9. SWMU 33 – BUILDING 536 CHEMICAL AGENT MUNITIONS DISPOSAL SYSTEM SALT STORAGE

This section presents the results of the Phase II Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) conducted at solid waste management unit (SWMU) 33 – Building 536 Chemical Agent Munitions Disposal System (CAMDS) Salt Storage. The site geologic and hydrologic features are presented and are followed by the Phase I and II investigation methodology, results, and nature and extent of identified contamination. The results of the assessment of human health and ecological risks associated with the chemicals of potential concern (COPCs) also are presented.

9.1 SWMU 33 DESCRIPTION/CURRENT SITE CONDITIONS

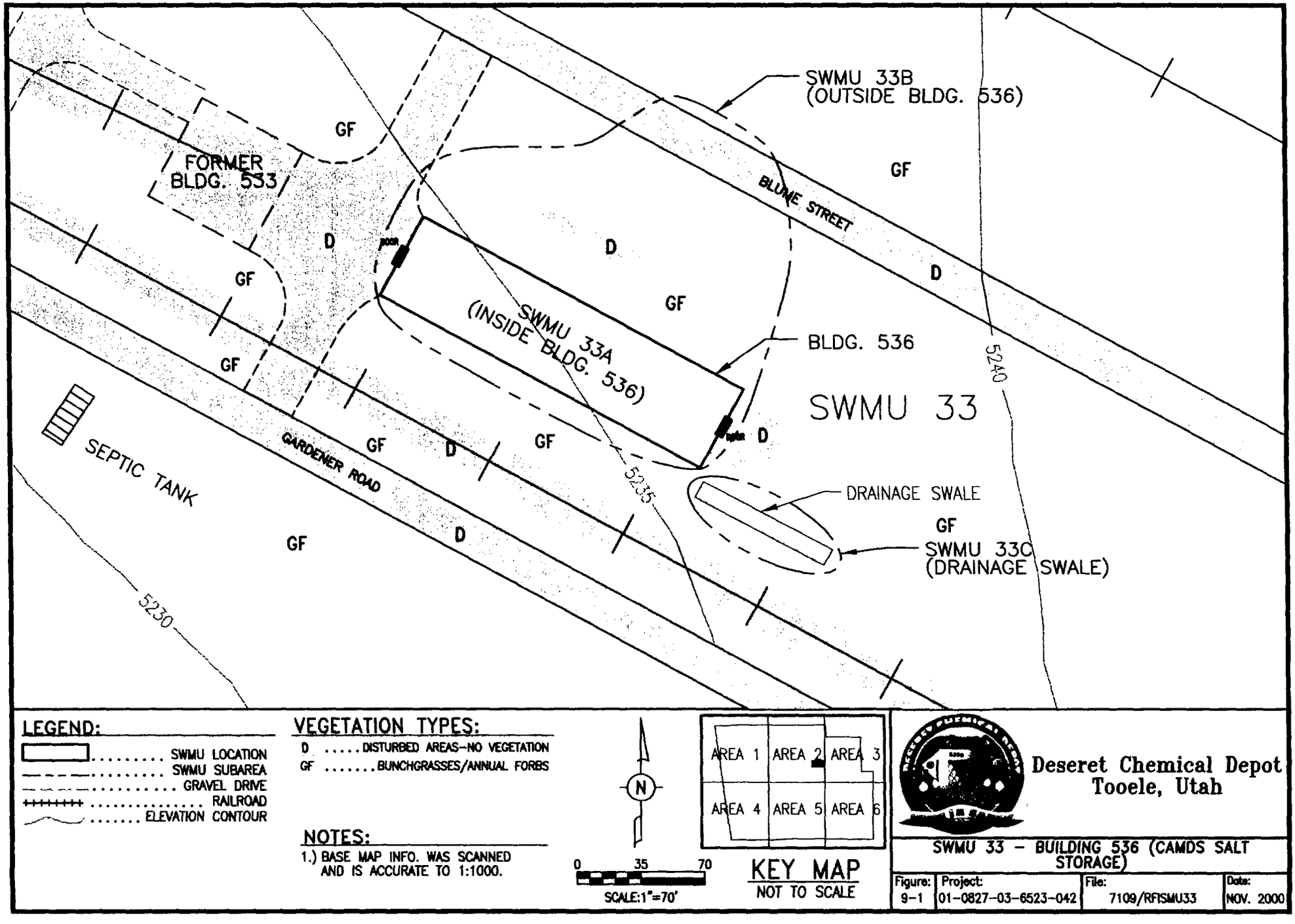
SWMU 33 – Building 536 (CAMDS Salt Storage) is a two and one-half story warehouse located in the north-central part of Deseret Chemical Depot (DCD), immediately adjacent to the east of SWMU 19. The building covers approximately 50 by 175 feet and is built on gravelly sandy soil. SWMU 33 currently is operating under an approved RCRA Part B hazardous waste storage permit.

Building 536 was used as a storage facility from approximately 1983 to 1988 for approximately 1,470 drums of "dried organic salts" that were byproducts of operations at CAMDS (NUS 1987). The drums consisted of 55-gallon metal, cardboard, and/or cardboard overpacks filled with salts that potentially contained residual chemical warfare agent (CWA). The stored salts were a byproduct of treatment processes being evaluated at CAMDS; lead and cadmium in the salts exceeded extraction procedure (EP) toxicity levels. The salts were removed from SWMU 33 before the Phase I RFI and were taken to an offsite hazardous waste landfill. No additional salts are planned to be stored at SWMU 33; they are now taken directly from CAMDS to an offsite hazardous waste landfill (EBASCO 1993a). Building 536 currently is used to store used butyl rubber and decontaminated equipment pending shipment to an offsite landfill (Doan 2000).

SWMU 33 – Building 536 is divided into three separate areas (SWMU 33A, 33B, and 33C) for purposes of the Phase II investigation. SWMU 33A is the area inside Building 536 where storage of the "dried organic salts" occurred. SWMU 33B is the area immediately surrounding Building 536; no historical information is available regarding previous use of the area. SWMU 33C is the drainage swale containing various construction debris and solid waste located immediately southeast of Building 536. The drainage swale was identified during the Phase II visual site inspection. Figure 9-1 shows the locations of SWMU 33A, 33B, and 33C.

9.2 SWMU 33 SPECIFIC GEOLOGY AND HYDROGEOLOGY

SWMU 33 is adjacent to the eastern boundary of SWMU 19 at the distal edge of the Ophir Creek alluvial fan deposit and is underlain by the same alluvial deposits of silt, clay, sand, and gravel associated with SWMU 19 that are discussed in Section 7.2. The subsurface lithologic investigation conducted at SWMU 33 during the Phase II field investigation and the associated site-specific lithology was limited to the uppermost 15 feet. It is assumed that the deeper geologic unit identified at SWMU 19 also would be present at SWMU 33.


