00E+00	2.38E+00	N	3.00E+00	mg/kg
PCB-1260	4/4			8.00E-01	1.70E+00	1.12E+00	N	1.60E+00	mg/kg
URANIUM-234	4/4			9.01E+00	2.49E+01	1.66E+01	N	2.44E+01	pCi/g
URANIUM-235	4/4			9.20E-01	2.04E+00	1.41E+00	N	1.97E+00	pCi/g
URANIUM-238	4/4			3.03E+01	9.44E+01	5.75E+01	N	9.06E+01	pCi/g

Table F.36. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: TRANSECT-BY-TRANSECT (Soil from creek floodplain)

Location=TRANSECT-06 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PCB-1260	5/6	4.00E-02	4.00E-02	1.30E-02	5.10E-01	1.63E-01	N	3.34E-01	mg/kg
URANIUM-234	6/6			8.70E-01	3.04E+01	7.52E+00	N	1.70E+01	pCi/g
URANIUM-235	5/6	1.00E-02	1.00E-02	4.00E-02	1.92E+00	4.40E-01	N	1.05E+00	pCi/g
URANIUM-238	6/6			1.05E+00	6.07E+01	1.45E+01	N	3.38E+01	pCi/g

Location=TRANSECT-07 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PCB-1254	1/4	4.00E-02	4.60E-02	2.80E-01	2.80E-01	8.60E-02	N	2.38E-01	mg/kg
PCB-1260	4/4			7.40E-03	1.30E+00	3.86E-01	N	1.11E+00	mg/kg
URANIUM-234	4/4			1.05E+00	2.95E+01	1.05E+01	N	2.56E+01	pCi/g
URANIUM-235	3/4	1.00E-02	1.00E-02	2.20E-01	2.08E+00	6.60E-01	N	1.78E+00	pCi/g
URANIUM-238	4/4			1.39E+00	5.27E+01	1.78E+01	N	4.55E+01	pCi/g

Location=TRANSECT-08 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PCB-1260	2/2			6.40E-03	1.50E-01	7.82E-02	N	1.50E-01	mg/kg
URANIUM-235	2/2			2.00E-02	3.30E-01	1.75E-01	N	3.30E-01	pCi/g
URANIUM-238	2/2			1.16E+00	6.17E+00	3.67E+00	N	6.17E+00	pCi/g

Location=TRANSECT-09 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
URANIUM-238	2/2			1.02E+00	2.69E+00	1.86E+00	N	2.69E+00	pCi/g

Location=TRANSECT-10 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PCB-1254	1/3	4.20E-02	4.40E-02	3.90E-01	3.90E-01	1.44E-01	N	3.90E-01	mg/kg
PCB-1260	2/3	4.40E-02	4.40E-02	5.70E-02	6.10E-01	2.30E-01	N	6.10E-01	mg/kg

Table F.36. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: TRANSECT-BY-TRANSECT (Soil from creek floodplain)

Location=TRANSECT-10 Medium=SOIL (creek floodplain) (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
URANIUM-235	3/3			4.00E-02	3.90E-01	1.63E-01	N	3.90E-01	pCi/g
URANIUM-238	3/3			6.90E-01	1.31E+01	5.28E+00	N	1.31E+01	pCi/g

Location=TRANSECT-12 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
URANIUM-235	1/1			4.10E-01	4.10E-01	4.10E-01	NT	4.10E-01	pCi/g
URANIUM-238	1/1			4.32E+00	4.32E+00	4.32E+00	NT	4.32E+00	pCi/g

Location=TRANSECT/TRENCH-SP04 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PCB-1254	1/1			5.10E+00	5.10E+00	5.10E+00	NT	5.10E+00	mg/kg
PCB-1260	1/1			3.20E+00	3.20E+00	3.20E+00	NT	3.20E+00	mg/kg
URANIUM-235	1/1			6.60E-01	6.60E-01	6.60E-01	NT	6.60E-01	pCi/g
URANIUM-238	1/1			2.18E+01	2.18E+01	2.18E+01	NT	2.18E+01	pCi/g

Table F.37. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: TRANSECT-BY-TRANSECT (Soil from creek floodplain)

Location=TRANSECT-01 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COPPER	4/4			8.30E+00	4.27E+01	2.18E+01	N	4.00E+01	mg/kg
LITHIUM	4/4			4.20E+00	4.10E+01	1.42E+01	N	3.53E+01	mg/kg
DELTA-BHC	2/4	2.50E-03	3.60E-03	1.40E-04	1.90E-04	8.45E-04	N	1.90E-04	mg/kg
ENDOSULFAN I	2/4	2.50E-03	3.60E-03	1.50E-04	7.60E-04	9.90E-04	N	7.60E-04	mg/kg
ENDOSULFAN II	1/4	4.20E-03	7.00E-03	3.00E-03	3.00E-03	2.76E-03	N	3.00E-03	mg/kg
ENDOSULFAN SULFATE	2/4	4.90E-03	7.00E-03	2.60E-04	1.70E-03	1.98E-03	N	1.70E-03	mg/kg
ENDRIN ALDEHYDE	4/4			6.70E-04	6.50E-03	2.88E-03	N	6.10E-03	mg/kg
PHENANTHRENE	1/4	4.10E-01	4.90E-01	8.50E-02	8.50E-02	1.88E-01	N	8.50E-02	mg/kg

Location=TRANSECT-02 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
THALLIUM	1/2	1.10E+00	1.10E+00	1.90E+00	1.90E+00	1.23E+00	N	1.90E+00	mg/kg
ENDRIN ALDEHYDE	1/2	4.00E-03	4.00E-03	4.70E-04	4.70E-04	1.24E-03	N	4.70E-04	mg/kg
PHENANTHRENE	1/2	3.90E-01	3.90E-01	6.00E-02	6.00E-02	1.28E-01	N	6.00E-02	mg/kg

Location=TRANSECT-03 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
LITHIUM	4/4			2.16E+01	3.34E+01	2.95E+01	N	3.34E+01	mg/kg
ENDOSULFAN SULFATE	1/4	4.30E-03	4.50E-03	3.40E-04	3.40E-04	1.72E-03	N	3.40E-04	mg/kg
ENDRIN ALDEHYDE	4/4			2.00E-03	5.00E-03	3.53E-03	N	4.99E-03	mg/kg
PHENANTHRENE	3/4	4.30E-01	4.30E-01	7.60E-02	8.60E-02	1.15E-01	N	8.60E-02	mg/kg

Location=TRANSECT-04 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
LITHIUM	4/4			1.51E+01	5.52E+01	3.38E+01	N	5.42E+01	mg/kg
DELTA-BHC	2/4	2.50E-03	2.50E-03	7.20E-05	4.10E-04	7.46E-04	N	4.10E-04	mg/kg
ENDRIN ALDEHYDE	2/4	4.90E-03	5.10E-03	1.20E-02	2.30E-02	1.00E-02	N	2.15E-02	mg/kg

Table F.37. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: TRANSECT-BY-TRANSECT (Soil from creek floodplain)

Location=TRANSECT-06 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ENDRIN ALDEHYDE	3/6	4.00E-03	4.40E-03	2.70E-04	1.70E-02	4.08E-03	N	9.33E-03	mg/kg

Location=TRANSECT-07 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
DELTA-BHC	1/4	2.10E-03	2.40E-03	8.50E-05	8.50E-05	8.71E-04	N	8.50E-05	mg/kg
ENDRIN ALDEHYDE	2/4	4.00E-03	4.40E-03	3.00E-04	3.80E-02	1.06E-02	N	3.21E-02	mg/kg

Location=TRANSECT-08 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ENDRIN ALDEHYDE	1/2	4.40E-03	4.40E-03	3.40E-03	3.40E-03	2.80E-03	N	3.40E-03	mg/kg

Location=TRANSECT-09 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ENDOSULFAN II	2/2			4.60E-04	7.60E-04	6.10E-04	N	7.60E-04	mg/kg
ENDOSULFAN SULFATE	1/2	4.00E-03	4.00E-03	9.80E-04	9.80E-04	1.49E-03	N	9.80E-04	mg/kg

Location=TRANSECT-10 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ENDOSULFAN SULFATE	1/3	4.20E-03	4.50E-03	2.30E-04	2.30E-04	1.53E-03	N	2.30E-04	mg/kg
ENDRIN ALDEHYDE	2/3	4.40E-03	4.40E-03	2.00E-03	2.10E-02	8.40E-03	N	2.10E-02	mg/kg

Table F.37. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: TRANSECT-BY-TRANSECT (Soil from creek floodplain)

Location=TRANSECT-12 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ENDOSULFAN I	1/1			3.00E-04	3.00E-04	3.00E-04	NT	3.00E-04	mg/kg
ENDRIN ALDEHYDE	1/1			1.00E-03	1.00E-03	1.00E-03	NT	1.00E-03	mg/kg

Location=TRANSECT-13 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ENDRIN ALDEHYDE	1/2	4.00E-03	4.00E-03	9.60E-04	9.60E-04	1.48E-03	N	9.60E-04	mg/kg
ENDRIN KETONE	1/2	4.00E-03	4.00E-03	1.00E-04	1.00E-04	1.05E-03	N	1.00E-04	mg/kg

Location=TRANSECT/TRENCH-SP04 Medium=SOIL (creek floodplain)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PHENANTHRENE	1/1			8.50E-02	8.50E-02	8.50E-02	NT	8.50E-02	mg/kg

Table F.38. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD01 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	1/1			1.74E+01	1.74E+01	1.74E+01	NT	1.74E+01	mg/kg
VANADIUM	1/1			6.44E+01	6.44E+01	6.44E+01	NT	6.44E+01	mg/kg
URANIUM-235	1/1			2.20E-01	2.20E-01	2.20E-01	NT	2.20E-01	pCi/g
URANIUM-238	1/1			7.35E+00	7.35E+00	7.35E+00	NT	7.35E+00	pCi/g

Sample Station=SD02 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	1/1			1.21E+01	1.21E+01	1.21E+01	NT	1.21E+01	mg/kg
BERYLLIUM	1/1			1.90E+00	1.90E+00	1.90E+00	NT	1.90E+00	mg/kg
CADMIUM	1/1			2.17E+01	2.17E+01	2.17E+01	NT	2.17E+01	mg/kg
MANGANESE	1/1			5.66E+03	5.66E+03	5.66E+03	NT	5.66E+03	mg/kg
MERCURY	1/1			3.00E+00	3.00E+00	3.00E+00	NT	3.00E+00	mg/kg
NICKEL	1/1			1.60E+02	1.60E+02	1.60E+02	NT	1.60E+02	mg/kg
BENZO(A)PYRENE	1/1			1.90E-01	1.90E-01	1.90E-01	NT	1.90E-01	mg/kg
PCB-1260	1/1			1.20E-01	1.20E-01	1.20E-01	NT	1.20E-01	mg/kg
URANIUM-235	1/1			7.30E-01	7.30E-01	7.30E-01	NT	7.30E-01	pCi/g
URANIUM-238	1/1			2.74E+01	2.74E+01	2.74E+01	NT	2.74E+01	pCi/g

Sample Station=SD03 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
MANGANESE	1/1			1.83E+03	1.83E+03	1.83E+03	NT	1.83E+03	mg/kg
URANIUM-238	1/1			1.27E+00	1.27E+00	1.27E+00	NT	1.27E+00	pCi/g

Sample Station=SD04 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ANTIMONY	1/1			4.60E+00	4.60E+00	4.60E+00	NT	4.60E+00	mg/kg
ARSENIC	1/1			1.52E+01	1.52E+01	1.52E+01	NT	1.52E+01	mg/kg
CADMIUM	1/1			9.20E+00	9.20E+00	9.20E+00	NT	9.20E+00	mg/kg
CHROMIUM	1/1			1.04E+03	1.04E+03	1.04E+03	NT	1.04E+03	mg/kg
MANGANESE	1/1			1.90E+03	1.90E+03	1.90E+03	NT	1.90E+03	mg/kg
MERCURY	1/1			6.90E+00	6.90E+00	6.90E+00	NT	6.90E+00	mg/kg
VANADIUM	1/1			2.49E+02	2.49E+02	2.49E+02	NT	2.49E+02	mg/kg

Table F.38. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD04 Medium=SEDIMENT (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZO(A)ANTHRACENE	1/1			5.80E+00	5.80E+00	5.80E+00	NT	5.80E+00	mg/kg
BENZO(A)PYRENE	1/1			4.80E+00	4.80E+00	4.80E+00	NT	4.80E+00	mg/kg
BENZO(B)FLUORANTHENE	1/1			9.10E+00	9.10E+00	9.10E+00	NT	9.10E+00	mg/kg
DIBENZO(A,H)ANTHRACENE	1/1			3.50E-01	3.50E-01	3.50E-01	NT	3.50E-01	mg/kg
INDENO(1,2,3-CD)PYRENE	1/1			1.60E+00	1.60E+00	1.60E+00	NT	1.60E+00	mg/kg
PCB-1254	1/1			7.10E-01	7.10E-01	7.10E-01	NT	7.10E-01	mg/kg
PCB-1260	1/1			4.70E-01	4.70E-01	4.70E-01	NT	4.70E-01	mg/kg
URANIUM-234	1/1			2.54E+01	2.54E+01	2.54E+01	NT	2.54E+01	pCi/g
URANIUM-235	1/1			1.24E+00	1.24E+00	1.24E+00	NT	1.24E+00	pCi/g
URANIUM-238	1/1			3.44E+01	3.44E+01	3.44E+01	NT	3.44E+01	pCi/g

Sample Station=SD05 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PCB-1260	1/1			9.80E-02	9.80E-02	9.80E-02	NT	9.80E-02	mg/kg
URANIUM-238	1/1			2.04E+00	2.04E+00	2.04E+00	NT	2.04E+00	pCi/g

Sample Station=SD06 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
URANIUM-238	1/1			1.62E+00	1.62E+00	1.62E+00	NT	1.62E+00	pCi/g

Sample Station=SD07 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	1/1			1.39E+01	1.39E+01	1.39E+01	NT	1.39E+01	mg/kg
BERYLLIUM	1/1			1.60E+00	1.60E+00	1.60E+00	NT	1.60E+00	mg/kg
CADMIUM	1/1			1.06E+01	1.06E+01	1.06E+01	NT	1.06E+01	mg/kg
CHROMIUM	1/1			6.49E+01	6.49E+01	6.49E+01	NT	6.49E+01	mg/kg
MANGANESE	1/1			3.96E+03	3.96E+03	3.96E+03	NT	3.96E+03	mg/kg
URANIUM-235	1/1			4.60E-01	4.60E-01	4.60E-01	NT	4.60E-01	pCi/g
URANIUM-238	1/1			1.48E+01	1.48E+01	1.48E+01	NT	1.48E+01	pCi/g