SWMU 33B
(OUTSIDE BLDG. 536)
FORMER
BLDG. 533
BLUME STREET
GF
D
SWMU 33A
(INSIDE BLDG. 536)
BLDG. 536
SWMU 33
5240
SEPTIC TANK
GARDENER ROAD
5235
DRAINAGE SWALE
SWMU 33C
(DRAINAGE SWALE)
5230
LEGEND:
SWMU LOCATION
SWMU SUBAREA
GRAVEL DRIVE
RAILROAD
ELEVATION CONTOUR
VEGETATION TYPES:
D .....DISTURBED AREAS–NO VEGETATION
GF .....BUNCHGRASSES/ANNUAL FORBS
NOTES:
1.) BASE MAP INFO. WAS SCANNED AND IS ACCURATE TO 1:1000.
N
0 35 70
SCALE:1"=70'
AREA 1 AREA 2 AREA 3
AREA 4 AREA 5 AREA 6
KEY MAP
NOT TO SCALE
Deseret Chemical Depot
Tooele, Utah
SWMU 33 – BUILDING 536 (CAMDS SALT STORAGE)
Figure: 9-1
Project: 01-0827-03-6523-042
File: 7109/RFISMU33
Date: NOV. 2000

During the 1994-95 Phase II investigation, surficial samples were collected from within Building 536 (33A) and from the area immediately adjacent to Building 536 (33B). In addition, subsurface samples were collected during test pit excavation activities from the drainage swale southwest of the building (33C). The surficial soils logged within the building during this phase of activity were composed of tightly compacted silt and clay (i.e., fill material). Surficial soils outside the area were composed of light grayish brown, silty gravel with some sand and a trace of clay. The subsurface soils identified in the drainage swale were composed of slightly moist, brown to dark grayish brown, silty and gravelly clay with some sand. Appendix C presents the logs for these borings.

Additional subsurface samples were collected during the Phase IIA field investigation in February 1999. Samples originally were planned to be collected to 15 feet below land surface (BLS); however, during the direct push drilling inside Building 536 (33A), a hard pan/gravel layer was encountered that prohibited the sampling rig from reaching the desired total borehole depth at all locations. This layer was encountered at depths ranging from 6 feet BLS in the south central, southeastern portion of the building (encountered borings SB-33A-11, SB-33A-14, SB-33A-20, and SB-33A-21) to 13 to 15 feet BLS in the western portion of the building (encountered borings SB-33A-22 through SB-33A-25). The hard pan/gravel layer was identified at each borehole location. The subsurface soils are described in Phase IIA as being composed of a slightly moist, firm, brown to dark grayish brown, and silty to fine gravelly clay with some fine sand. Appendix C presents the logs for these borings.

Two lithologic boreholes were drilled and sampled outside Building 536 during the Phase IIA field activities to determine the vertical presence or absence of the identified hard pan/gravel layer. One borehole was located approximately 122 feet east of the southeast corner of Building 536. A dry, light brown to brown silt with trace fine sand was encountered to 3 feet BLS in this boring. At 6 feet BLS, a hard pan/gravel layer was encountered and the direct push probe could not be advanced. The second borehole was located approximately 300 feet east of the southeast corner of Building 536 in a grassy area that appeared to be undisturbed by human activities (i.e., no visible staining or stressed vegetation). A hard pan/gravel layer was encountered at 5 feet BLS, but was penetrated at 6 feet BLS. In the geological layer from 6 to 8 feet BLS, a dry, pale brown angular gravel with a powdery silt and fine trace sand was encountered. A dry, pale brown silt with fine trace sand was identified from 12 to 18 feet BLS. The geology from 6 to 12 feet BLS was similar to that identified within Building 536: silty to fine gravely clay with some fine sand. Appendix C presents the logs for these borings.

During Phase IIA, samples were collected from nine borings north of Building 536 (33B). The subsurface soils in this area are composed of a slightly moist, firm, brown to dark grayish brown, and silty to fine gravelly clay with some fine sand. Additional subsurface samples were collected at SWMU 33B during the Phase IIB field investigation in January 2000. During Phase IIB, samples were collected from 19 borings located at points complementing and extending the existing sample grid (SB-33B-39 through SB-33B-56). Samples were collected only to 5 feet BLS at SB-33B-39 and SB-33B-40 because of direct push probe refusal. The surface soil in this area consists of a moist, slightly dense, dark grayish brown, sandy silt. The subsurface soils in this area grade downward from loose, clayey or sandy silt with medium to slight plasticity to a sandy gravel with pebbles up to 20 millimeters. Appendix C presents the logs for these borings.

9.3 SWMU 33 PREVIOUS INVESTIGATION RESULTS

During the June 1992 Phase I RFI sampling program conducted by EBASCO at SWMU 33A, six surface soil samples (0 to 0.5 feet BLS) were collected from the dirt floor inside Building 536 (EBASCO 1993b). These samples were analyzed for agent breakdown products and metals. The CWA breakdown products isopropylmethyl phosphonic acid and methylphosphonic acid were detected in all six surficial soil samples. The CWA breakdown product thiodiglycol also was detected in one sample. Metals detected above Phase I background concentrations consist of chromium, lead, zinc, and sodium. Table 9-1 summarizes previous investigation activities and results.

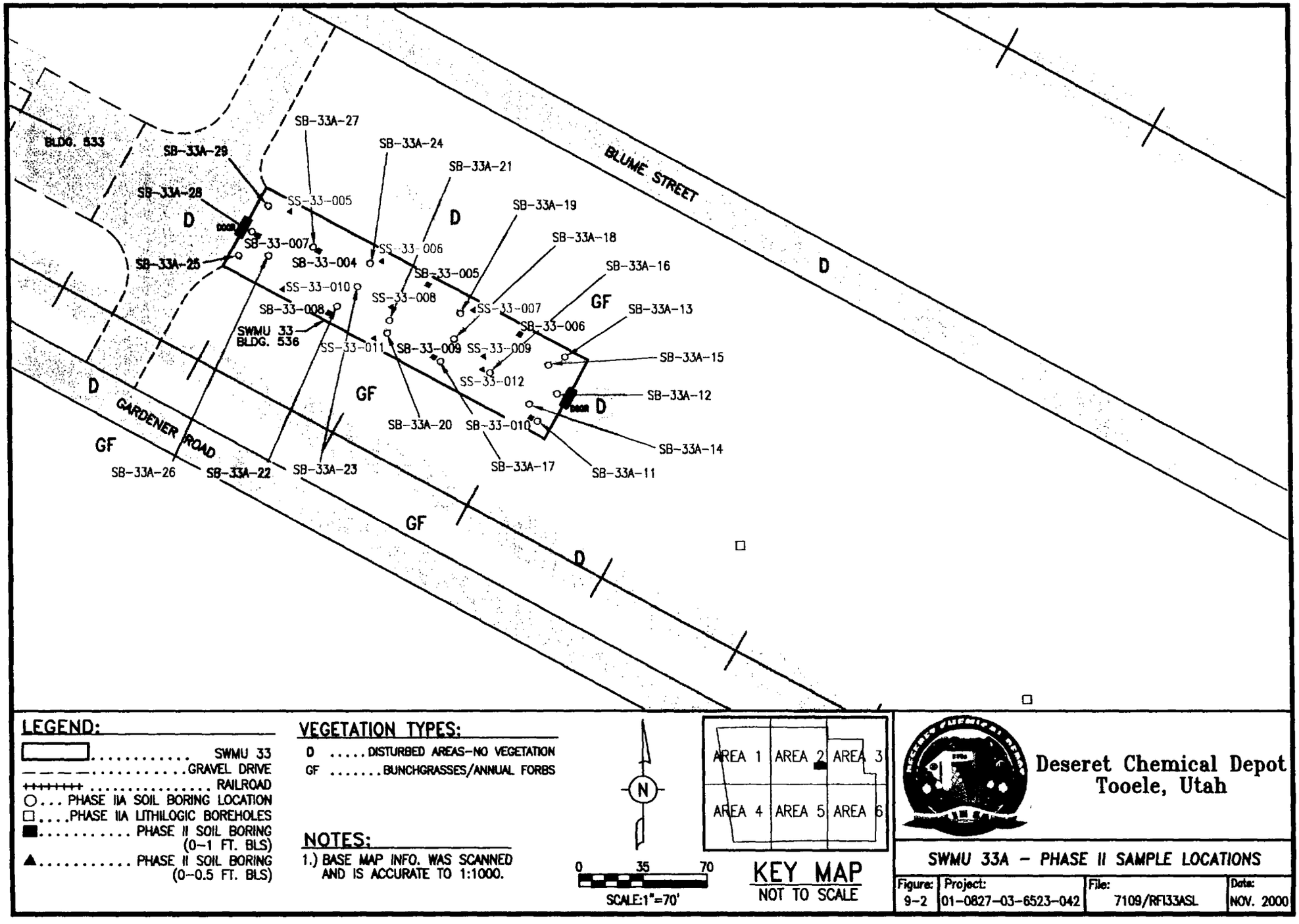
Table 9-1. SWMU 33 Previous Field Investigation Activities
Deseret Chemical Depot, Tooele, Utah

SWMU	Phase	Previous Activity	Result
33A	Phase I (1990-92)	Collected six surface soil samples; analyzed samples for agent breakdown products and metals.	COPCs: Agent breakdown products and metals detected in all samples.

9.4 SWMU 33 PHASE II RFI FIELD INVESTIGATION APPROACH

Phase II field activities at SWMU 33 were conducted in 1994-95 (Phase II), 1998-99 (Phase IIA), and 1999-2000 (Phase IIB). The objective of the Phase II (1994-95) field investigation at SWMU 33 was to define the horizontal and vertical extent of the contamination identified during the Phase I investigation. Activities to accomplish this objective included conducting an explosive risk evaluation, conducting a soil organic vapor (SOV) survey (SWMU 33C), collecting surface soils from 22 sampling points inside (15 at SWMU 33A) and outside (7 at SWMU 33B) Building 536, and excavating and sampling test pits from the drainage swale (SWMU 33C). Figures 9-2, 9-3, and 9-4 present the Phase II sample locations for SWMU 33A, 33B, and 33C, respectively. Samples were analyzed for metals, cyanide, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), agent breakdown products, and explosives. Elevated concentrations of mercury in initial Phase II surface samples collected north of Building 536 (SWMU 33B) necessitated additional confirmatory sampling activities. Thirteen additional surface samples were collected north of Building 536 (SWMU 33B) and analyzed for mercury. Table 9-2 describes the planned versus actual activities for the Phase II RFI field investigation. Appendix N presents representative photographs of field investigation activities.

In 1998-99, additional field investigation activities were conducted at SWMU 33A and 33B as part of the Phase IIA field investigation. Nineteen additional soil borings were drilled and sampled inside Building 536 (SWMU 33A) to define the vertical and horizontal extent of potential CWA breakdown product contamination (see Figure 9-2). Table 9-3 presents the soil sampling matrix for the SWMU 33A Phase IIA RFI field investigation. Nine additional soil borings were drilled and sampled north of Building 536 (SWMU 33B) to define the vertical and horizontal extent of mercury contamination (see Figure 9-3).



9-5

LEGEND:

- SWMU 33
- GRAVEL DRIVE
- RAILROAD
- ○ PHASE IIA SOIL BORING LOCATION
- □ PHASE IIA LITHILOGIC BOREHOLES
- ■ PHASE II SOIL BORING (0–1 FT. BLS)
- ▲ PHASE II SOIL BORING (0–0.5 FT. BLS)

VEGETATION TYPES:

- D ..... DISTURBED AREAS–NO VEGETATION
- GF ..... BUNCHGRASSES/ANNUAL FORBS

NOTES:

1.) BASE MAP INFO. WAS SCANNED AND IS ACCURATE TO 1:1000.

N

0 35 70

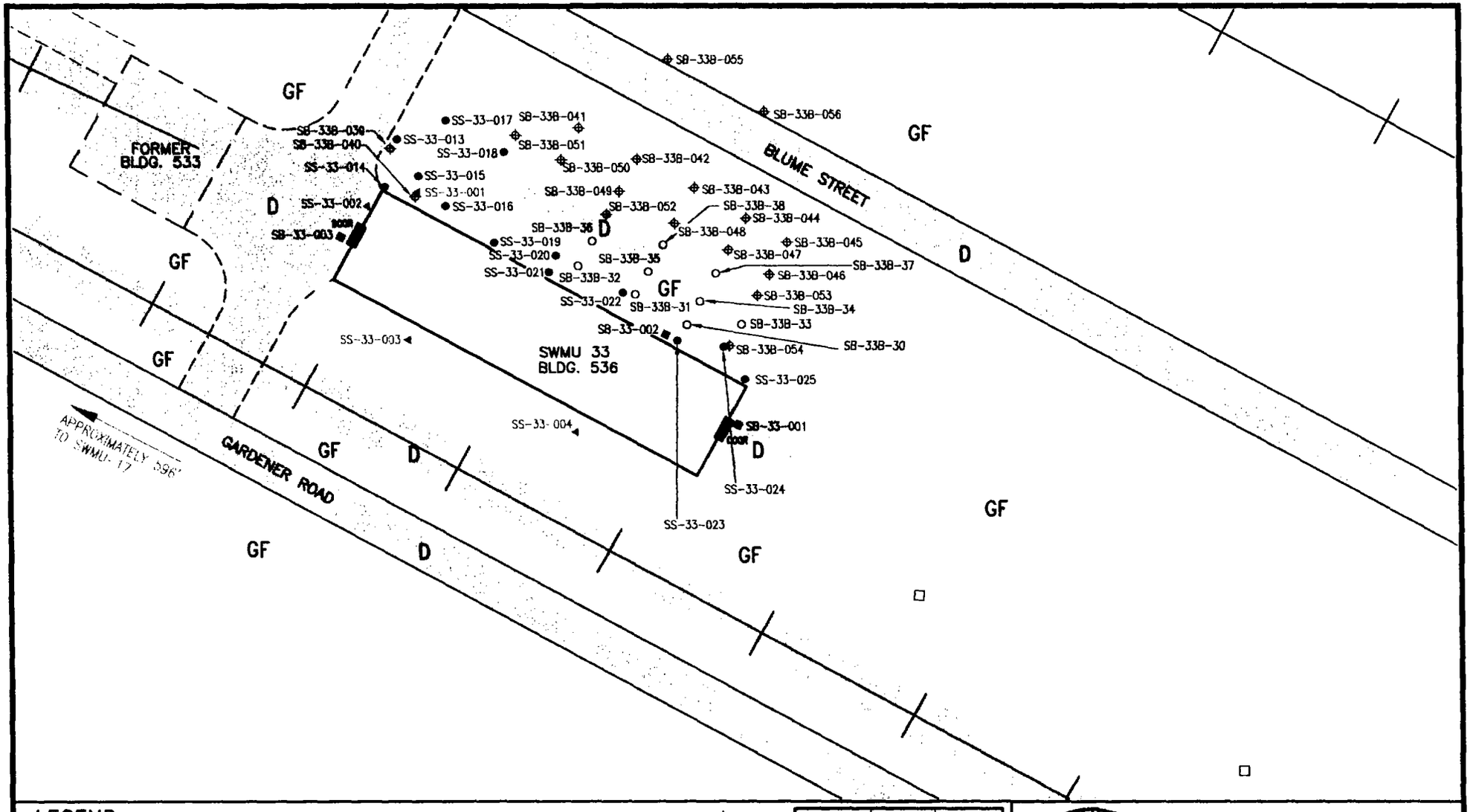
SCALE:1"=70'