Table F.38. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD08 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	1/1			9.20E+00	9.20E+00	9.20E+00	NT	9.20E+00	mg/kg
BARIUM	1/1			5.71E+02	5.71E+02	5.71E+02	NT	5.71E+02	mg/kg
BERYLLIUM	1/1			1.50E+00	1.50E+00	1.50E+00	NT	1.50E+00	mg/kg
MANGANESE	1/1			9.28E+03	9.28E+03	9.28E+03	NT	9.28E+03	mg/kg
PCB-1260	1/1			4.30E-01	4.30E-01	4.30E-01	NT	4.30E-01	mg/kg
URANIUM-235	1/1			3.40E-01	3.40E-01	3.40E-01	NT	3.40E-01	pCi/g
URANIUM-238	1/1			1.33E+01	1.33E+01	1.33E+01	NT	1.33E+01	pCi/g

Sample Station=SD09 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BERYLLIUM	1/1			3.40E+00	3.40E+00	3.40E+00	NT	3.40E+00	mg/kg
PCB-1260	1/1			2.50E+00	2.50E+00	2.50E+00	NT	2.50E+00	mg/kg
URANIUM-235	1/1			8.90E-01	8.90E-01	8.90E-01	NT	8.90E-01	pCi/g
URANIUM-238	1/1			2.16E+01	2.16E+01	2.16E+01	NT	2.16E+01	pCi/g

Sample Station=SD10 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	1/1			9.30E+00	9.30E+00	9.30E+00	NT	9.30E+00	mg/kg
BERYLLIUM	1/1			1.30E+00	1.30E+00	1.30E+00	NT	1.30E+00	mg/kg
MANGANESE	1/1			2.18E+03	2.18E+03	2.18E+03	NT	2.18E+03	mg/kg
PCB-1254	1/1			1.20E+00	1.20E+00	1.20E+00	NT	1.20E+00	mg/kg
URANIUM-235	1/1			2.30E-01	2.30E-01	2.30E-01	NT	2.30E-01	pCi/g
URANIUM-238	1/1			9.36E+00	9.36E+00	9.36E+00	NT	9.36E+00	pCi/g

Sample Station=SD11 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	1/1			1.75E+01	1.75E+01	1.75E+01	NT	1.75E+01	mg/kg
BERYLLIUM	1/1			1.60E+00	1.60E+00	1.60E+00	NT	1.60E+00	mg/kg
CHROMIUM	1/1			1.30E+02	1.30E+02	1.30E+02	NT	1.30E+02	mg/kg
MANGANESE	1/1			2.76E+03	2.76E+03	2.76E+03	NT	2.76E+03	mg/kg
BENZO(A)PYRENE	1/1			1.10E-01	1.10E-01	1.10E-01	NT	1.10E-01	mg/kg
PCB-1254	1/1			2.80E-01	2.80E-01	2.80E-01	NT	2.80E-01	mg/kg

Table F.38. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD11 Medium=SEDIMENT (continued)

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PCB-1260	1/1			2.40E-01	2.40E-01	2.40E-01	NT	2.40E-01	mg/kg
URANIUM-235	1/1			2.10E-01	2.10E-01	2.10E-01	NT	2.10E-01	pCi/g
URANIUM-238	1/1			7.98E+00	7.98E+00	7.98E+00	NT	7.98E+00	pCi/g

Sample Station=SD12 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	1/1			1.05E+01	1.05E+01	1.05E+01	NT	1.05E+01	mg/kg
BERYLLIUM	1/1			1.30E+00	1.30E+00	1.30E+00	NT	1.30E+00	mg/kg
URANIUM-238	1/1			1.55E+00	1.55E+00	1.55E+00	NT	1.55E+00	pCi/g

Sample Station=SD13 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	1/1			1.60E+01	1.60E+01	1.60E+01	NT	1.60E+01	mg/kg
BERYLLIUM	1/1			1.30E+00	1.30E+00	1.30E+00	NT	1.30E+00	mg/kg
URANIUM-238	1/1			1.27E+00	1.27E+00	1.27E+00	NT	1.27E+00	pCi/g

Sample Station=SD14 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ARSENIC	1/1			1.32E+01	1.32E+01	1.32E+01	NT	1.32E+01	mg/kg
BERYLLIUM	1/1			1.40E+00	1.40E+00	1.40E+00	NT	1.40E+00	mg/kg
CADMIUM	1/1			1.62E+01	1.62E+01	1.62E+01	NT	1.62E+01	mg/kg
MANGANESE	1/1			7.32E+03	7.32E+03	7.32E+03	NT	7.32E+03	mg/kg
THORIUM-228	1/1			2.17E+00	2.17E+00	2.17E+00	NT	2.17E+00	pCi/g
URANIUM-234	1/1			2.25E+01	2.25E+01	2.25E+01	NT	2.25E+01	pCi/g
URANIUM-235	1/1			1.01E+00	1.01E+00	1.01E+00	NT	1.01E+00	pCi/g
URANIUM-238	1/1			3.65E+01	3.65E+01	3.65E+01	NT	3.65E+01	pCi/g

Table F.38. Summary statistics for Bear Creek Valley COPCs that will be evaluated quantitatively
Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD15 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
URANIUM-238	1/1			2.36E+00	2.36E+00	2.36E+00	NT	2.36E+00	pCi/g

Sample Station=SD16 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
URANIUM-238	1/1			2.13E+00	2.13E+00	2.13E+00	NT	2.13E+00	pCi/g

Sample Station=SD17 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
PCB-1260	1/1			1.10E-01	1.10E-01	1.10E-01	NT	1.10E-01	mg/kg
URANIUM-235	1/1			2.40E-01	2.40E-01	2.40E-01	NT	2.40E-01	pCi/g
URANIUM-238	1/1			4.75E+00	4.75E+00	4.75E+00	NT	4.75E+00	pCi/g

Sample Station=SD18 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
URANIUM-235	1/1			2.00E-01	2.00E-01	2.00E-01	NT	2.00E-01	pCi/g
URANIUM-238	1/1			5.28E+00	5.28E+00	5.28E+00	NT	5.28E+00	pCi/g

Table F.39. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD01 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			1.79E+04	1.79E+04	1.79E+04	NT	1.79E+04	mg/kg
COPPER	1/1			3.46E+01	3.46E+01	3.46E+01	NT	3.46E+01	mg/kg
ENDOSULFAN SULFATE	1/1			4.30E-04	4.30E-04	4.30E-04	NT	4.30E-04	mg/kg
ENDRIN KETONE	1/1			5.10E-04	5.10E-04	5.10E-04	NT	5.10E-04	mg/kg

Sample Station=SD02 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			2.09E+04	2.09E+04	2.09E+04	NT	2.09E+04	mg/kg
COBALT	1/1			3.71E+01	3.71E+01	3.71E+01	NT	3.71E+01	mg/kg
COPPER	1/1			2.77E+01	2.77E+01	2.77E+01	NT	2.77E+01	mg/kg
LITHIUM	1/1			3.22E+01	3.22E+01	3.22E+01	NT	3.22E+01	mg/kg
BENZO(GHI)PERYLENE	1/1			1.50E-01	1.50E-01	1.50E-01	NT	1.50E-01	mg/kg
ENDRIN ALDEHYDE	1/1			6.70E-03	6.70E-03	6.70E-03	NT	6.70E-03	mg/kg
PHENANTHRENE	1/1			1.00E-01	1.00E-01	1.00E-01	NT	1.00E-01	mg/kg

Sample Station=SD03 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ENDOSULFAN I	1/1			9.00E-05	9.00E-05	9.00E-05	NT	9.00E-05	mg/kg
ENDOSULFAN SULFATE	1/1			5.20E-04	5.20E-04	5.20E-04	NT	5.20E-04	mg/kg
ENDRIN ALDEHYDE	1/1			3.10E-04	3.10E-04	3.10E-04	NT	3.10E-04	mg/kg

Sample Station=SD04 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			1.40E+04	1.40E+04	1.40E+04	NT	1.40E+04	mg/kg
COBALT	1/1			2.56E+01	2.56E+01	2.56E+01	NT	2.56E+01	mg/kg
COPPER	1/1			2.41E+02	2.41E+02	2.41E+02	NT	2.41E+02	mg/kg
LITHIUM	1/1			3.17E+01	3.17E+01	3.17E+01	NT	3.17E+01	mg/kg
BENZO(GHI)PERYLENE	1/1			9.60E-01	9.60E-01	9.60E-01	NT	9.60E-01	mg/kg
DIBENZOFURAN	1/1			2.00E-01	2.00E-01	2.00E-01	NT	2.00E-01	mg/kg
ENDOSULFAN II	1/1			2.00E-02	2.00E-02	2.00E-02	NT	2.00E-02	mg/kg
ENDOSULFAN SULFATE	1/1			4.20E-03	4.20E-03	4.20E-03	NT	4.20E-03	mg/kg
PHENANTHRENE	1/1			6.90E+00	6.90E+00	6.90E+00	NT	6.90E+00	mg/kg

Table F.39. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD05 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ENDRIN ALDEHYDE	1/1			5.30E-03	5.30E-03	5.30E-03	NT	5.30E-03	mg/kg

Sample Station=SD06 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ENDRIN ALDEHYDE	1/1			6.10E-04	6.10E-04	6.10E-04	NT	6.10E-04	mg/kg

Sample Station=SD07 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COBALT	1/1			3.32E+01	3.32E+01	3.32E+01	NT	3.32E+01	mg/kg
COPPER	1/1			2.13E+01	2.13E+01	2.13E+01	NT	2.13E+01	mg/kg
ENDOSULFAN SULFATE	1/1			1.30E-03	1.30E-03	1.30E-03	NT	1.30E-03	mg/kg
ENDRIN ALDEHYDE	1/1			2.90E-03	2.90E-03	2.90E-03	NT	2.90E-03	mg/kg

Sample Station=SD08 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COBALT	1/1			5.66E+01	5.66E+01	5.66E+01	NT	5.66E+01	mg/kg
LITHIUM	1/1			1.64E+01	1.64E+01	1.64E+01	NT	1.64E+01	mg/kg
ENDRIN ALDEHYDE	1/1			1.50E-02	1.50E-02	1.50E-02	NT	1.50E-02	mg/kg

Sample Station=SD09 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			1.26E+04	1.26E+04	1.26E+04	NT	1.26E+04	mg/kg
COPPER	1/1			1.21E+01	1.21E+01	1.21E+01	NT	1.21E+01	mg/kg
LITHIUM	1/1			4.50E+01	4.50E+01	4.50E+01	NT	4.50E+01	mg/kg

Table F.39. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD10 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COBALT	1/1			2.56E+01	2.56E+01	2.56E+01	NT	2.56E+01	mg/kg
COPPER	1/1			1.19E+01	1.19E+01	1.19E+01	NT	1.19E+01	mg/kg
LITHIUM	1/1			2.41E+01	2.41E+01	2.41E+01	NT	2.41E+01	mg/kg
ENDOSULFAN SULFATE	1/1			3.80E-03	3.80E-03	3.80E-03	NT	3.80E-03	mg/kg
ENDRIN ALDEHYDE	1/1			9.20E-03	9.20E-03	9.20E-03	NT	9.20E-03	mg/kg

Sample Station=SD11 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COBALT	1/1			3.39E+01	3.39E+01	3.39E+01	NT	3.39E+01	mg/kg
COPPER	1/1			1.34E+01	1.34E+01	1.34E+01	NT	1.34E+01	mg/kg
LITHIUM	1/1			2.24E+01	2.24E+01	2.24E+01	NT	2.24E+01	mg/kg
BENZO(GHI)PERYLENE	1/1			7.90E-02	7.90E-02	7.90E-02	NT	7.90E-02	mg/kg
ENDOSULFAN I	1/1			7.50E-04	7.50E-04	7.50E-04	NT	7.50E-04	mg/kg
PHENANTHRENE	1/1			1.50E-01	1.50E-01	1.50E-01	NT	1.50E-01	mg/kg

Sample Station=SD12 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			1.57E+04	1.57E+04	1.57E+04	NT	1.57E+04	mg/kg
COPPER	1/1			2.54E+01	2.54E+01	2.54E+01	NT	2.54E+01	mg/kg
LITHIUM	1/1			6.90E+01	6.90E+01	6.90E+01	NT	6.90E+01	mg/kg
DELTA-BHC	1/1			3.50E-03	3.50E-03	3.50E-03	NT	3.50E-03	mg/kg
ENDOSULFAN I	1/1			3.30E-04	3.30E-04	3.30E-04	NT	3.30E-04	mg/kg
ENDOSULFAN II	1/1			1.20E-03	1.20E-03	1.20E-03	NT	1.20E-03	mg/kg
ENDRIN ALDEHYDE	1/1			1.60E-03	1.60E-03	1.60E-03	NT	1.60E-03	mg/kg
PHENANTHRENE	1/1			8.50E-02	8.50E-02	8.50E-02	NT	8.50E-02	mg/kg

Sample Station=SD13 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
COPPER	1/1			2.06E+01	2.06E+01	2.06E+01	NT	2.06E+01	mg/kg
ENDOSULFAN SULFATE	1/1			1.70E-03	1.70E-03	1.70E-03	NT	1.70E-03	mg/kg

Table F.39. Summary statistics for Bear Creek Valley COPCs that will be evaluated qualitatively
Area: LOCATION-BY-LOCATION (Sediment from creek floodplain)

Sample Station=SD14 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ALUMINUM	1/1			1.41E+04	1.41E+04	1.41E+04	NT	1.41E+04	mg/kg
COBALT	1/1			6.01E+01	6.01E+01	6.01E+01	NT	6.01E+01	mg/kg
COPPER	1/1			1.44E+01	1.44E+01	1.44E+01	NT	1.44E+01	mg/kg
ENDOSULFAN SULFATE	1/1			8.00E-04	8.00E-04	8.00E-04	NT	8.00E-04	mg/kg
ENDRIN ALDEHYDE	1/1			1.30E-03	1.30E-03	1.30E-03	NT	1.30E-03	mg/kg
PHENANTHRENE	1/1			8.50E-02	8.50E-02	8.50E-02	NT	8.50E-02	mg/kg

Sample Station=SD15 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ENDRIN ALDEHYDE	1/1			2.30E-03	2.30E-03	2.30E-03	NT	2.30E-03	mg/kg

Sample Station=SD16 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
BENZO(GHI)PERYLENE	1/1			6.10E-02	6.10E-02	6.10E-02	NT	6.10E-02	mg/kg
ENDRIN ALDEHYDE	1/1			1.80E-03	1.80E-03	1.80E-03	NT	1.80E-03	mg/kg
PHENANTHRENE	1/1			7.20E-02	7.20E-02	7.20E-02	NT	7.20E-02	mg/kg

Sample Station=SD17 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ENDRIN ALDEHYDE	1/1			4.90E-03	4.90E-03	4.90E-03	NT	4.90E-03	mg/kg

Sample Station=SD18 Medium=SEDIMENT

Analyte	Freq Det	Min Nondet Conc	Max Nondet Conc	Min Det Conc	Max Det Conc	Mean Conc	Dist Type	Upper 95% C.L. Conc	Conc Units
ENDRIN ALDEHYDE	1/1			2.10E-04	2.10E-04	2.10E-04	NT	2.10E-04	mg/kg

Table F.40a. Maintenance worker exposure: risk/HQ equations

Variable			Value used	Explanation/source
		Maintenance worker incidental ingestion of soil		
		Risk = [CS x FI x EF x ED x IR/(AT x BW)] x SF		
		HQ = [CS x FI x EF x ED x IR/(AT x BW)]/RfD		
		Risk (from radionuclides) = CS x FI x CF x EF x ED x IR x SF		
CS	=	Concentration in soil	Chemical-specific (mg/kg; pCi/g)	Concentrations are listed in Tables F.14–F.39
IR	=	Ingestion rate	0.00005 kg/d	Adult worker (EPA 1991b)
CF	=	Conversion factor	10^3 g/kg	Necessary to convert to appropriate units
FI	=	Fraction ingested	1 (unitless)	Maximum value used; equivalent to 100%
EF	=	Exposure frequency	36 d/year	Estimated: site-specific for Bear Creek Valley (refer to Sect. F.3.3.1)
ED	=	Exposure duration	25 years	Adult worker (EPA 1991a; EPA 1991b)
BW	=	Body weight	70 kg	Adult (EPA 1991b)
AT	=	Averaging time	365 d/year × 25 years	Averaging time for noncarcinogens (EPA 1991a; EPA 1991b)
			365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
SF	=	Slope factor	Chemical-specific (kg-d/mg; 1/pCi)	(EPA 1995b; EPA 1995c)
RfD	=	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.40b. Maintenance worker exposure: risk/HQ equations

Variable			Value used	Explanation/source
		Maintenance worker dermal contact with soil		
		Risk = [CS x CF x AF x ABS x EF x SA x ED/(AT x BW)] x SF		
		HQ = [CS x CF x AF x ABS x EF x SA x ED/(AT x BW)]/RfD		
CS	=	Concentration in soil	Chemical-specific (mg/kg)	Concentrations are listed in Tables F.14–F.39
CF	=	Conversion factors	10^{-6} kg/mg and 10^{4} cm^2/m^2	Necessary to convert to appropriate units
SA	=	Available surface area	0.316 m^2/d	Surface area for head, hands, and forearms for an adult (EPA 1992a)
AF	=	Adherence factor	1.0 mg/cm^2	Adherence factor for soil (EPA 1995a)
ABS	=	Absorption factor	0.001 (unitless) 0.01 (unitless)	Equivalent to 0.1% for inorganics and 1.0% for organics (EPA 1992b)
EF	=	Exposure frequency	36 d/year	Estimated: site-specific for Bear Creek Valley (refer to Sect. F.3.3.1)
ED	=	Exposure duration	25 years	Adult worker (EPA 1991a; EPA 1991b)
BW	=	Body weight	70 kg	Adult (EPA 1991b)
AT	=	Averaging time	365 d/year × 25 years	Averaging time for noncarcinogens (EPA 1991a; EPA 1991b)
			365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
SF	=	Slope factor	Chemical-specific (kg-d/mg)	(EPA 1995b; EPA 1995c)
RfD	=	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.40c. Maintenance worker exposure: risk/HQ equations

Variable		Value used	Explanation/source
		Maintenance worker inhalation of soil	
		Risk = [CS x IR x (1/PEF + 1/VF) x EF x ED/(AT x BW)] x SF	
		HQ = [CS x IR x (1/PEF + 1/VF) x EF x ED/(AT x BW)]/RfD	
		Risk (from radionuclides) = [CS x CF X IR x (1/PEF + 1/VF) x EF x ED] x SF	
CS =	Concentration in soil	Chemical-specific (mg/kg; pCi/g)	Concentrations are listed in Tables F.14–F.39
IR =	Inhalation rate	20 m^3/d	(EPA 1991b)
CF =	Conversion factor	10^3 g/kg	Necessary to convert to appropriate units
PEF =	Particulate emission factor	4.28E+09 m^3/kg	(EPA 1991d)
VF =	Volatilization factor	Chemical-specific (m^3/kg)	(EPA 1991d)
EF =	Exposure frequency	36 d/year	Estimated: site-specific for Bear Creek Valley (refer to Sect. F.3.3.1)
ED =	Exposure duration	25 years	Adult worker (EPA 1991a; EPA 1991b)
BW =	Body weight	70 kg	Adult (EPA 1991b)
AT =	Averaging time	365 d/year × 25 years	Averaging time for noncarcinogens (EPA 1991a; EPA 1991b)
		365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
SF =	Slope Factor	Chemical-specific (kg-d/mg; 1/pCi)	(EPA 1995b; EPA 1995c)
RfD =	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.40d. Maintenance worker exposure: risk equation

Variable		Value used	Explanation/source
		Maintenance worker external exposure to radionuclides in soil	
		Risk (from radionuclides) = CS x (1-Se) x Te x EF x ED x SF	
CS =	Concentration in soil	Chemical-specific (pCi/g)	Concentrations are listed in Tables F.14–F.39
EF =	Exposure frequency	36/365 (d/d)	Estimated: site-specific for Bear Creek Valley (refer to Sect. F.3.3.1)
ED =	Exposure duration	25 years	Adult worker (EPA 1991a; EPA 1991b)
Se =	Gamma shielding factor	0.2 (unitless)	Default value (EPA 1991a)
Te =	Gamma exposure time factor	8/24 (hr/hr)	(EPA 1991a)
SF =	Slope factor	Chemical-specific (g/pCi-year)	(EPA 1995c)

Table F.41a. Industrial exposure: risk/HQ equations

Variable		Value used	Explanation/source
		Industrial incidental ingestion of soil or waste/inventory	
		Risk = [CS x FI x EF x ED x IR/(AT x BW)] x SF	
		HQ = [CS x FI x EF x ED x IR/(AT x BW)]/RfD	
		Risk (from radionuclides) = CS x FI x CF x EF x ED x IR x SF	
CS =	Concentration in soil or waste/inventory	Chemical-specific (mg/kg; pCi/g)	Concentrations are listed in Tables F.14–F.39
IR =	Ingestion rate	0.00005 kg/d	Adult worker (EPA 1991b)
CF =	Conversion factor	10^3 g/kg	Necessary to convert to appropriate units
FI =	Fraction ingested	1 (unitless)	Maximum value used; equivalent to 100%
EF =	Exposure frequency	250 d/year	Adult worker (EPA 1991a; EPA 1991b)
ED =	Exposure duration	25 years	Adult worker (EPA 1991a; EPA 1991b)
BW =	Body weight	70 kg	Adult (EPA 1991b)
AT =	Averaging time	365 d/year × 25 years	Averaging time for noncarcinogens (EPA 1991a; EPA 1991b)
		365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
SF =	Slope factor	Chemical-specific (kg-d/mg; 1/pCi)	(EPA 1995b; EPA 1995c)
RfD =	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.41b. Industrial exposure: risk/HQ equations

Variable		Value used	Explanation/source
		Industrial dermal contact with soil or waste/inventory	
		Risk = [CS x CF x AF x ABS x EF x SA x ED/(AT x BW)] x SF	
		HQ = [CS x CF x AF x ABS x EF x SA x ED/(AT x BW)]/RfD	
CS =	Concentration in soil or waste/inventory	Chemical-specific (mg/kg)	Concentrations are listed in Tables F.14–F.39
CF =	Conversion factors	10^{-6} kg/mg and 10^{4} cm^2/m^2	Necessary to convert to appropriate units
SA =	Available surface area	0.316 m^2/d	Surface area for head, hands, and forearms for an adult (EPA 1992a)
AF =	Adherence factor	1.0 mg/cm^2	Adherence factor for soil (EPA 1995a)
ABS =	Absorption factor	0.001 (unitless) 0.01 (unitless)	Equivalent to 0.1% for inorganics and 1.0% for organics (EPA 1992b)
EF =	Exposure frequency	250 d/year	Adult worker (EPA 1991a; EPA 1991b)
ED =	Exposure duration	25 years	Adult worker (EPA 1991a; EPA 1991b)
BW =	Body weight	70 kg	Adult (EPA 1991b)
AT =	Averaging time	365 d/year × 25 years	Averaging time for noncarcinogens (EPA 1991a; EPA 1991b)
		365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
SF =	Slope factor	Chemical-specific (kg-d/mg)	(EPA 1995b; EPA 1995c)
RfD =	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.41c. Industrial exposure: risk/HQ equations

Variable		Value used	Explanation/source
		Industrial inhalation of soil or waste/inventory	
		Risk = [CS x IR x (1/PEF + 1/VF) x EF x ED/(AT x BW)] x SF	
		HQ = [CS x IR x (1/PEF + 1/VF) x EF x ED/(AT x BW)]/RfD	
		Risk (from radionuclides) = [CS x CF X IR x (1/PEF + 1/VF) x EF x ED] x SF	
CS =	Concentration in soil or waste/inventory	Chemical-specific (mg/kg; pCi/g)	Concentrations are listed in Tables F.14–F.39
IR =	Inhalation rate	20 m^3/d	(EPA 1991b)
CF =	Conversion factor	10^3 g/kg	Necessary to convert to appropriate units
PEF =	Particulate emission factor	4.28E+09 m^3/kg	(EPA 1991d)
VF =	Volatilization factor	Chemical-specific (m^3/kg)	(EPA 1991d)
EF =	Exposure frequency	250 d/year	Adult worker (EPA 1991a; EPA 1991b)
ED =	Exposure duration	25 years	Adult worker (EPA 1991a; EPA 1991b)
BW =	Body weight	70 kg	Adult (EPA 1991b)
AT =	Averaging time	365 d/year × 25 years	Averaging time for noncarcinogens (EPA 1991a; EPA 1991b)
		365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
SF =	Slope Factor	Chemical-specific (kg-d/mg; 1/pCi)	(EPA 1995b; EPA 1995c)
RfD =	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.41d. Industrial exposure: risk equation

Variable		Value used	Explanation/source
Industrial external exposure to radionuclides in soil or waste/inventory			
Risk (from radionuclides) = CS x (1-Se) x Te x EF x ED x SF			
CS =	Concentration in soil or waste/inventory	Chemical-specific (pCi/g)	Concentrations are listed in Tables F.14–F.39
EF =	Exposure frequency	250/365 (d/d)	Adult worker (EPA 1991a)
ED =	Exposure duration	25 years	Adult worker (EPA 1991a; EPA 1991b)
Se =	Gamma shielding factor	0.2 (unitless)	Default value (EPA 1991a)
Te =	Gamma exposure time factor	8/24 (hr/hr)	(EPA 1991a)
SF =	Slope factor	Chemical-specific (g/pCi-year)	(EPA 1995c)

Table F.42a. Recreational exposure: risk/HQ equations

Variable		Value used	Explanation/source
		Recreational incidental ingestion of soil or sediment	
		$Risk = (CS \times FI \times EF \times ET \times CF1/AT) \times [(ED_c \times IR_c/BW_c) + (ED_a \times IR_a/BW_a)] \times SF$	
		$HQ_{adult} = [CS \times FI \times EF \times CF1 \times ET \times ED_a \times IR_a/(AT_a \times BW_a)]/RfD$	
		$HQ_{child} = [CS \times FI \times EF \times CF1 \times ET \times ED_c \times IR_c/(AT_c \times BW_c)]/RfD$	
		$Risk\ (from\ radionuclides) = CS \times FI \times CF1 \times CF2 \times ET \times EF \times [(ED_c \times IR_c) + (ED_a \times IR_a)] \times SF$	
CS =	Concentration in soil or sediment	Chemical-specific (mg/kg; pCi/g)	Concentrations are listed in Tables F.14–F.39
IR_c =	Ingestion rate	0.0002 kg/d	Child (EPA 1991b)
IR_a		0.0001 kg/d	Adult (EPA 1991b)
CF1 =	Conversion factor	1/24 d/hr	Necessary to convert to appropriate units
CF2 =	Conversion Factor	10^3 g/kg	Necessary to convert to appropriate units
FI =	Fraction ingested	1 (unitless)	Maximum value used; equivalent to 100%
EF =	Exposure frequency	75 d/year	(EPA 1992a)
ED_c =	Exposure duration	6 years	Two-part (child and adult) exposure for a 30-year duration (EPA 1991a; EPA 1991b)
ED_a		24 years	
ET =	Exposure time	1 hr/d	(EPA 1992a)
BW_c =	Body weight	15 kg	Child (EPA 1991b)
BW_a		70 kg	Adult (EPA 1991b)
AT_a =	Averaging time	365 d/year × ED_a years	Averaging time for noncarcinogens; adult and child (EPA 1991a; EPA 1991b)
AT_c		365 d/year x ED_c years	
AT		365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
SF =	Slope factor	Chemical-specific (kg-d/mg; 1/pCi)	(EPA 1995b; EPA 1995c)
RfD =	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.42b. Recreational exposure: risk/HQ equations