KEY MAP
NOT TO SCALE

Deseret Chemical Depot
Tooele, Utah

SWMU 33A – PHASE II SAMPLE LOCATIONS

Figure:	Project:	File:	Date:
9-2	01-0827-03-6523-042	7109/RFI33ASL	NOV. 2000



9-6

LEGEND:

- SWMU 33
- GRAVEL DRIVE
- RAILROAD
- PHASE II SOIL BORING (0–1 FT)
- PHASE II SOIL BORING (0–0.5 FT)
- PHASE II ADDITIONAL MERCURY SURFACE SAMPLE (0–0.5 FT. BLS)
- PHASE IIA SOIL BORING LOCATION
- PHASE IIA LITHOLOGIC BOREHOLES
- PHASE IIB SOIL BORING LOCATION

VEGETATION TYPES:

D .....DISTURBED AREAS–NO VEGETATION

GF .....BUNCHGRASSES/ANNUAL FORBS

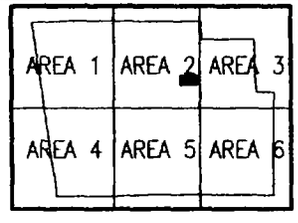
NOTES:

1.) BASE MAP INFO. WAS SCANNED AND IS ACCURATE TO 1:1000.

N

0 35 70

SCALE:1"=70'



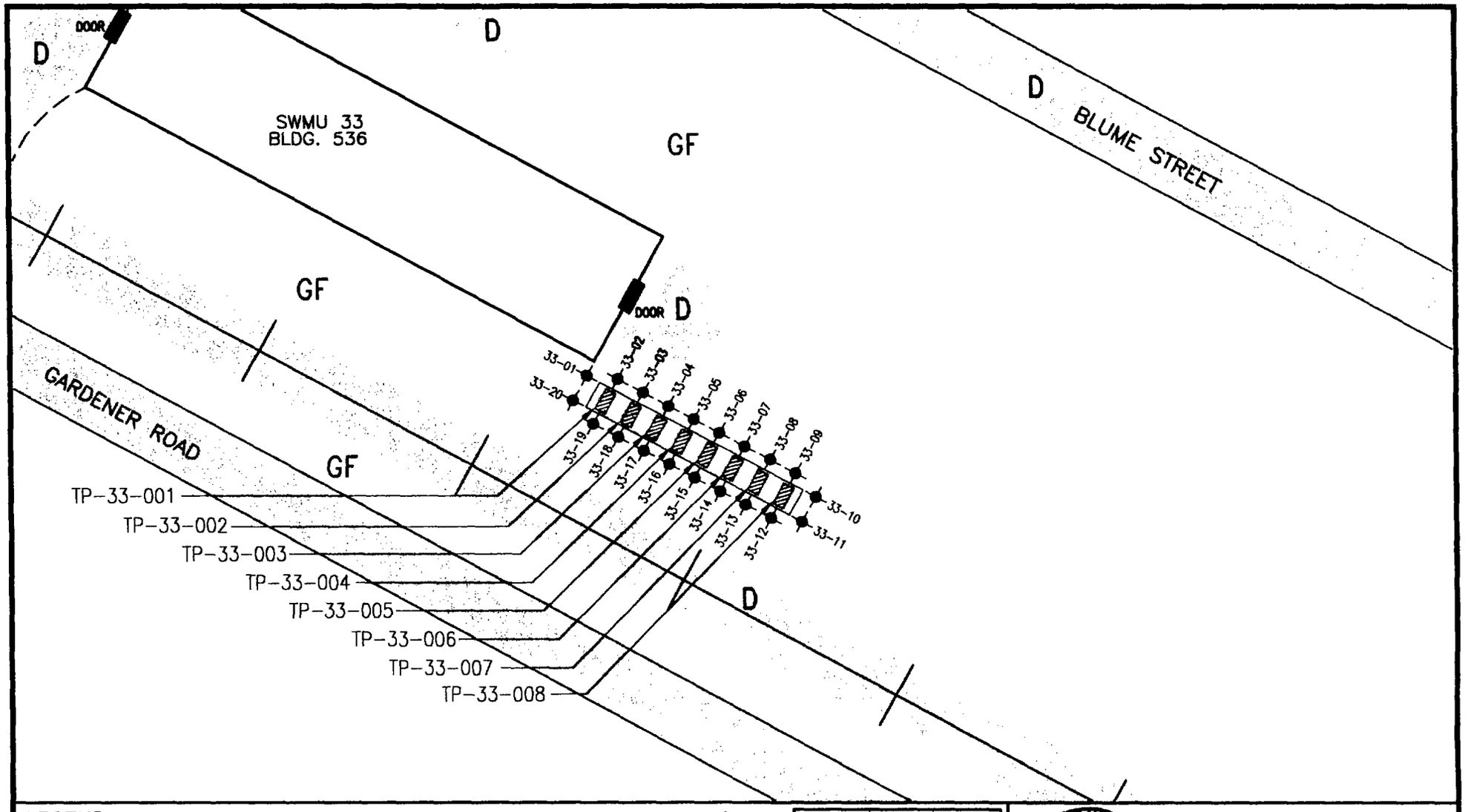
KEY MAP

NOT TO SCALE

Deseret Chemical Depot
Tooele, Utah

SWMU 33B – PHASE II SAMPLE LOCATIONS

Figure:	Project:	File:	Date:
9–3	01–0827–03–6523–042	7109/RFI33BSL	NOV. 2000



LEGEND:

- SWMU 33
- GRAVEL DRIVE
- RAILROAD
- SOIL GAS SAMPLE
- TEST PIT

VEGETATION TYPES:

- D ..... DISTURBED AREAS–NO VEGETATION
- GF ..... BUNCHGRASSES/ANNUAL FORBS

NOTES:

1.) BASE MAP INFO. WAS SCANNED AND IS ACCURATE TO 1:1000.

N

0 25 50

SCALE:1"=50'

KEY MAP

NOT TO SCALE

AREA 1	AREA 2	AREA 3
AREA 4	AREA 5	AREA 6

Deseret Chemical Depot
Tooele, Utah

SWMU 33C – PHASE II SAMPLE LOCATIONS

Figure:	Project:	File:	Date:
9-4	01-0827-03-6523-042	7109/RFI33CSL	NOV. 2000

Table 9-2. SWMU 33 Phase II Planned Versus Actual Field Activities
Deseret Chemical Depot, Tooele, Utah

Phase	SWMU	Planned Activities	Rationale for Planned Activities	Deviations from Planned Activities	Rationale for Deviations
II (1994-95)	33A	Conduct UXO survey.	Fulfill RCRA permit requirement; evaluate potential presence of UXO.	None; activities implemented as planned.	N/A
		Collect 15 surface (0 to 0.5 feet BLS) and seven subsurface (0.5 to 1 feet BLS) soil samples; analyze for metals, cyanide, and agent breakdown products.	Collect samples throughout building to define extent of agent breakdown contamination.	None; activities implemented as planned.	N/A
	33B	Conduct UXO survey.	Fulfill RCRA permit requirement; evaluate potential presence of UXO.	None; activities implemented as planned.	N/A
		Collect seven surface and four subsurface soil samples; analyze for metals, cyanide, and agent breakdown products.	Determine if agent breakdown products have migrated outside Building 536.	Collect 13 additional surface soil samples outside Building 536; analyze for mercury.	Define the extent of mercury detected during initial sampling outside building.
	33C	Conduct UXO survey.	Fulfill RCRA permit requirement; evaluate potential presence of UXO.	None; activities implemented as planned.	N/A
		Conduct SOV survey at 20 locations in vicinity of drainage swale south of Building 536; collect samples from 10 feet BLS; analyze for chlorinated hydrocarbons, aromatic hydrocarbons, and TPH.	Determine if contaminants are present as a result of past site practices.	None; activities implemented as planned.	N/A