Variable			Value used	Explanation/source
		Recreational dermal contact with soil or sediment		
		Risk = [CS x CF x AF x ABS x EF x SA x ED/(AT x BW)] x SF		
		HQ = [CS x CF x AF x ABS x EF x SA x ED/(AT x BW)]/RfD		
CS	=	Concentration in soil or sediment	Chemical-specific (mg/kg)	Concentrations are listed in Tables F.14–F.39
CF	=	Conversion factors	10^{-6} kg/mg and 10^{4} cm^2/m^2	Necessary to convert to appropriate units
SA	=	Available surface area	0.53 m^2/d	50th Percentile surface area for head, hands, forearms, and lower legs for an adult (EPA 1992a)
AF	=	Adherence factor	1.0 mg/cm^2	Adherence factor for soil (EPA 1995a)
ABS	=	Absorption factor	0.001 (unitless) 0.01 (unitless)	Equivalent to 0.1% for inorganics and 1.0% for organics (EPA 1992b)
EF	=	Exposure frequency	75 d/year	(EPA 1992a; EPA 1991b)
ED	=	Exposure duration	30 years	Adult (EPA 1991a; EPA 1991b)
BW	=	Body weight	70 kg	Adult (EPA 1991b)
AT	=	Averaging time	365 d/year × 30 years	Averaging time for noncarcinogens (EPA 1991a; EPA 1991b)
			365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
SF	=	Slope factor	Chemical-specific (kg-d/mg)	(EPA 1995b; EPA 1995c)
RfD	=	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.42c. Recreational exposure: risk/HQ equations

Variable		Value used	Explanation/source
		Recreational inhalation of soil or dry sediment	
		Risk = [CS x IR x CF1 x (1/PEF + 1/VF) x ET x EF x ED/(AT x BW)] x SF	
		HQ = [CS x IR x CF1 x (1/PEF + 1/VF) x ET x EF x ED/(AT x BW)]/RfD	
		Risk (from radionuclides) = [CS x CF1 x CF2 x IR x (1/PEF + 1/VF) x ET x EF x ED] x SF	
CS =	Concentration in soil or sediment	Chemical-specific (mg/kg; pCi/g)	Concentrations are listed in Tables F.14–F.39
IR =	Inhalation rate	20 m^3/d	(EPA 1991b)
CF1 =	Conversion factor	1/24 d/hr	Necessary to convert to appropriate units
CF2 =	Conversion factor	10^3 g/kg	Necessary to convert to appropriate units
PEF =	Particulate emission factor	4.28E+09 m^3/kg	(EPA 1991d)
VF =	Volatilization factor	Chemical-specific (m^3/kg)	(EPA 1991d)
EF =	Exposure frequency	75 d/year	(EPA 1992a)
ED =	Exposure duration	30 years	Adult (EPA 1991a; EPA 1991b)
ET =	Exposure time	1 hr/d	(EPA 1992a)
BW =	Body weight	70 kg	Adult (EPA 1991b)
AT =	Averaging time	365 d/year × 30 years	Averaging time for noncarcinogens (EPA 1991a; EPA 1991b)
		365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
SF =	Slope Factor	Chemical-specific (kg-d/mg; 1/pCi)	(EPA 1995b; EPA 1995c)
RfD =	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.42d. Recreational exposure: risk equation

Variable		Value used	Explanation/source
Recreational external exposure to radionuclides in soil or sediment			
Risk (from radionuclides) = CS x (1-Se) x Te x EF x ED x SF			
CS =	Concentration in soil or sediment	Chemical-specific (pCi/g)	Concentrations are listed in Tables F.14–F.39
EF =	Exposure frequency	75/365 (d/d)	(EPA 1992a)
ED =	Exposure duration	30 years	Adult (EPA 1991a; EPA 1991b)
Se =	Gamma shielding factor	0.2 (unitless)	Default value (EPA 1991a)
Te =	Gamma exposure time factor	1/24 (hr/hr)	(EPA 1992a; EPA 1991a)
SF =	Slope factor	Chemical-specific (g/pCi-year)	(EPA 1995c)

Table F.42e. Recreational exposure: risk/HQ equations

Variable		Value used	Explanation/source
Recreational incidental ingestion of surface water (while swimming)			
Risk = [CW x IR x CF x ET x EF x ED/(AT x BW)] x SF			
HQ = [CW x IR x CF x ET x EF x ED/(AT x BW)]/RfD			
Risk (from radionuclides) = CW x IR x CF x ET x EF x ED x SF			
CW =	Concentration in water	Chemical-specific (mg/L; pCi/L)	Concentrations are listed in Tables F.14–F.39
IR =	Ingestion rate	50 mL/hr	(EPA 1995a)
CF =	Conversion factor	10^{-3} L/mL	Necessary to convert to appropriate units
EF =	Exposure frequency	45 d/year	(EPA 1995a)
ED =	Exposure duration	30 years	Adult (EPA 1991a; EPA 1991b)
ET =	Exposure time	1 hr/d	(EPA 1992a)
BW =	Body weight	70 kg	Adult (EPA 1991b)
AT =	Averaging time	365 d/year × 30 years	Averaging time for noncarcinogens (EPA 1991a; EPA 1991b)
		365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
SF =	Slope factor	Chemical-specific (kg-d/mg; 1/pCi)	(EPA 1995b; EPA 1995c)
RfD =	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.42f. Recreational exposure: risk/HQ equations

Variable		Value used	Explanation/source
Recreational dermal contact with surface water (while swimming)			
Risk = [CW x CF x KP x ET x EF x SA x ED/(AT x BW)] x SF			
HQ = [CW x CF x KP x ET x EF x SA x ED/(AT x BW)]/RfD			
CW =	Concentration in water	Chemical-specific (mg/L)	Concentrations are listed in Tables F.14–F.39
CF =	Conversion factors	m/100cm and L/10^{-3} m^3	Necessary to convert to appropriate units
SA =	Available surface area	1.94 m^2	50th percentile total body surface area for an adult (EPA 1992a)
KP =	Permeability constant	Chemical-specific (cm/hr)	(EPA 1992a)
ET =	Exposure time	1 hr/d	(EPA 1992a)
EF =	Exposure frequency	45 d/year	(EPA 1995a)
ED =	Exposure duration	30 years	Adult (EPA 1991a; EPA 1991b)
BW =	Body weight	70 kg	Adult (EPA 1991b)
AT =	Averaging time	365 d/year × 30 years	Averaging time for noncarcinogens (EPA 1991a; EPA 1991b)
		365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
SF =	Slope factor	Chemical-specific (kg-d/mg)	(EPA 1995b; EPA 1995c)
RfD =	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.42g. Recreational exposure: risk/HQ equations

Variable		Value used	Explanation/source
		Recreational inhalation of surface water (while swimming)	
		Risk = [CW x IR x CF x K x ET x EF x ED/(AT x BW)] x SF	
		HQ = [CW x IR x CF x K x ET x EF x ED/(AT x BW)]/RfD	
CW =	Concentration in water	Chemical-specific (mg/L)	Concentrations are listed in Tables F.14–F.39
CF =	Conversion factor	1d/24hr	Necessary to convert to appropriate units
IR =	Inhalation rate	20 m^3/d	Default outdoor inhalation rate (EPA 1989a)
K =	Volatilization factor	0.0005 x 1000 L/m^3	(EPA 1991a; Andelman 1990)
ET =	Exposure time	1 hr/d	(EPA 1992a)
EF =	Exposure frequency	45 d/year	(EPA 1995a)
ED =	Exposure duration	30 years	Adult (EPA 1991a; EPA 1991b)
BW =	Body weight	70 kg	Adult (EPA 1991b)
AT =	Averaging time	365 d/year × 30 years	Averaging time for noncarcinogens (EPA 1991a; EPA 1991b)
		365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
SF =	Slope factor	Chemical-specific (kg-d/mg)	(EPA 1995b; EPA 1995c)
RfD =	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.42h. Recreational exposure: risk/HQ equations

Variable		Value used	Explanation/source
		Recreational ingestion of fish	
		Risk = [CS x FI x EF x ED x IR/(AT x BW)] x SF	
		HQ = [CS x FI x EF x ED x IR/(AT x BW)]/RfD	
		Risk (from radionuclides) = CS x FI x CF x EF x ED x IR x SF	
CS =	Concentration in soil, waste/inventory or sediment	Chemical-specific (mg/kg; pCi/g)	Concentrations are listed in Tables F.14–F.39
IR =	Ingestion rate	0.054 kg/d	Adult (EPA 1991b; EPA 1995a)
CF =	Conversion factor	10^3 g/kg	Necessary to convert to appropriate units
FI =	Fraction ingested	1 (unitless)	Maximum value used; equivalent to 100%
EF =	Exposure frequency	48 d/year	(EPA 1989a)
ED =	Exposure duration	30 years	Adult (EPA 1991a; EPA 1991b)
BW =	Body weight	70 kg	Adult (EPA 1991b)
AT =	Averaging time	365 d/year × 30 years	Averaging time for noncarcinogens (EPA 1991a; EPA 1991b)
		365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
SF =	Slope factor	Chemical-specific (kg-d/mg; 1/pCi)	(EPA 1995b; EPA 1995c)
RfD =	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.43a. Residential exposure: risk/HQ equations

Variable		Value used	Explanation/source
Residential incidental ingestion of soil, waste/inventory, or dry sediment			
$Risk = (CS \times FI \times EF/AT) \times [(ED_c \times IR_c/BW_c) + (ED_a \times IR_a/BW_a)] \times SF$			
$HQ_{adult} = [CS \times FI \times EF \times ED_a \times IR_a/(AT_a \times BW_a)]/RfD$			
$HQ_{child} = [CS \times FI \times EF \times ED_c \times IR_c/(AT_c \times BW_c)]/RfD$			
$Risk\ (from\ radionuclides) = CS \times FI \times CF \times EF \times [(ED_c \times IR_c) + (ED_a \times IR_a)] \times SF$			
CS =	Concentration in soil, waste/inventory or sediment	Chemical-specific (mg/kg; pCi/g)	Concentrations are listed in Tables F.14–F.39
IR_c =	Ingestion rate	0.0002 kg/d	Child (EPA 1991b)
IR_a		0.0001 kg/d	Adult (EPA 1991b)
CF =	Conversion factor	10^3 g/kg	Necessary to convert to appropriate units
FI =	Fraction ingested	1 (unitless)	Maximum value used; equivalent to 100%
EF =	Exposure frequency	350 d/year	(EPA 1991a; EPA 1991b; EPA 1995a)
ED_c =	Exposure duration	6 years	Two-part (child and adult) residential exposure for a 30-year duration (EPA 1991a; 1991b)
ED_a		24 years	
BW_c =	Body weight	15 kg	Child (EPA 1991b)
BW_a		70 kg	Adult (EPA 1991b)
AT_a =	Averaging time	365 d/year × ED_a years	Averaging time for noncarcinogens; adult and child (EPA 1991a; EPA 1991b)
AT_c		365 d/year x ED_c years	
AT		365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
SF =	Slope factor	Chemical-specific (kg-d/mg; 1/pCi)	(EPA 1995b; EPA 1995c)
RfD =	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.43b. Residential exposure: risk/HQ equations

Variable		Value used	Explanation/source
Residential dermal contact with soil, waste/inventory, or dry sediment			
Risk = [CS x CF x AF x ABS x EF x SA x ED/(AT x BW)] x SF			
HQ = [CS x CF x AF x ABS x EF x SA x ED/(AT x BW)]/RfD			
CS =	Concentration in soil, waste/inventory or sediment	Chemical-specific (mg/kg)	Concentrations are listed in Tables F.14–F.39
CF =	Conversion factors	10^{-6} kg/mg and 10^{4} cm^2/m^2	Necessary to convert to appropriate units
SA =	Available surface area	0.53 m^2/d	50th Percentile surface area for head, hands, forearms, and lower legs for an adult (EPA 1992a)
AF =	Adherence factor	1.0 mg/cm^2	Adherence factor for soil (EPA 1995a)
ABS =	Absorption factor	0.001 (unitless) 0.01 (unitless)	Equivalent to 0.1% for inorganics and 1.0% for organics (EPA 1992b)
EF =	Exposure frequency	350 d/year	(EPA 1991a; EPA 1991b; EPA 1995a)
ED =	Exposure duration	30 years	Adult (EPA 1991a; EPA 1991b)
BW =	Body weight	70 kg	Adult (EPA 1991b)
AT =	Averaging time	365 d/year × 30 years	Averaging time for noncarcinogens (EPA 1991a; EPA 1991b)
		365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
SF =	Slope factor	Chemical-specific (kg-d/mg)	(EPA 1995b; EPA 1995c)
RfD =	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.43c. Residential exposure: risk/HQ equations

Variable		Value used	Explanation/source
Residential inhalation of soil, waste/inventory, or dry sediment			
Risk = [CS x IR x (1/PEF + 1/VF) x EF x ED/(AT x BW)] x SF			
HQ = [CS x IR x (1/PEF + 1/VF) x EF x ED/(AT x BW)]/RfD			
Risk (from radionuclides) = [CS x CF X IR x (1/PEF + 1/VF) x EF x ED] x SF			
CS =	Concentration in soil, waste/inventory or sediment	Chemical-specific (mg/kg; pCi/g)	Concentrations are listed in Tables F.14–F.39
IR =	Inhalation rate	20 m^3/d	(EPA 1991b)
CF =	Conversion factor	10^3 g/kg	Necessary to convert to appropriate units
PEF =	Particulate emission factor	4.28E+09 m^3/kg	(EPA 1991d)
VF =	Volatilization factor	Chemical-specific (m^3/kg)	(EPA 1991d)
EF =	Exposure frequency	350 d/year	(EPA 1991a; EPA 1991b; EPA 1995a)
ED =	Exposure duration	30 years	Adult (EPA 1991a; EPA 1991b)
BW =	Body weight	70 kg	Adult (EPA 1991b)
AT =	Averaging time	365 d/year × 30 years	Averaging time for noncarcinogens (EPA 1991a; EPA 1991b)
		365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
SF =	Slope Factor	Chemical-specific (kg-d/mg; 1/pCi)	(EPA 1995b; EPA 1995c)
RfD =	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.43d. Residential exposure: risk equation

Variable		Value used	Explanation/source
Residential external exposure to radionuclides in soil, waste/inventory, or dry sediment			
Risk (from radionuclides) = CS x (1-Se) x Te x EF x ED x SF			
CS =	Concentration in soil, waste/inventory or sediment	Chemical-specific (pCi/g)	Concentrations are listed in Tables F.14–F.39
EF =	Exposure frequency	350/365 (d/d)	(EPA 1991a; EPA 1995a)
ED =	Exposure duration	30 years	Adult (EPA 1991a; EPA 1991b)
Se =	Gamma shielding factor	0.2 (unitless)	Default value (EPA 1991a)
Te =	Gamma exposure time factor	1.0 (hr/hr)	Default value: 24hr/24hr (EPA 1991a; EPA 1991e)
SF =	Slope factor	Chemical-specific (g/pCi-year)	(EPA 1995c)