Table 9-2. SWMU 33 Phase II Planned Versus Actual Field Activities Deseret Chemical Depot, Tooele, Utah (Continued)

Phase	SWMU	Planned Activities	Rationale for Planned Activities	Deviations from Planned Activities	Rationale for Deviations
II (1994-95)	33C	Excavate eight test pits to 10 feet BLS within drainage swale; collect four soil samples from surface to 10 feet BLS in each test pit; analyze for metals, cyanide, VOCs, SVOCs, PCBs, explosives, and agent breakdown products.	Determine if contaminants are present as a result of past site practices.	None; activities implemented as planned.	N/A
IIA (1998-99)	33A	Drill and sample 19 borings throughout the building. (Collect samples at 0 to 0.5, 1, 5, 10, and 15 feet BLS); analyze samples for metals, cyanide, and agent breakdown products.	Additional sampling is necessary to define the vertical and horizontal extent of potential agent breakdown product contamination. Recommendations were made in Phase II RFI Report (SAIC 1995b).	Samples below 6 feet BLS were collected at various depths.	Due to encountering a hard pan/gravel layer varying from 6 to 14 feet BLS inside the building, it was necessary to vary the plan and submit samples for laboratory analysis from shallower depths (see Table 3-11).
				Drill two additional lithologic borings outside Building 536.	Two additional borings were drilled outside Building 536 to characterize the lithology and determine the presence of the hard pan/gravel layer identified inside the building.
	33B	Drill and sample nine borings north of the building in the area of previously identified mercury contamination; collect soil samples from 0 to 0.5, 1, and 5 feet BLS; analyze all samples for mercury.	Additional sampling is necessary to define the vertical and horizontal extent of mercury contamination. Recommendations for sampling were made in Phase II RFI Report (SAIC 1995b).	None; activities implemented as planned.	N/A
		Identify the location and delineation of vegetation within 500 feet of the SWMU.	Responding to UDEQ request to identify habitat types surrounding SWMU under investigation.	None; activities implemented as planned.	N/A

Table 9-2. SWMU 33 Phase II Planned Versus Actual Field Activities Deseret Chemical Depot, Tooele, Utah (Continued)

Phase	SWMU	Planned Activities	Rationale for Planned Activities	Deviations from Planned Activities	Rationale for Deviations
IIB (2000)	33B	Drill and sample 19 borings north of Building 536 in the area of previously identified mercury contamination. Analyze all samples for mercury. • Collect samples at 16 locations from 0 to 6 inches, 1 foot, 5 feet, and 10 feet BLS (SB-33B-39 through SB-33B-54). • Collect samples at two locations directly north of Blume Street from 0 to 6 inches, 1 foot, and 5 and 10 feet BLS (SB-33B-55 and SB-33B-56). Collect sample from previous location SB-33B-37 at 10 feet BLS.	Additional sampling is necessary to define the vertical and horizontal extent of mercury contamination. Locations will complement the previous Phase II and Phase IIA results and fill existing data gaps. Planned activities are based on comments provided by UDEQ.	Samples were not collected from 10 feet BLS in soil borings SB-33B-39 and SB-33B-40.	Geoprobe® refusal occurred prior to reaching the planned sample interval. Deepest sample collected at 5 feet BLS.

Table 9-3. SWMU 33A Phase IIA Soil Sampling Matrix
Deseret Chemical Depot, Tooele, Utah

Borehole Number	Total Depth (feet, BLS)	Sampling Depths (feet, BLS)	Comments
SB-33A-11	6	0-0.5, 1.5, 3.5	Refusal at 6 feet BLS
SB-33A-12	14	0-0.5, 1.5, 4, 10, 12	Refusal at 14 feet BLS
SB-33A-12 (FD)	14	10, 12	Duplicate samples collected
SB-33A-13	13.5	0-0.5, 3.5, 5.5, 10, 12	Refusal at 13.5 feet BLS
SB-33A-14	6	0-0.5, 1.5	Refusal at 6 feet BLS
SB-33A-14*	6	3.5	Refusal at 6 feet BLS
SB-33A-15	6	0-0.5, 1, 3	Refusal at 6 feet BLS
SB-33A-16	2	0-0.5, 1.5	Cave in at 2 feet BLS
SB-33A-16*	13.6	5, 10, 12	Refusal at 13.6 feet BLS
SB-33A-17	13.5	0-0.5, 1.5, 5, 10, 12	Refusal at 13.5 feet BLS
SB-33A-18	13.7	0-0.5, 1, 3, 5, 10, 12	Refusal at 13.7 feet BLS
SB-33A-19	7	0-0.5, 1, 5	Refusal at 7 feet BLS
SB-33A-19 (FD)	7	0-0.5, 1, 5	Duplicate sample collected, refusal at 7 feet BLS
SB-33A-20	6	0-0.5, 1, 5	Cave in at 6 feet BLS
SB-33A-20*	7	—	Refusal at 7 feet BLS
SB-33A-21	6	0-0.5, 1	Refusal at 6 feet BLS
SB-33A-21*	12	5, 10, 12	Hard layer at 6 to 8 feet BLS
SB-33A-22	13.9	0-0.5, 1, 5, 10, 12	Refusal at 13.9 feet BLS
SB-33A-23	13.7	0-0.5, 1.5, 5, 10, 12	Refusal at 13.7 feet BLS
SB-33A-24	13	0-0.5, 1, 5, 10, 12	Refusal at 13 feet BLS
SB-33A-25	15	0-0.5, 1, 5, 10	Refusal at 15 feet BLS
SB-33A-26	15	0-0.5, 1, 5, 10, 13	Hard layer at 14 feet BLS
SB-33A-27	14	0-0.5, 1, 5, 10, 12	Hard layer at 15 feet BLS
SB-33A-28	17	0-0.5, 1, 5, 10, 15	Hard layer at 17 feet BLS
SB-33A-29	14	0-0.5, 1, 5, 10, 12	Hard layer at 15 feet BLS

* Re-drill at adjacent location due to initial probe refusal.
FD – Duplicate sample collected at immediately adjacent location to original point due to geological hard pan layer and/or insufficient recovery.

In 1999-2000, additional field investigation activities were conducted at SWMU 33B as part of the Phase IIB field investigation. Nineteen soil borings were drilled and sampled to define further the vertical and horizontal extent of mercury contamination at SWMU 33B (see Figure 9-3). Locations were chosen to complement the previous Phase II and Phase IIA results and to fill existing data gaps.