Table F.43e. Residential exposure: risk/HQ equations

Variable		Value used	Explanation/source
		Residential ingestion of groundwater, surface water, or leachate	
		Risk = [CW x IR x EF x ED/(AT x BW)] x SF	
		HQ = [CW x IR x EF x ED/(AT x BW)]/RfD	
		Risk (from radionuclides) = CW x IR x EF x ED x SF	
CW =	Concentration in water	Chemical-specific (mg/L; pCi/L)	Concentrations are listed in Tables F.14–F.39
IR =	Ingestion rate	2 L/d	(EPA 1991b; EPA 1995a)
EF =	Exposure frequency	350 d/year	(EPA 1991a; EPA 1991b; EPA 1995a)
ED =	Exposure duration	30 years	Adult (EPA 1991a; EPA 1991b)
BW =	Body weight	70 kg	Adult (EPA 1991b)
AT =	Averaging time	365 d/year × 30 years	Averaging time for noncarcinogens (EPA 1991a; EPA 1991b)
		365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
SF =	Slope factor	Chemical-specific (kg-d/mg; 1/pCi)	(EPA 1995b; EPA 1995c)
RfD =	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.43f. Residential exposure: risk/HQ equations

Variable		Value used	Explanation/source
Residential dermal contact with groundwater, surface water, or leachate (while showering)			
Risk = [CW x CF x KP x ET x EF x SA x ED/(AT x BW)] x SF			
HQ = [CW x CF x KP x ET x EF x SA x ED/(AT x BW)]/RfD			
CW =	Concentration in water	Chemical-specific (mg/L)	Concentrations are listed in Tables F.14–F.39
CF =	Conversion factors	m/100cm and L/10^{-3} m^3	Necessary to convert to appropriate units
SA =	Available surface area	1.94 m^2	50th percentile total body surface area for an adult (EPA 1992a)
KP =	Permeability constant	Chemical-specific (cm/hr)	(EPA 1992a)
ET =	Exposure time	0.25 hr/d	Showering 15 min/d (EPA 1992a)
EF =	Exposure frequency	350 d/year	(EPA 1991a; EPA 1991b; EPA 1995a)
ED =	Exposure duration	30 years	Adult (EPA 1991a; EPA 1991b)
BW =	Body weight	70 kg	Adult (EPA 1991b)
AT =	Averaging time	365 d/year × 30 years	Averaging time for noncarcinogens (EPA 1991a; EPA 1991b)
		365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
SF =	Slope factor	Chemical-specific (kg-d/mg)	(EPA 1995b; EPA 1995c)
RfD =	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.43g. Residential exposure: risk/HQ equations

Variable			Value used	Explanation/source
Residential inhalation of groundwater, surface water, or leachate (indoor uses)				
Risk = [CW x IR x K x EF x ED/(AT x BW)] x SF				
HQ = [CW x IR x K x EF x ED/(AT x BW)]/RfD				
Risk (from radionuclides) = CW x IR x EF x ED x CF x IEF x SF				
CW	=	Concentration in water	Chemical-specific (mg/L; pCi/L)	Concentrations are listed in Tables F.14–F.39
IR	=	Inhalation rate	20 m^3/d	Default inhalation rate (EPA 1995a)
K	=	Volatilization factor	0.0005 x 1000 L/m^3	(EPA 1991a; Andelman 1990)
EF	=	Exposure frequency	350 d/year	(EPA 1991a; EPA 1991b; EPA 1995a)
ED	=	Exposure duration	30 years	Adult (EPA 1991a; EPA 1991b)
BW	=	Body weight	70 kg	Adult (EPA 1991b)
CF	=	Conversion factor	1d/24hr	Necessary to convert to appropriate units
AT	=	Averaging time	365 d/year × 30 years	Averaging time for noncarcinogens (EPA 1991a; EPA 1991b)
			365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
IEF	=	Inhalation exposure factor	0.2802 (L-hr/m^3-d); 7.6030 (L-hr/m^3-d)	For tritium (McKone 1987); For radon (McKone 1987)
SF	=	Slope factor	Chemical-specific (kg-d/mg; 1/pCi)	(EPA 1995b; EPA 1995c)
RfD	=	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.43h. Residential exposure: risk/HQ equations

Variable		Value used	Explanation/source
		Residential ingestion of leafy vegetables	
		Risk = [CV x FI x EF x ED x IR/(AT x BW)] x SF	
		HQ = [CV x FI x EF x ED x IR/(AT x BW)]/RfD	
		Risk (from radionuclides) = CV x FI x CF x EF x ED x IR x SF	
CV =	Concentration in leafy vegetables	Chemical-specific (mg/kg; pCi/g)	Concentrations are calculated from soil and water concentrations listed in Tables F.14–F.39
IR =	Ingestion rate	0.08 kg/d	Adult (EPA 1989b)
CF =	Conversion factor	10^3 g/kg	Necessary to convert to appropriate units
FI =	Fraction ingested	1 (unitless)	Maximum value used; equivalent to 100% (EPA 1989b)
EF =	Exposure frequency	350 d/year	(EPA 1991a; EPA 1991b; EPA 1995a)
ED =	Exposure duration	30 years	Adult (EPA 1991a; EPA 1991b)
BW =	Body weight	70 kg	Adult (EPA 1991b)
AT =	Averaging time	365 d/year × 30 years	Averaging time for noncarcinogens (EPA 1991a; EPA 1991b)
		365 d/year × 70 years	Averaging time for carcinogens (EPA 1991a; EPA 1991b)
SF =	Slope factor	Chemical-specific (kg-d/mg; 1/pCi)	(EPA 1995b; EPA 1995c)
RfD =	Reference dose	Chemical-specific (mg/kg-d)	(EPA 1995b; EPA 1995c)

Table F.44. Noncarcinogenic reference doses

Analyte	Oral Chronic RfD (mg/kg-d)	Confidence Level[a]	% GI Absorption[a]	Dermal Chronic RfD (mg/kg-d)	Inhalation Chronic RfD (mg/kg-d)	RfD Basis (Vehicle)	Critical Effect[a]	Uncertainty Factor; Modifying Factor[a,b]
1,1,1-TRICHLOROETHANE[c]	9.00E-02	Medium (O)	90	8.10E-02	2.86E-01	Inhalation (guinea pig)	Hepatotoxicity (guinea pig)	(O)UF=1000
1,1,2-TRICHLOROETHANE	4.00E-03	Medium (O)	81	3.24E-03		Oral, oral-water	Adverse effects in mouse livers from drinking water indicated in clinical chemistry alterations	(O)UF=1000
1,1-DICHLOROETHANE	1.00E-01	NA	100	1.00E-01	1.43E-01	Oral, inhalation (rat)	(I): Kidney damage (cat); delayed rib ossification (rats)	(O)UF=1000 (I)UF=1000
1,1-DICHLOROETHENE	9.00E-03	Medium	100	9.00E-03		Oral, oral-water	(O): Hepatic/renal effects (rat) (I): Liver function loss (human); kidney lesions (rat)	(O)UF=1000
1,2-DICHLOROETHENE	9.00E-03	NA	80	7.20E-03		Oral, oral-water	Liver lesions (rat)	(O)UF=1000
1,2-DICHLOROPROPANE		Medium (I)	74		1.14E-03	Inhalation	Nasal mucosa hyperplasia (rat)	UF=300
1,4-DICHLOROBENZENE		Medium (I)	90		2.29E-01	Oral, inhalation	(O): Central nervous system depression and liver and kidney effects (I): Liver (rats) and central nervous system (humans) effects	(I)UF=100
2,4-DIMETHYLPHENOL	2.00E-02	Low	50	1.00E-02		Oral	Clinical signs (lethargy, prostration, and ataxia) and hematological changes (mouse)	UF=3000
2,4-DINITROPHENOL	2.00E-03	Low	100	2.00E-03		Oral	Cataract formation (human)	UF=1000
2,4-DINITROTOLUENE	2.00E-03	Medium	85	1.70E-03		Oral	Neurotoxicity, Heinz bodies in blood, and biliary tract hyperplasia (dog)	UF=100
2,6-DINITROTOLUENE	1.00E-03	NA	85	8.50E-04		Oral: diet	Mortality, neurotoxicity, Heinz bodies in blood, methemoglobinemia, bile duct hyperplasia, and kidney histopathology (dog)	UF=3000

Table F.44. (continued)

Analyte	Oral Chronic RfD (mg/kg-d)	Confidence Level[a]	% GI Absorption[a]	Dermal Chronic RfD (mg/kg-d)	Inhalation Chronic RfD (mg/kg-d)	RfD Basis (Vehicle)	Critical Effect[a]	Uncertainty Factor; Modifying Factor[a,b]
2-BUTANONE	6.00E-01	NA	80	4.80E-01	2.86E-01	Oral: water (rat) Inhalation (mouse)	Decreased birth weight [rat (O) and mouse (I)]	(O)UF=3000 (I)UF=1000 (I)MF=3
4,4'-DDT	5.00E-04	NA	70	3.50E-04		Oral: diet (rat)	Liver lesions (rat)	UF=100
4-METHYL-2-PENTANONE	8.00E-02	NA	80	6.40E-02	2.29E-02	Oral: gavage (rat)	Lethargy, increased weight in female-rat liver and kidney, increase urinary protein in female (rat)	UF=3000
ACETONE	1.00E-01	Low	83	8.30E-02		Oral	Kidney nephrotoxicity and increased liver and kidney weights (rat)	(O)UF=1000
ANTIMONY	4.00E-04	Low	2	8.00E-06		Oral, oral-water	Gastrointestinal liver, cardiovascular, and developmental toxicity	(O)UF=1000
ARSENIC	3.00E-04	Medium (O)	41	1.23E-04		Oral, oral-water	Hyperpigmentation and keratosis and possible vascular complications	(O)UF=3
BARIUM	7.00E-02	Medium (O)	7	4.90E-03	1.43E-04	Oral, oral-water, inhalation	(O): Increased blood pressure (human) (I): Baritosis (human)	(O)UF=3 (I)UF=1000
BENZIDINE	3.00E-03	NA	80	2.40E-03		Oral: water	Brain and liver cellular changes (mouse)	UF=1000
BERYLLIUM	5.00E-03	Low	1	5.00E-05		Oral	Slightly decreased body weight (rat)	(O)UF=100
BIS(2-ETHYLHEXYL)-PHTHALATE	2.00E-02	Medium (O)	19	3.80E-03		Oral	Increased relative liver weight (guinea pig)	(O)UF=1000
BORON	9.00E-02	Medium (O)	90	8.10E-02	5.71E-03	Oral, inhalation	(O): Testicular atrophy and spermatogenic arrest (dog) (I): Respiratory tract irritation and bronchitis (human)	(O)UF=100 (I)UF=100
BROMODICHLOROMETHANE	2.00E-02	Medium	98	1.96E-02		Oral	Renal cytomegaly (mouse)	(O)UF=1000
BROMOFORM	2.00E-02	Medium	60	1.20E-02		Oral	Hepatic lesions (rat)	(O)UF=1000
CADMIUM (Diet/Soil)	1.00E-03	High	1	1.00E-05		Oral	Renal toxicity, osteomalacia, osteoporosis, and significant proteinuria	(O)UF=10

Table F.44. (continued)

Analyte	Oral Chronic RfD (mg/kg-d)	Confidence Level[a]	% GI Absorption[a]	Dermal Chronic RfD (mg/kg-d)	Inhalation Chronic RfD (mg/kg-d)	RfD Basis (Vehicle)	Critical Effect[a]	Uncertainty Factor; Modifying Factor[a,b]
CADMIUM (Water)	5.00E-04	High	1	5.00E-06		Oral, oral-water	Renal toxicity, osteomalacia, osteoporosis, and significant proteinuria	(O)UF=10
CARBON TETRACHLORIDE	7.00E-04	Medium	65	4.55E-04		Oral	Liver lesions (rat)	(O)UF=1000
CHLOROBENZENE	2.00E-02	Medium (O)	31	6.20E-03	5.71E-03	Oral, inhalation	(O): Liver histopathologic changes (dog) (I): Liver and kidney effects (rat)	(O)UF=1000 (I)UF=10,000
CHLOROFORM	1.00E-02	Medium (O)	20	2.00E-03		Oral	Liver fatty cyst formation (dog)	(O)UF=1000
CHROMIUM[d]	5.00E-03	Low (O)	2	1.00E-04		Oral	(O): Local gastrointestinal effects at very high doses (animals) (I): Respiratory effects (human)	UF=500
CIS-1,2-DICHLOROETHENE	1.00E-02	NA	100	1.00E-02		Oral: gavage (rat)	Decreased hematocrit and hemoglobin (rat)	UF=3000
DI-N-OCTYLPHTHALATE	2.00E-02	NA	90	1.80E-02		NA	NA	UF=1000
DIBROMOCHLOROMETHANE	2.00E-02	Medium	60	1.20E-02		Oral	Hepatic lesions (rat)	UF=1000
FLUORIDE	6.00E-02	High	97	5.82E-02		Oral, oral-water	Objectionable dental fluorosis	UF=1
FREON[e]	3.00E+01	Low (O)	80	2.40E+01	8.57E+00	Oral, inhalation	(I): Decreased weight (rat)	(O)UF=10 (I)UF=100
MANGANESE (Diet)	1.40E-01	Medium	4	5.60E-03	1.43E-05	Oral: diet, inhalation	(O): Lethargy, tremors, mental disturbance, muscle tonus, and central nervous system effects (I): Impaired neurobehavioral function (human)	(O)UF=1 (I)UF=1000
MANGANESE (Water/Soil)	1.40E-01[f]	NA	4	5.60E-03	1.43E-05	Oral: water, inhalation	(O): Lethargy, tremors, mental disturbance, muscle tonus, and central nervous system effects (I): Impaired neurobehavioral function (human)	(O)UF=1 (O)MF=3 (I)UF=1000

Table F.44. (continued)

Analyte	Oral Chronic RfD (mg/kg-d)	Confidence Level[a]	% GI Absorption[a]	Dermal Chronic RfD (mg/kg-d)	Inhalation Chronic RfD (mg/kg-d)	RfD Basis (Vehicle)	Critical Effect[a]	Uncertainty Factor; Modifying Factor[a,b]
MERCURIC CHLORIDE	3.00E-04	NA	20	6.00E-05		Oral: parenteral (rat)	Kidney autoimmune effects (rat)	UF=1000
MERCURY[g]	3.00E-04	NA	7	2.10E-05	8.57E-05	Oral, inhalation (human)	(O): Kidney effects (rat); central nervous system, gastrointestinal and kidney effects (human) (I): Neurotoxicity (human)	(O)UF=1000 (I)UF=30
METHYLENE CHLORIDE	6.00E-02	Medium (O)	95	5.70E-02	8.57E-01	Oral, oral-water, inhalation	(O): Liver toxicity (rat) (I): Liver toxicity (rat)	(O)UF=100 (I)UF=100
MOLYBDENUM	5.00E-03	Medium	38	1.90E-03		Oral: water, diet	Increased uric acid level, decreased blood copper levels (human)	(O)UF=30
NICKEL	2.00E-02	Medium	27	5.40E-03		Oral: diet (rat)	Decreased body and major organ weights (rat)	UF=100 MF=3
NITRATE (AS N)	1.60E+00	High	50	8.00E-01		Oral, oral-water	(O): Methemoglobinemia and vasodilatation (human)	UF=1
NITRITE (AS N)	1.00E-01	High	50	5.00E-02		Oral	Methemoglobinemia (human)	UF=1 MF=10
PCB-1254	2.00E-05	NA	90	1.80E-05		Oral: capsule (monkey)	Immune system toxicity (monkey)	UF=300
PENTACHLOROBENZENE	8.00E-04	Low	50	4.00E-04		Oral	(O): Liver and kidney toxicity (rat)	UF=10,000
PENTACHLOROPHENOL	3.00E-02	Medium	100	3.00E-02		Oral	(O): Liver and kidney pathology (rat)	(O)UF=100
SELENIUM	5.00E-03	High	44	2.20E-03		Oral	Clinical selenosis (human)	(O)UF=3
SILVER	5.00E-03	Low	18	9.00E-04		Oral	Argyria	(O)UF=3
STRONTIUM	6.00E-01	Medium	20	1.20E-01		Oral: water (young rat)	Rachitic changes in bone (young rat)	UF=300
TETRACHLOROETHENE	1.00E-02	Medium	100	1.00E-02		Oral	Hepatotoxicity (mouse) Weight gain (rat)	(O)UF=1000
TOLUENE	2.00E-01	Medium (O)	80	1.60E-01	1.14E-01	Oral, inhalation	(O): Altered liver and kidney weights (rat) (I): Neurological effects	(O)UF=1000 (I)UF=300
TOTAL URANIUM	3.00E-03	Medium	85	2.55E-03		Oral	Initial body weight loss and moderate nephrotoxicity (rabbit)	UF=NA
TRANS-1,2-DICHLOROETHENE	2.00E-02	Low (O)	100	2.00E-02		Oral, oral-water	Increased serum alkaline phosphatase (mouse)	(O)UF=1000

Table F.44. (continued)

Analyte	Oral Chronic RfD (mg/kg-d)	Confidence Level[e]	% GI Absorption[a]	Dermal Chronic RfD (mg/kg-d)	Inhalation Chronic RfD (mg/kg-d)	RfD Basis (Vehicle)	Critical Effect[e]	Uncertainty Factor; Modifying Factor[e,b]
TRICHLOROETHANE	4.00E-03	Medium (O)	81	3.24E-03		Oral: water (mice)	Clinical chemistry alterations indicate adverse effects in liver (mice)	(O)UF=1000
TRICHLOROFLUOROMETHANE	3.00E-01	Medium (O)	23	6.90E-02	2.00E-01	Oral, inhalation	(O): Survival histopathology (rat, mouse) (I): Lung inflammation and increased kidney problems (dog)	(O)UF=1000 (I)UF=10,000
VANADIUM	7.00E-03	NA	1	7.00E-05		Oral, oral-water (rat)	Reduced pup weight (rat) (O) Renal, hemoglobin, and hematocrit effects (animals)	UF=100
ZINC	3.00E-01	Medium	20	6.00E-02		Oral	(O): Copper deficiency and hypochromic microcyctic anemia (human) (I): Pulmonary and gastrointestinal effects (human)	UF=10

NA = Not Available; MF = Modifying Factor; UF = Uncertainty Factor

[e] (I) indicates inhalation; (O) indicates oral.

[a] GI% absorption default values of 20, 50, or 80 were used in accordance with EPA (1995a); other chemical-specific GI% absorption values were taken from Energy Systems (1996b).

[b] The default MF is 1.

[c] EPA-withdrawn toxicity values were used.

[d] Toxicity values for chromium VI were used.

[e] 1,1,2-trichloro-1,2,2-trifluoroethane

[f] Refer to Sect. F.5.6 of this BHHRA for discussion of the uncertainty/change in this toxicity value.

[g] For soil- and water-type media, toxicity values for mercury inorganic salts were used. For the fish fillet medium, the oral RfD for methylmercury (1.00E-04 mg/kg-d) was used.

Table F.45. Nonradionuclide carcinogenic slope factors

Analyte	Oral Slope Factor	% GI Absorption[a]	Dermal Slope Factor	Inhalation Slope Factor	EPA Class	TEF[b]	Type of Cancer
1,1,2,2-TETRACHLOROETHANE	2.00E-01	70	2.86E-01	2.00E-01	C		Liver tumors
1,1,2-TRICHLOROETHANE	5.70E-02	81	7.04E-02	5.70E-02	C		Liver tumors
1,1-DICHLOROETHENE	6.00E-01	100	6.00E-01	1.20E+00	C		Kidney adenocarcinoma (mouse)
1,2-DICHLOROETHANE	9.10E-02	100	9.10E-02	9.10E-02	B2		Circulatory system sarcoma (rat)
1,2-DICHLOROPROPANE	6.80E-02	74	9.19E-02		B2		Liver tumors (mouse)
1,4-DICHLOROBENZENE	2.40E-02	90	2.67E-02		C		Liver tumors (mouse)
1,4-DIOXANE	1.10E-02	80	1.38E-02		B2		Nasal turbinates squamous cell carcinoma (rat)
2,3,7,8-TCDD	1.50E+05	50	3.00E+05	1.50E+05	B2		Respiratory system and liver tumors (rat)
2,4-DINITROTOLUENE	6.80E-01	85	8.00E-01		B2		Liver and mammary tumors (rat)
2,6-DINITROTOLUENE	6.80E-01	85	8.00E-01		B2		Liver and mammary tumors (rat)
4,4'-DDT	3.40E-01	70	4.86E-01	3.40E-01	B2		Liver tumors (mouse, rat)
ARSENIC	1.50E+00	41	3.66E+00	5.00E+01	A		Respiratory system tumors
BENZENE	2.90E-02	97	2.99E-02	2.90E-02	A		Pulmonary tissue edema and leukemia
BENZIDINE	2.30E+02	80	2.88E+02	2.30E+02	A		Bladder tumors
BENZO(A)ANTHRACENE	7.30E-01	31	2.35E+00	3.10E-01	B2	0.1	Stomach tumors (mouse)
BENZO(A)PYRENE	7.30E+00	31	2.35E+01	3.10E+00	B2		Stomach, nasal cavity, larynx, trachea, and pharynx tumors
BENZO(B)FLUORANTHENE	7.30E-01	31	2.35E+00	3.10E-01	B2	0.1	Tumors

Table F.45. (continued)

Analyte	Oral Slope Factor	% GI Absorption[a]	Dermal Slope Factor	Inhalation Slope Factor	EPA Class	TEF[b]	Type of Cancer
BENZO(K)FLUORANTHENE	7.30E-02	31	2.35E-01	3.10E-02	B2	0.01	Skin and lung tumors (mice)
BERYLLIUM	4.30E+00	1	4.30E+02	8.40E+00	B2		Breast, bone, uterus, and lung tumors
BIS(2-ETHYLHEXYL)PHTHALATE	1.40E-02	19	7.37E-02		B2		Liver neoplastic nodule and hepatocellular carcinoma
BROMODICHLOROMETHANE	6.20E-02	98	6.33E-02		B2		Kidney tumors (rat)
BROMOFORM	7.90E-03	60	1.32E-02	3.90E-03	B2		Large intestine adenomatous polyp and adenocarcinoma (rat)
CADMIUM (Diet/Soil)		1		6.10E+00	B1		Respiratory tract and lung tumors
CADMIUM (Water)		1		6.10E+00	B1		Respiratory tract and lung tumors
CARBON TETRACHLORIDE	1.30E-01	65	2.00E-01	5.30E-02	B2		Liver tumors
CHLOROFORM	6.10E-03	20	3.05E-02	8.10E-02	B2		Colon, rectum, bladder, and liver carcinoma (mouse)
CHLOROMETHANE	1.30E-02	80	1.63E-02	6.30E-03	C		Severe mucous membrane irritation, liver and kidney damage, and lung edema
CHROMIUM[c]		2		4.10E+01	A		Lung tumors
CHRYSENE	7.30E-03	31	2.35E-02	3.10E-03	B2	0.001	Carcinomas and malignant lymphomas (rats)
DIBENZO(A,H)ANTHRACENE	7.30E+00	31	2.35E+01	3.10E+00	B2	1.0	Immunodepressive effects (mouse)
DIBROMOCHLOROMETHANE	8.40E-02	60	1.40E-01		B2		Hepatocellular adenoma and carcinoma (rat)

Table F.45. (continued)

Analyte	Oral Slope Factor	% GI Absorption[a]	Dermal Slope Factor	Inhalation Slope Factor	EPA Class	TEF[b]	Type of Cancer
HEXACHLORODIBENZO-P-DIOXINS	6.20E+03	50	1.24E+04	4.55E+03	B2		Liver tumors (mouse, rat)
INDENO(1,2,3-CD)PYRENE	7.30E-01	31	2.35E+00	3.10E-01	B2	0.1	Tumors
METHYLENE CHLORIDE	7.50E-03	95	7.89E-03	1.65E-03	B2		Liver hepatocellular carcinoma and neoplastic nodule (rat)
PCB-1232[d]	7.70E+00	90	8.56E+00		B2		Trabecular carcinoma, adenocarcinoma, and neoplastic nodule (rat)
PCB-1248[d]	7.70E+00	90	8.56E+00		B2		Trabecular carcinoma, adenocarcinoma, and neoplastic nodule (rat)
PCB-1260[d]	7.70E+00	90	8.56E+00		B2		Trabecular carcinoma, adenocarcinoma, and neoplastic nodule (rat)
PENTACHLOROPHENOL	1.20E-01	100	1.20E-01		B2		Chloracne, aplastic anemia, Hodgkin's disease, and acute leukemia
POLYCHLORINATED BIPHENYL	7.70E+00	90	8.56E+00		B2		Hepatocellular and hemangiosarcoma tumors (mouse)
TETRACHLORODIBENZO-P-DIOXINS	1.50E+05	50	3.00E+05	1.50E+05	B2		Thyroid adenomas (rats); hepatocellular carcinomas (mice)
TETRACHLOROETHENE[c]	5.20E-02	100	5.20E-02	2.00E-03	NA		Liver cancer and leukemia
TRICHLOROETHANE	5.70E-02	81	7.04E-02	5.70E-02	C		Liver and lung cancer (rats and mice)

Table F.45. (continued)

Analyte	Oral Slope Factor	% GI Absorption[a]	Dermal Slope Factor	Inhalation Slope Factor	EPA Class	TEF[b]	Type of Cancer
TRICHLOROETHENE[e]	1.10E-02	15	7.33E-02	6.00E-03	NA		Lung adenocarcinoma and adenoma
VINYL CHLORIDE	1.90E+00	100	1.90E+00	3.00E-01	A		Liver, lung, brain hematopoietic system, and digestive tract tumors

[a] GI% absorption default values of 20, 50, or 80 were used in accordance with EPA (1995a); other chemical-specific GI% absorption values were taken from Energy Systems (1996b).
[b] Toxicity Equivalence Factor (TEF) based on the relative potency of each compound relative to that of benzo(a)pyrene (EPA 1995a).
[c] Toxicity values for chromium (VI) were used.
[d] Toxicity values for polychlorinated biphenyls were used.
[e] EPA-withdrawn toxicity values were used.

Table F.46. Radionuclide carcinogenic slope factors

Analyte	ICRP Lung Class	Ingestion Slope Factor	Inhalation Slope Factor	External Exposure Slope Factor	EPA Class	Type of Cancer
AMERICIUM-241	W	3.28E-10	3.85E-08	4.59E-09	A	various
CESIUM-137[a]	D	3.16E-11	1.91E-11	2.09E-06	A	various
COBALT-60	Y	1.89E-11	6.88E-11	9.76E-06	A	various
CURIUM-243[a]	W	2.52E-10	2.90E-08	1.72E-07	A	various
LEAD-212	D	1.80E-11	3.85E-11	3.00E-07	A	various
NEPTUNIUM-237[a]	W	3.00E-10	3.45E-08	4.62E-07	A	various
PLUTONIUM-238	Y	2.95E-10	2.74E-08	1.94E-11	A	various
PLUTONIUM-239/240[b]	Y	3.15E-10	2.78E-08	1.87E-11	A	various
POTASSIUM-40	D	1.25E-11	7.46E-12	6.11E-07	A	various
RADIUM (TOTAL ALPHA)[c]	W	2.96E-10	2.75E-09	6.74E-06	A	various
RADIUM-228[a]	W	2.48E-10	9.94E-10	3.28E-06	A	various
RUTHENIUM-106[a]	Y	3.45E-11	1.15E-10	7.57E-07	A	various
STRONTIUM-90[a]	D	5.59E-11	6.93E-11	0.00E+00	A	various
TECHNETIUM-99	W	1.40E-12	2.89E-12	6.19E-13	A	various
THALLIUM-208	D	1.75E-14	1.36E-14	1.45E-05	A	various
THORIUM-228[a]	Y	2.31E-10	9.68E-08	9.94E-07	A	various
THORIUM-230	Y	3.75E-11	1.72E-08	4.40E-11	A	various
THORIUM-232	Y	3.28E-11	1.93E-08	1.97E-11	A	various
TRITIUM	*[d]	7.15E-14	9.59E-14	0.00E+00	A	various
URANIUM-233/234[e]	Y	4.44E-11	1.40E-08	2.14E-11	A	various
URANIUM-234	Y	4.44E-11	1.40E-08	2.14E-11	A	various
URANIUM-235[a]	Y	4.70E-11	1.30E-08	2.65E-07	A	various
URANIUM-238[a]	Y	6.20E-11	1.24E-08	5.25e-08	A	various

[a] +D slope factors used; +D SFs (slope factors) include contributions from short-lived daughter products.
[b] Slope factors for ^{240}Pu were used.
[c] Slope factors for ^{226}Ra (+D) were used.
[d] * = gas
[e] Slope factors for ^{234}U were used.