9.5 SWMU 33 PHASE II RFI RESULTS

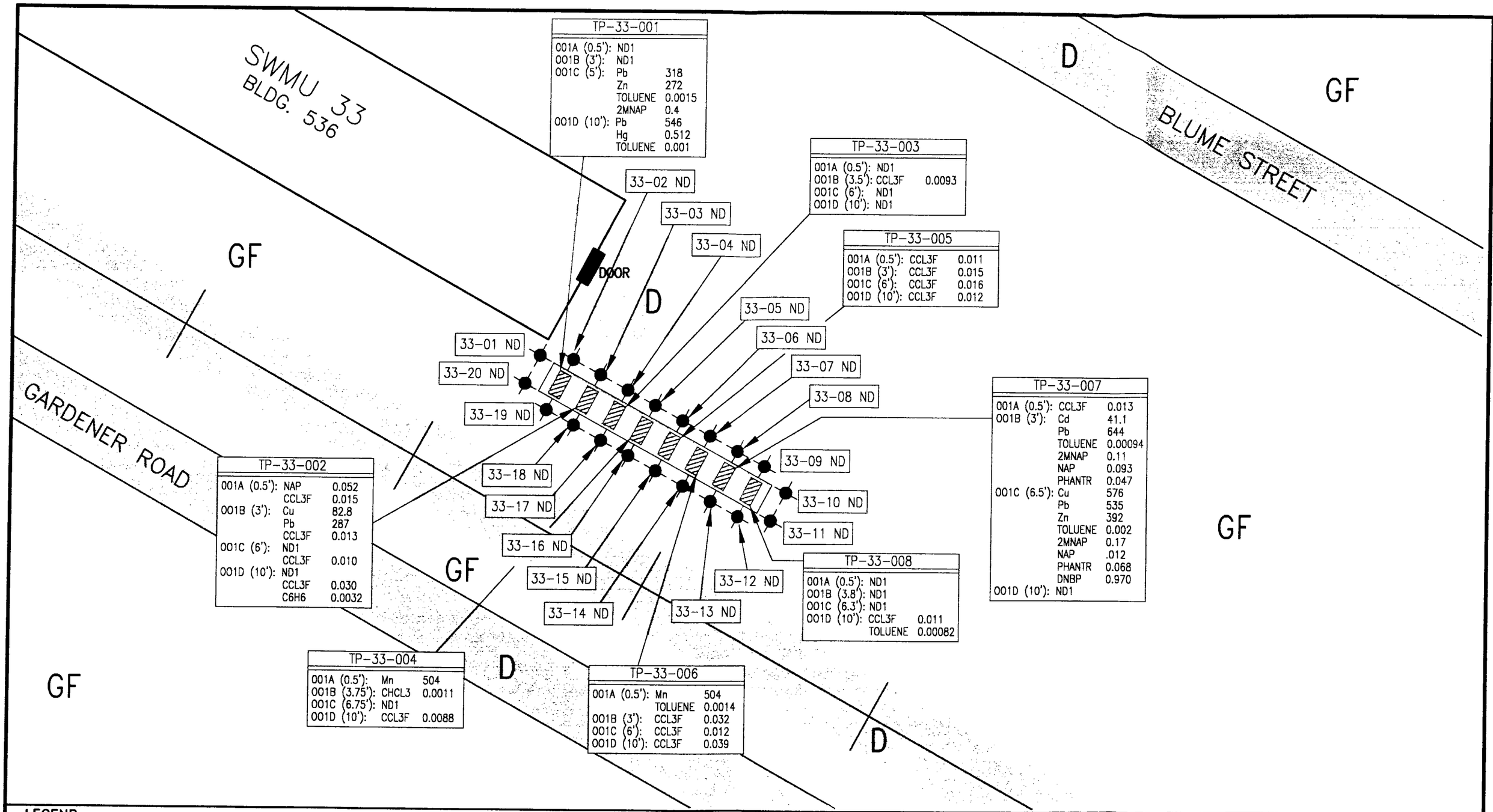
The following sections summarize the Phase II investigation results for the activities conducted at SWMU 33. Included are discussions on the explosive risk, soil sampling and test pit results, and nature and extent of identified contamination for each SWMU area (i.e., 33A, 33B, and 33C).

9.5.1 SWMU 33 Explosive Risk Evaluation

Prior to any intrusive activities, an unexploded ordnance (UXO) evaluation and survey were conducted that included a review of historical records, a visual surface inspection, and a surface magnetometer survey of the area within and immediately surrounding Building 536. The surface magnetometer survey did not indicate the presence of any items that would be considered UXO in the area within and immediately surrounding Building 536. Subsurface magnetometer surveys were conducted at the drainage swale during the test pit excavation activities because no historical records were found specifying the past practices of the drainage swale associated with SWMU 33. UXO was not identified during the test pit excavations in the drainage swale. Based on the UXO evaluation and site surveys, it was determined that UXO is not present at the SWMU and there is no explosive risk.

9.5.2 SWMU 33 SOV Results

Because the historical activities were unknown for the drainage swale southeast of Building 536 (SWMU 33C) and no previous investigations had been conducted, an SOV survey was selected as the initial investigation method. The rationale for SOV sampling was that if organic contamination was associated with the construction debris disposal, it would be detected by the SOV survey. Twenty SOV points were located around the perimeter of the swale as part of the 1994-95 Phase II activities to define the horizontal extent of any contamination and to identify depths at which samples would be collected from test pits that would be excavated from within the swale (i.e., samples would be collected from the test pits at depths with elevated SOV concentrations). Figure 9-5 shows the sampling locations and results for the SOV points. Since the depth of the drainage swale varied between 2 and 7 feet BLS, 10 feet BLS was selected as a representative sample depth to identify any organic contaminants that had migrated vertically. Samples were collected at 7 feet BLS from points 33-11 and 33-13 because of SOV probe refusal. All of the samples were analyzed for chlorinated hydrocarbons, aromatic hydrocarbons, and total petroleum hydrocarbons (TPH). Contaminants were not detected in any of the SOV samples collected from SWMU 33C. Because all field results were nondetects, SOV point 33-12 was randomly selected for an additional sample to be analyzed at 20 feet BLS. This sample was collected to verify that potential contamination had not migrated vertically; contaminants were not detected in this sample.



LEGEND:

- SWMU 33
- RAILROAD
- TEST PIT
- SOIL GAS SAMPLE
- 2MNAP..... 2-METHYLNAPHTHALENE
- CHCL3..... CHLOROFORM
- DNBP..... DI-N-BUTYL PHTHALATE
- PHANTR..... PHENANTHRENE
- NAP..... NAPHTHALENE
- C6H6..... BENZENE
- CCL3F..... TRICHLOROFLOUROMETHANE
- Hg..... MERCURY
- ND..... NO BTEX, TPH, OR VOLATILE HALOGENATED HYDROCARBONS DETECTED ABOVE 1.0 ppm
- ND1..... INORGANICS: COPCS < UTL ORGANICS: NOT DETECTED

VEGETATION TYPES:

- D .....DISTURBED AREAS-NO VEGETATION
- GF .....BUNCHGRASSES/ANNUAL FORBS

NOTES:

1.) BASE MAP INFO. WAS SCANNED AND IS ACCURATE TO 1:1000.
2.) ALL SAMPLE RESULTS IN ug/g.

N

0 15 30
SCALE:1"=30'

AREA 1 | AREA 2 | AREA 3
AREA 4 | AREA 5 | AREA 6

KEY MAP
NOT TO SCALE

Deseret Chemical Depot
Tooele, Utah

SWMU 33C - PHASE II SURFACE AND SUBSURFACE SOIL AND SOV RESULTS

Figure:	Project:	File:	Date:
9-5	01-0827-03-6523-042	7109/RFI33STP	NOV. 2000

The original sampling plan for the drainage swale included a series of concentric circles of SOV sampling points radiating from the swale with samples collected up to 20 feet BLS at every location. Because no contaminants were detected in any samples, SOV points were not sampled at locations further from the drainage swale and there was no reason to collect additional samples at greater depths. Because organic contamination was not identified, the sample depths of the test pits were not influenced by the SOV survey.