Table F.47a. Bear Creek Valley maintenance worker carcinogenic risks
Area: S-3 PONDS

Medium=SOIL (1-9)

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
ARSENIC	18/18	7.22E+00	mg/kg	2.7E-07	8.5E-10	4.2E-08		3.2E-07
PCB-1260	3/18	3.72E-02	mg/kg	7.2E-09		5.1E-09		1.2E-08
NEPTUNIUM-237	5/18	4.22E-02	pCi/g	5.7E-10	6.1E-12		1.3E-08	1.3E-08
URANIUM-235	9/18	1.85E-01	pCi/g	3.9E-10	1.0E-11		3.2E-08	3.3E-08
URANIUM-238	18/18	1.47E+01	pCi/g	4.1E-08	7.7E-10		5.1E-07	5.5E-07
Total Pathway Risk				3.2E-07	1.6E-09	4.7E-08	5.5E-07	9.2E-07

Medium=SOIL (10)

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
PCB-1248	2/2	1.40E-01	mg/kg	2.7E-08		1.9E-08		4.6E-08
PCB-1260	2/2	2.10E-01	mg/kg	4.1E-08		2.9E-08		6.9E-08
URANIUM-238	2/2	2.90E+00	pCi/g	8.1E-09	1.5E-10		1.0E-07	1.1E-07
Total Pathway Risk				7.6E-08	1.5E-10	4.8E-08	1.0E-07	2.2E-07

Table F.47b. Bear Creek Valley maintenance worker noncarcinogenic hazard quotients
Area: S-3 PONDS

Medium=SOIL (1-9)

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
ARSENIC	18/18	7.22E+00	mg/kg	1.7E-03		2.6E-04	2.0E-03
MERCURY	15/18	2.65E+01	mg/kg	6.2E-03	2.0E-06	5.6E-03	1.2E-02
VANADIUM	18/18	4.10E+01	mg/kg	4.1E-04		2.6E-03	3.0E-03
PCB-1254	10/18	9.12E-02	mg/kg	3.2E-04		2.3E-04	5.5E-04
Total Pathway Hazard Index				8.6E-03	2.0E-06	8.7E-03	1.7E-02

Medium=SOIL (10)

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
MERCURY	2/2	1.07E+01	mg/kg	2.5E-03	8.2E-07	2.3E-03	4.8E-03
PCB-1254	2/2	1.90E-01	mg/kg	6.7E-04		4.7E-04	1.1E-03
Total Pathway Hazard Index				3.2E-03	8.2E-07	2.7E-03	5.9E-03

Table F.47c. Bear Creek Valley maintenance worker chemicals of concern
Area: S-3 PONDS

Medium=SOIL (1-9 and 10)

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion	Inhalation	Dermal	External Exposure	Across All Pathways
NONE								

Table F.48a. Bear Creek Valley maintenance worker carcinogenic risks
Area: OIL LANDFARM

Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
ARSENIC	8/8	1.13E+01	mg/kg	4.3E-07	1.3E-09	6.6E-08		4.9E-07
PCB-1260	3/8	1.16E-01	mg/kg	2.2E-08		1.6E-08		3.8E-08
COBALT-60	4/8	1.54E+00	pCi/g	1.3E-09	4.5E-13		9.9E-06	9.9E-06
LEAD-212	1/8	2.60E+00	pCi/g	2.1E-09	4.2E-13		5.1E-07	5.2E-07
THALLIUM-208	1/8	4.60E+00	pCi/g	3.6E-12	2.6E-16		4.4E-05	4.4E-05
URANIUM-235	2/8	1.35E-01	pCi/g	2.9E-10	7.4E-12		2.3E-08	2.4E-08
URANIUM-238	8/8	1.94E+00	pCi/g	5.4E-09	1.0E-10		6.7E-08	7.2E-08
Total Pathway Risk				4.6E-07	1.4E-09	8.1E-08	5.4E-05	5.5E-05

Table F.48b. Bear Creek Valley maintenance worker noncarcinogenic hazard quotients
Area: OIL LANDFARM

Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
ARSENIC	8/8	1.13E+01	mg/kg	2.6E-03		4.1E-04	3.1E-03
Total Pathway Hazard Index				2.6E-03		4.1E-04	3.1E-03

Table F.48c. Bear Creek Valley maintenance worker chemicals of concern
Area: OIL LANDFARM

Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion	Inhalation	Dermal	External Exposure	Across All Pathways
NONE								

Table F.49a. Bear Creek Valley maintenance worker carcinogenic risks
Area: SANITARY LANDFILL 1

Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
BENZO(A)ANTHRACENE	3/5	3.65E+00	mg/kg	6.7E-08	2.7E-12	1.4E-07		2.0E-07
BENZO(A)PYRENE	3/5	2.70E+00	mg/kg	5.0E-07	2.0E-11	1.0E-06		1.5E-06
BENZO(B)FLUORANTHENE	3/5	3.70E+00	mg/kg	6.8E-08	2.7E-12	1.4E-07		2.1E-07
DIBENZO(A,H)ANTHRACENE	1/5	7.08E-01	mg/kg	1.3E-07	5.2E-12	2.7E-07		4.0E-07
INDENO(1,2,3-CD)PYRENE	3/5	9.95E-01	mg/kg	1.8E-08	7.2E-13	3.7E-08		5.6E-08
PCB-1232	1/5	8.22E-01	mg/kg	1.6E-07		1.1E-07		2.7E-07
PCB-1260	1/4	8.57E-02	mg/kg	1.7E-08		1.2E-08		2.8E-08
COBALT-60	1/5	1.30E+00	pCi/g	1.1E-09	3.8E-13		8.3E-06	8.3E-06
URANIUM-235	4/5	4.84E-01	pCi/g	1.0E-09	2.6E-11		8.4E-08	8.5E-08
URANIUM-238	5/5	1.55E+01	pCi/g	4.3E-08	8.1E-10		5.4E-07	5.8E-07
Total Pathway Risk				1.0E-06	8.7E-10	1.7E-06	9.0E-06	1.2E-05

Table F.49b. Bear Creek Valley maintenance worker noncarcinogenic hazard quotients
Area: SANITARY LANDFILL 1

Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
MERCURY	5/5	2.68E+01	mg/kg	6.3E-03	2.1E-06	5.7E-03	1.2E-02
PCB-1254	2/5	1.21E+00	mg/kg	4.3E-03		3.0E-03	7.2E-03
Total Pathway Hazard Index				1.1E-02	2.1E-06	8.7E-03	1.9E-02

Table F.49c. Bear Creek Valley maintenance worker chemicals of concern
Area: SANITARY LANDFILL 1

Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion	Inhalation	Dermal	External Exposure	Across All Pathways
NONE								

Table F.50a. Bear Creek Valley maintenance worker carcinogenic risks
Area: BONEYARD/BURNYARD

Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
ARSENIC	15/15	2.16E+01	mg/kg	8.2E-07	2.5E-09	1.3E-07		9.4E-07
BERYLLIUM	14/15	1.70E+00	mg/kg	1.8E-07	3.4E-11	1.2E-06		1.3E-06
CADMIUM	11/15	2.75E+01	mg/kg		3.9E-10			3.9E-10
CHROMIUM	15/15	8.10E+01	mg/kg		7.8E-09			7.8E-09
2,3,7,8-TCDD	2/3	7.72E-06	mg/kg	2.9E-08	2.7E-12	3.7E-08		6.6E-08
BENZO(A)ANTHRACENE	14/14	6.85E+01	mg/kg	1.3E-06	5.0E-11	2.6E-06		3.8E-06
BENZO(A)PYRENE	14/14	4.60E+01	mg/kg	8.4E-06	3.3E-10	1.7E-05		2.6E-05
BENZO(B)FLUORANTHENE	14/14	5.97E+01	mg/kg	1.1E-06	4.3E-11	2.2E-06		3.3E-06
BENZO(K)FLUORANTHENE	14/14	3.97E+01	mg/kg	7.3E-08	2.9E-12	1.5E-07		2.2E-07
CHRYSENE	14/14	6.86E+01	mg/kg	1.3E-08	5.0E-13	2.6E-08		3.8E-08
DIBENZO(A,H)ANTHRACENE	13/14	3.37E+00	mg/kg	6.2E-07	2.5E-11	1.3E-06		1.9E-06
INDENO(1,2,3-CD)PYRENE	14/14	2.17E+01	mg/kg	4.0E-07	1.6E-11	8.1E-07		1.2E-06
PCB-1260	3/10	5.29E-01	mg/kg	1.0E-07		7.2E-08		1.7E-07
URANIUM-234	17/17	2.60E+02	pCi/g	5.2E-07	1.5E-08		3.7E-09	5.4E-07
URANIUM-235	15/17	8.62E+00	pCi/g	1.8E-08	4.7E-10		1.5E-06	1.5E-06
URANIUM-238	17/17	5.27E+02	pCi/g	1.5E-06	2.7E-08		1.8E-05	2.0E-05
Total Pathway Risk				1.5E-05	5.4E-08	2.6E-05	2.0E-05	6.0E-05

Medium=SOIL (hot spot)

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
CHROMIUM	1/1	8.35E+01	mg/kg		8.0E-09			8.0E-09
URANIUM-235	1/1	7.36E+02	pCi/g	1.6E-06	4.0E-08		1.3E-04	1.3E-04
URANIUM-238	1/1	4.76E+04	pCi/g	1.3E-04	2.5E-06		1.6E-03	1.8E-03
Total Pathway Risk				1.3E-04	2.5E-06		1.8E-03	1.9E-03

Table F.50b. Bear Creek Valley maintenance worker noncarcinogenic hazard quotients
Area: BONEYARD/BURNYARD

Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
ANTIMONY	12/12	2.95E+02	mg/kg	5.2E-02		1.6E-01	2.2E-01
ARSENIC	15/15	2.16E+01	mg/kg	5.1E-03		7.8E-04	5.9E-03
BARIUM	15/15	4.53E+02	mg/kg	4.6E-04	2.1E-05	4.1E-04	8.9E-04
BERYLLIUM	14/15	1.70E+00	mg/kg	2.4E-05		1.5E-04	1.8E-04
CADMIUM	11/15	2.75E+01	mg/kg	1.9E-03		1.2E-02	1.4E-02
CHROMIUM	15/15	8.10E+01	mg/kg	1.1E-03		3.6E-03	4.7E-03
MANGANESE	15/15	1.56E+03	mg/kg	7.8E-04	7.2E-04	1.2E-03	2.7E-03
MERCURY	15/15	4.32E+01	mg/kg	1.0E-02	3.3E-06	9.2E-03	1.9E-02
MOLYBDENUM	3/11	2.42E+01	mg/kg	3.4E-04		5.7E-05	4.0E-04
NICKEL	15/15	1.57E+03	mg/kg	5.5E-03		1.3E-03	6.8E-03
SELENIUM	4/13	3.67E+00	mg/kg	5.2E-05		7.4E-06	5.9E-05
SILVER	14/15	4.54E+01	mg/kg	6.4E-04		2.2E-04	8.6E-04
ZINC	15/15	4.38E+03	mg/kg	1.0E-03		3.3E-04	1.4E-03
PCB-1254	11/11	3.48E+00	mg/kg	1.2E-02		8.6E-03	2.1E-02
Total Pathway Hazard Index				9.1E-02	7.4E-04	2.0E-01	2.9E-01

Medium=SOIL (hot spot)

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
CHROMIUM	1/1	8.35E+01	mg/kg	1.2E-03		3.7E-03	4.9E-03
SILVER	1/1	1.08E+02	mg/kg	1.5E-03		5.3E-04	2.1E-03
Total Pathway Hazard Index				2.7E-03		4.3E-03	7.0E-03

Table F.50c. Bear Creek Valley maintenance worker chemicals of concern
Area: BONEYARD/BURNYARD

Medium=SOIL (hot spot)

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion	Inhalation	Dermal	External Exposure	Across All Pathways
URANIUM-235	1/1	7.36E+02	pCi/g	R			R	R
URANIUM-238	1/1	4.76E+04	pCi/g	R	R		R	R
Pathway of Concern				R			R	

Table F.51a. Bear Creek Valley maintenance worker carcinogenic risks
Area: BURIAL GROUNDS

Location=A-16 Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
PCB-1248	1/2	4.00E-01	mg/kg	7.7E-08		5.4E-08		1.3E-07
THALLIUM-208	1/2	3.70E+00	pCi/g	2.9E-12	2.1E-16		3.5E-05	3.5E-05
Total Pathway Risk				7.7E-08	2.1E-16	5.4E-08	3.5E-05	3.5E-05

Location=A-17 Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
PCB-1248	1/2	4.00E-01	mg/kg	7.7E-08		5.4E-08		1.3E-07
THALLIUM-208	1/2	3.70E+00	pCi/g	2.9E-12	2.1E-16		3.5E-05	3.5E-05
Total Pathway Risk				7.7E-08	2.1E-16	5.4E-08	3.5E-05	3.5E-05

Location=A-18 Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
PCB-1248	1/2	4.00E-01	mg/kg	7.7E-08		5.4E-08		1.3E-07
THALLIUM-208	1/2	3.70E+00	pCi/g	2.9E-12	2.1E-16		3.5E-05	3.5E-05
Total Pathway Risk				7.7E-08	2.1E-16	5.4E-08	3.5E-05	3.5E-05

Location=A-NORTH Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
VINYL CHLORIDE	1/9	6.00E-03	mg/kg	2.9E-10	2.1E-06	1.8E-10		2.1E-06
Total Pathway Risk				2.9E-10	2.1E-06	1.8E-10		2.1E-06