9.5.3 SWMU 33 Sampling Results

Three separate, distinct areas were evaluated at SWMU 33: the area inside Building 536 (SWMU 33A), the area outside Building 536 (SWMU 33B), and the drainage swale (SWMU 33C). These areas were separated because of physical boundaries and characteristics (i.e., Building 536 and drainage swale) and differing history and potential contaminant sources (i.e., CAMDS salt storage and construction debris disposal). Samples were collected from the surface (0 to 0.5 feet BLS) and subsurface (greater than 0.5 feet BLS). All test pit sample points collected within the drainage swale were designated as TP (e.g., TP-33-001). The following sections present the results for each respective sampling area at SWMU 33. Only those inorganic elements considered COPCs and greater than their respective upper tolerance limit (UTL), are discussed in this section. The results section evaluates all detected organic constituents. All of the SWMU 33 data and statistical summary tables are presented at the end of Section 9.

9.5.3.1 Inside Building 536 (SWMU 33A) Soil Sampling Results

Soil samples were collected from 34 locations within Building 536 during Phase II activities (SS-33-005 through SS-33-012, SB-33-004 through SB-33-010, and SB-33A-11 through SB-33-29). Surface soil samples (0 to 0.5 feet BLS) were collected from all locations. Subsurface soil samples (greater than 0.5 feet BLS) were collected from 26 locations (SB-33-004 through SB-33-010 and SB-33A-11 through SB-33A-29) (see Figure 9-2). All samples collected within Building 536 were analyzed for metals, cyanide, and agent breakdown products. All detected compounds are summarized in Table 9-4. Data presentation tables presenting all analytical results are compiled in Appendix I.

SWMU 33A Surface Soil Sampling Results—Inorganics and agent breakdown products were identified at surface sample points throughout the inside of Building 536. Antimony, cadmium, cyanide, lead, and mercury were the inorganic COPCs detected in the surface soil at SWMU 33A at concentrations exceeding their respective UTL. Table 9-5 presents a statistical summary of the chemicals detected in the surface soil, including the location and depth of the maximum concentration. The maximum concentration of each element was the same order of magnitude as its respective UTL. Antimony, lead, and mercury were detected at concentrations greater than their respective UTL in only two site samples; cadmium and cyanide were detected at concentrations greater than their respective UTL in only one site sample. Chemicals exceeding their respective UTL were distributed throughout the building, with cyanide and cadmium the only COPC inorganics identified at the same location (SB-33-005A).

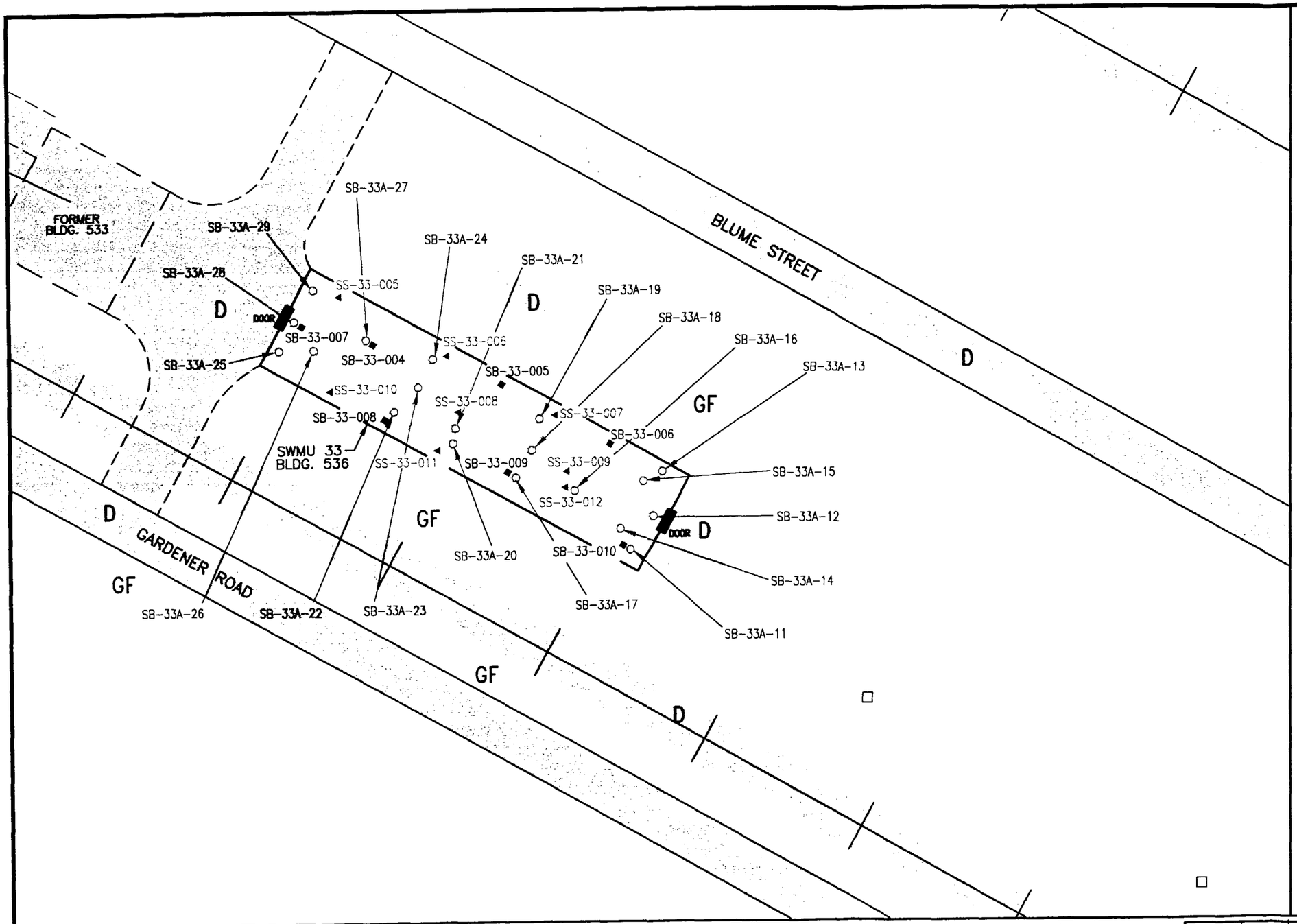
The agent breakdown products isopropyl methylphosphonic acid (IMPA), methylphosphonic acid (MPA), or thiodiglycol were detected at 30 of the 34 surface soil sample

locations within Building 536. The concentration and distribution of IMPA and MPA is presented in Figure 9-6. A statistical summary of these detected analytes is presented in Table 9-5. IMPA was identified in 30 of 42 surface soil samples at concentrations ranging from 1.23 to 2,300 µg/g (SS-33-009 at 0 feet BLS). MPA was detected in 32 of 42 surface soil samples at concentrations ranging from 0.08 to 530 µg/g (SS-33-009 at 0 feet BLS). thiodiglycol was detected in 3 of 47 surface soil samples at concentrations ranging from 4.0 to 4.5 µg/g (SS-33-009 at 0 feet BLS). Because of its infrequent detection, thiodiglycol is not presented in Figure 9-5. The maximum concentration in the surface soil for each breakdown product occurred at SS-33-009. This point is centrally located at the eastern end of the building.