Location=A-SOUTH Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
URANIUM-238	7/7	1.57E+00	pCi/g	4.4E-09	8.2E-11		5.4E-08	5.9E-08
Total Pathway Risk				4.4E-09	8.2E-11		5.4E-08	5.9E-08

Table F.51a. Bear Creek Valley maintenance worker carcinogenic risks
Area: BURIAL GROUNDS

Location=B Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
ARSENIC	4/4	2.75E+01	mg/kg	1.0E-06	3.2E-09	1.6E-07		1.2E-06
PCB-1260	1/4	3.02E+01	mg/kg	5.8E-06		4.1E-06		1.0E-05
URANIUM-238	4/4	9.26E+00	pCi/g	2.6E-08	4.8E-10		3.2E-07	3.5E-07
Total Pathway Risk				6.9E-06	3.7E-09	4.3E-06	3.2E-07	1.2E-05

Location=C-EAST Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
ARSENIC	2/2	3.94E+01	mg/kg	1.5E-06	4.6E-09	2.3E-07		1.7E-06
BERYLLIUM	2/2	4.80E+00	mg/kg	5.2E-07	9.5E-11	3.3E-06		3.8E-06
URANIUM-238	2/2	3.60E+01	pCi/g	1.0E-07	1.9E-09		1.2E-06	1.3E-06
Total Pathway Risk				2.1E-06	6.6E-09	3.5E-06	1.2E-06	6.9E-06

Location=C-WEST Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
ARSENIC	10/10	2.48E+01	mg/kg	9.3E-07	2.9E-09	1.4E-07		1.1E-06
PCB-1260	1/9	4.20E-01	mg/kg	8.1E-08		5.7E-08		1.4E-07
COBALT-60	1/10	1.20E+00	pCi/g	1.0E-09	3.5E-13		7.7E-06	7.7E-06
URANIUM-238	10/10	1.46E+01	pCi/g	4.1E-08	7.6E-10		5.0E-07	5.5E-07
Total Pathway Risk				1.1E-06	3.7E-09	2.0E-07	8.2E-06	9.5E-06

Location=D-EAST Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
ARSENIC	2/2	3.94E+01	mg/kg	1.5E-06	4.6E-09	2.3E-07		1.7E-06
BERYLLIUM	2/2	4.80E+00	mg/kg	5.2E-07	9.5E-11	3.3E-06		3.8E-06
URANIUM-238	2/2	3.60E+01	pCi/g	1.0E-07	1.9E-09		1.2E-06	1.3E-06
Total Pathway Risk				2.1E-06	6.6E-09	3.5E-06	1.2E-06	6.9E-06

Table F.51a. Bear Creek Valley maintenance worker carcinogenic risks
Area: BURIAL GROUNDS

Location=D-EAST Medium=SOIL (hot spot)

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
BERYLLIUM	1/1	5.90E-01	mg/kg	6.4E-08	1.2E-11	4.0E-07		4.7E-07
URANIUM-234	1/1	1.54E+05	pCi/g	3.1E-04	9.1E-06		2.2E-06	3.2E-04
URANIUM-235	1/1	2.56E+03	pCi/g	5.4E-06	1.4E-07		4.5E-04	4.5E-04
URANIUM-238	1/1	2.09E+05	pCi/g	5.8E-04	1.1E-05		7.2E-03	7.8E-03
Total Pathway Risk				9.0E-04	2.0E-05	4.0E-07	7.7E-03	8.6E-03

Location=D-SOUTH Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
ARSENIC	4/4	2.75E+01	mg/kg	1.0E-06	3.2E-09	1.6E-07		1.2E-06
PCB-1260	1/4	3.02E+01	mg/kg	5.8E-06		4.1E-06		1.0E-05
URANIUM-238	4/4	9.26E+00	pCi/g	2.6E-08	4.8E-10		3.2E-07	3.5E-07
Total Pathway Risk				6.9E-06	3.7E-09	4.3E-06	3.2E-07	1.2E-05

Location=WIP-NORTH Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
ARSENIC	4/4	2.75E+01	mg/kg	1.0E-06	3.2E-09	1.6E-07		1.2E-06
PCB-1260	1/4	3.02E+01	mg/kg	5.8E-06		4.1E-06		1.0E-05
URANIUM-238	4/4	9.26E+00	pCi/g	2.6E-08	4.8E-10		3.2E-07	3.5E-07
Total Pathway Risk				6.9E-06	3.7E-09	4.3E-06	3.2E-07	1.2E-05

Location=WIP-SOUTH Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
ARSENIC	4/4	2.75E+01	mg/kg	1.0E-06	3.2E-09	1.6E-07		1.2E-06
PCB-1260	1/4	3.02E+01	mg/kg	5.8E-06		4.1E-06		1.0E-05
URANIUM-238	4/4	9.26E+00	pCi/g	2.6E-08	4.8E-10		3.2E-07	3.5E-07
Total Pathway Risk				6.9E-06	3.7E-09	4.3E-06	3.2E-07	1.2E-05

Table F.51b. Bear Creek Valley maintenance worker noncarcinogenic hazard quotients
Area: BURIAL GROUNDS

Location=A-16 Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
PCB-1254	2/2	3.70E-01	mg/kg	1.3E-03		9.2E-04	2.2E-03
Total Pathway Hazard Index				1.3E-03		9.2E-04	2.2E-03

Location=A-17 Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
PCB-1254	2/2	3.70E-01	mg/kg	1.3E-03		9.2E-04	2.2E-03
Total Pathway Hazard Index				1.3E-03		9.2E-04	2.2E-03

Location=A-18 Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
PCB-1254	2/2	3.70E-01	mg/kg	1.3E-03		9.2E-04	2.2E-03
Total Pathway Hazard Index				1.3E-03		9.2E-04	2.2E-03

Location=B Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
ARSENIC	4/4	2.75E+01	mg/kg	6.5E-03		1.0E-03	7.5E-03
PCB-1254	2/4	8.39E+00	mg/kg	3.0E-02		2.1E-02	5.0E-02
Total Pathway Hazard Index				3.6E-02		2.2E-02	5.8E-02

Location=C-EAST Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
ARSENIC	2/2	3.94E+01	mg/kg	9.3E-03		1.4E-03	1.1E-02
BERYLLIUM	2/2	4.80E+00	mg/kg	6.8E-05		4.3E-04	5.0E-04
VANADIUM	2/2	6.88E+01	mg/kg	6.9E-04		4.4E-03	5.1E-03
Total Pathway Hazard Index				1.0E-02		6.2E-03	1.6E-02

Table F.51b. Bear Creek Valley maintenance worker noncarcinogenic hazard quotients
Area: BURIAL GROUNDS

Location=C-WEST Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
ARSENIC	10/10	2.48E+01	mg/kg	5.8E-03		9.0E-04	6.7E-03
NICKEL	10/10	6.87E+01	mg/kg	2.4E-04		5.7E-05	3.0E-04
PCB-1254	1/9	1.33E-01	mg/kg	4.7E-04		3.3E-04	8.0E-04
Total Pathway Hazard Index				6.5E-03		1.3E-03	7.8E-03

Location=D-EAST Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
ARSENIC	2/2	3.94E+01	mg/kg	9.3E-03		1.4E-03	1.1E-02
BERYLLIUM	2/2	4.80E+00	mg/kg	6.8E-05		4.3E-04	5.0E-04
VANADIUM	2/2	6.88E+01	mg/kg	6.9E-04		4.4E-03	5.1E-03
Total Pathway Hazard Index				1.0E-02		6.2E-03	1.6E-02

Location=D-EAST Medium=SOIL (hot spot)

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
BERYLLIUM	1/1	5.90E-01	mg/kg	8.3E-06		5.3E-05	6.1E-05
Total Pathway Hazard Index				8.3E-06		5.3E-05	6.1E-05

Location=D-SOUTH Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
ARSENIC	4/4	2.75E+01	mg/kg	6.5E-03		1.0E-03	7.5E-03
PCB-1254	2/4	8.39E+00	mg/kg	3.0E-02		2.1E-02	5.0E-02
Total Pathway Hazard Index				3.6E-02		2.2E-02	5.8E-02

Location=WIP-NORTH Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
ARSENIC	4/4	2.75E+01	mg/kg	6.5E-03		1.0E-03	7.5E-03
PCB-1254	2/4	8.39E+00	mg/kg	3.0E-02		2.1E-02	5.0E-02

Table F.51b. Bear Creek Valley maintenance worker noncarcinogenic hazard quotients
Area: BURIAL GROUNDS

Location=WIP-NORTH Medium=SOIL (continued)

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
Total Pathway Hazard Index				3.6E-02		2.2E-02	5.8E-02

Location=WIP-SOUTH Medium=SOIL

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
ARSENIC	4/4	2.75E+01	mg/kg	6.5E-03		1.0E-03	7.5E-03
PCB-1254	2/4	8.39E+00	mg/kg	3.0E-02		2.1E-02	5.0E-02
Total Pathway Hazard Index				3.6E-02		2.2E-02	5.8E-02

Table F.51c. Bear Creek Valley maintenance worker chemicals of concern
Area: BURIAL GROUNDS

---------- Location=D-EAST Medium=SOIL (hot spot) ----------

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion	Inhalation	Dermal	External Exposure	Across All Pathways
URANIUM-234	1/1	1.54E+05	pCi/g	R	R		R	R
URANIUM-235	1/1	2.56E+03	pCi/g	R			R	R
URANIUM-238	1/1	2.09E+05	pCi/g	R	R		R	R
Pathway of Concern				R			R	

Table F.52a. Bear Creek Valley maintenance worker carcinogenic risks
Area: FLOODPLAIN AREA (western BCV)

Medium=SOIL (creek floodplain)

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
PCB-1260	17/23	2.57E-01	mg/kg	5.0E-08		3.5E-08		8.5E-08
URANIUM-234	24/24	7.90E+00	pCi/g	1.6E-08	4.6E-10		1.1E-10	1.6E-08
URANIUM-235	22/24	3.87E-01	pCi/g	8.2E-10	2.1E-11		6.7E-08	6.8E-08
URANIUM-238	24/24	1.49E+01	pCi/g	4.2E-08	7.8E-10		5.2E-07	5.6E-07
Total Pathway Risk				1.1E-07	1.3E-09	3.5E-08	5.8E-07	7.3E-07

F.52b. Bear Creek Valley maintenance worker noncarcinogenic hazard quotients
Area: FLOODPLAIN AREA (western BCV)

---------- Medium=SOIL (creek floodplain) ----------

	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
	4/23	6.08E-02	mg/kg	2.1E-04		1.5E-04	3.6E-04
d Index				2.1E-04		1.5E-04	3.6E-04

Table F.52c. Bear Creek Valley maintenance worker chemicals of concern
Area: FLOODPLAIN AREA (western BCV)

Medium=SOIL (creek floodplain)

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion	Inhalation	Dermal	External Exposure	Across All Pathways
NONE								

Table F.53a. Bear Creek Valley maintenance worker carcinogenic risks
Area: DARA

Medium=SOIL INVENTORY

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
HEXACHLORODIBENZO-P-DIOXINS	22/32	2.65E-03	mg/kg	4.1E-07	2.8E-11	5.2E-07		9.4E-07
TETRACHLORODIBENZO-P-DIOXINS	2/32	2.40E-03	mg/kg	9.1E-06	8.5E-10	1.1E-05		2.1E-05
URANIUM-234	32/32	1.14E+02	pCi/g	2.3E-07	6.7E-09		1.6E-09	2.4E-07
URANIUM-235	32/32	4.91E+00	pCi/g	1.0E-08	2.7E-10		8.6E-07	8.7E-07
URANIUM-238	32/32	7.69E+01	pCi/g	2.1E-07	4.0E-09		2.7E-06	2.9E-06
Total Pathway Risk				9.9E-06	1.2E-08	1.2E-05	3.5E-06	2.5E-05

Table F.53b. Bear Creek Valley maintenance worker noncarcinogenic hazard quotients
Area: DARA

Medium=SOIL INVENTORY

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
PCB-1254	32/32	1.03E+02	mg/kg	3.6E-01		2.5E-01	6.2E-01
PENTACHLOROBENZENE	3/32	2.50E+01	mg/kg	2.2E-03		2.8E-03	5.0E-03
Total Pathway Hazard Index				3.7E-01		2.6E-01	6.2E-01

Table F.53c. Bear Creek Valley maintenance worker chemicals of concern
Area: DARA

Medium=SOIL INVENTORY

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion	Inhalation	Dermal	External Exposure	Across All Pathways
NONE								

Table F.54a. Bear Creek Valley maintenance worker carcinogenic risks
Area: OIL LANDFARM STORAGE PAD

Medium=SOIL INVENTORY

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion Risk	Inhalation Risk	Dermal Risk	External Exposure Risk	Risk Across All Pathways
ARSENIC	40/40	2.55E+00	mg/kg	9.6E-08	3.0E-10	1.5E-08		1.1E-07
BERYLLIUM	40/40	5.82E+00	mg/kg	6.3E-07	1.1E-10	4.0E-06		4.6E-06
POLYCHLORINATED BIPHENYL	40/40	2.65E+01	mg/kg	5.1E-06		3.6E-06		8.7E-06
URANIUM-234	40/40	2.25E+01	pCi/g	4.5E-08	1.3E-09		3.2E-10	4.7E-08
URANIUM-235	40/40	1.53E+00	pCi/g	3.2E-09	8.4E-11		2.7E-07	2.7E-07
URANIUM-238	40/40	2.40E+01	pCi/g	6.7E-08	1.2E-09		8.3E-07	9.0E-07
Total Pathway Risk				6.0E-06	3.1E-09	7.6E-06	1.1E-06	1.5E-05

Table F.54b. Bear Creek Valley maintenance worker noncarcinogenic hazard quotients
Area: OIL LANDFARM STORAGE PAD

Medium=SOIL INVENTORY

Analyte	Freq Det	Upper 95% C.L. Conc	Conc Units	Ingestion HQ	Inhalation HQ	Dermal HQ	HI Across All Pathways
ARSENIC	40/40	2.55E+00	mg/kg	6.0E-04		9.2E-05	6.9E-04
BERYLLIUM	40/40	5.82E+00	mg/kg	8.2E-05		5.2E-04	6.0E-04
TOTAL URANIUM	40/40	7.88E+01	mg/kg	1.8E-03		1.4E-04	2.0E-03
Total Pathway Hazard Index				2.5E-03		7.5E-04	3.3E-03

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