Agent breakdown products are randomly distributed throughout the building. For example, the surface concentration of IMPA is more than two orders of magnitude less in sample locations SS-33-012 (54 µg/g) and SB-33A-16 (nondetect), which are immediately adjacent to SS-33-009. IMPA and MPA, the most frequently detected breakdown products, also are detected inconsistently within the same sample. In samples SS-33-007, SB-33A-19, and SB-33A-24, IMPA was detected and MPA was not. In samples SB-33A-11, SB-33A-16, and SB-33A-27, MPA was detected yet IMPA was not. At locations where surface samples were collected at 0 and 0.5 feet BLS, IMPA generally decreased with depth. For example, in boring SB-33-010, IMPA decreased from 270 µg/g (0 feet BLS) to 47 µg/g (0.5 feet BLS); in boring SB-33-004, IMPA decreased from 210 µg/g (0 feet BLS) to 1.95 µg/g (0.5 feet BLS). Figure 9-6 presents the distribution of IMPA and MPA. The breakdown products identified in the surface soils were randomly distributed throughout the inside of the building, with the highest concentrations generally located in the east/southeastern portion of the building.

SWMU 33A Subsurface Soil Sampling Results—Inorganics and agent breakdown products were detected in subsurface samples throughout the inside of Building 536. Antimony, cyanide, lead, mercury, and silver were the inorganic COPCs detected in the subsurface soil at SWMU 33A at concentrations exceeding their respective UTL. Table 9-5 presents a statistical summary of the chemicals detected in the subsurface soil, including the location and depth of the maximum concentration. The maximum concentration of each inorganic COPC was the same order of magnitude as its respective UTL. Mercury (8 of 72 samples) and silver (5 of 72 samples) were the only subsurface inorganics detected in more than one sample at concentrations greater than their respective UTL (0.36 and 0.47 µg/g, respectively). Antimony (UTL of 12 µg/g), cyanide (not detected in the background data set), and lead (UTL of 401 µg/g) each was detected at concentrations equal to or greater than their respective UTL in only one site sample (SB-33A-14 [12 µg/g], SB-33-008C [1.3 µg/g], and SB-33-008C [544 µg/g], respectively). Mercury in the subsurface ranged from 0.058 to 1.5 µg/g (SB-33A-28) and was not detected at concentrations exceeding the UTL in more than one sample per boring. All mercury concentrations exceeding the UTL in the subsurface soil were detected at the 1-foot BLS sampling depth and were not detected in the next deeper sample in the respective boring. The limited number of inorganic chemicals exceeding their respective UTL was distributed throughout the building with no discernable source area.

Agent breakdown products detected in the subsurface soils (i.e., greater than 0.5 feet BLS) consisted of IMPA and MPA; thiodiglycol was not detected in the subsurface soils. IMPA was detected at concentrations ranging from 0.676 to 64 µg/g; MPA was detected at concentrations



	Analyte	Depth (BLS ft.) 0	0.5	1	3 to 5	10	12 to 15
SS-33-005	IMPA	ND	N/A	N/A	N/A	N/A	N/A
	MPA	ND	N/A	N/A	N/A	N/A	N/A
SS-33-008	IMPA	51	N/A	N/A	N/A	N/A	N/A
	MPA	48	N/A	N/A	N/A	N/A	N/A
SS-33-007	IMPA	520	N/A	N/A	N/A	N/A	N/A
	MPA	ND	N/A	N/A	N/A	N/A	N/A
SS-33-008	IMPA	130	N/A	N/A	N/A	N/A	N/A
	MPA	46	N/A	N/A	N/A	N/A	N/A
SS-33-009	IMPA	2300	N/A	N/A	N/A	N/A	N/A
	MPA	530	N/A	N/A	N/A	N/A	N/A
SS-33-010	IMPA	78	N/A	N/A	N/A	N/A	N/A
	MPA	53	N/A	N/A	N/A	N/A	N/A
SS-33-011	IMPA	36	N/A	N/A	N/A	N/A	N/A
	MPA	20	N/A	N/A	N/A	N/A	N/A
SS-33-012	IMPA	54	N/A	N/A	N/A	N/A	N/A
	MPA	16	N/A	N/A	N/A	N/A	N/A
SB-33-004	IMPA	2.19	1.99	0.676	N/A	N/A	N/A
	MPA	16.7	9.45	3.14	N/A	N/A	N/A
SB-33-005	IMPA	ND	ND	ND	N/A	N/A	N/A
	MPA	ND	ND	ND	N/A	N/A	N/A
SB-33-006	IMPA	210	1.95	14.1	N/A	N/A	N/A
	MPA	45	6.87	3.65	N/A	N/A	N/A
SB-33-007	IMPA	1.23	ND	ND	N/A	N/A	N/A
	MPA	4.38	ND	ND	N/A	N/A	N/A
SB-33-008	IMPA	ND	ND	2.55	N/A	N/A	N/A
	MPA	ND	3.1	3.93	N/A	N/A	N/A
SB-33-009	IMPA	6.94	8.4	2.56	N/A	N/A	N/A
	MPA	4.02	3.5	2.13	N/A	N/A	N/A
SB-33-010	IMPA	270	47	84	N/A	N/A	N/A
	MPA	43	13	19.1	N/A	N/A	N/A
SB-33A-11	IMPA	ND	N/A	ND	ND	N/A	N/A
	MPA	1.89	N/A	ND	ND	N/A	N/A
SB-33A-12	IMPA	880	N/A	6.72	17.2	ND	21
	MPA	240	N/A	ND	1.2	ND	1.92
SB-33A-13	IMPA	5.69	N/A	ND	ND	ND	N/A
	MPA	1.19	N/A	ND	ND	ND	N/A
SB-33A-14	IMPA	73	N/A	ND	ND	N/A	N/A
	MPA	8.06	N/A	ND	ND	N/A	N/A
SB-33A-15	IMPA	12	N/A	ND	ND	N/A	N/A
	MPA	1.24	N/A	ND	ND	N/A	N/A
SB-33A-16	IMPA	ND	N/A	7.2	1.47	ND	8.59
	MPA	90	N/A	ND	ND	ND	ND
SB-33A-17	IMPA	10.9	N/A	1.57	1.04	ND	ND
	MPA	5.57	N/A	ND	ND	ND	22.2
SB-33A-18	IMPA	19.1	N/A	19.3	1.34	ND	9.06
	MPA	7.63	N/A	2.73	ND	ND	ND
SB-33A-19	IMPA	420	N/A	1.42	ND	N/A	N/A
	MPA	ND	N/A	ND	ND	N/A	N/A
SB-33A-20	IMPA	310	N/A	2.15	ND	N/A	N/A
	MPA	140	N/A	ND	ND	N/A	N/A
SB-33A-21	IMPA	220	N/A	6.95	ND	1.19	ND
	MPA	89	N/A	1.22	ND	ND	ND
SB-33A-22	IMPA	260	N/A	4.11	ND	ND	1.13
	MPA	160	N/A	1.45	ND	ND	ND
SB-33A-23	IMPA	ND	N/A	ND	0.849	ND	4.37
	MPA	ND	N/A	ND	ND	ND	ND
SB-33A-24	IMPA	7.1	N/A	ND	ND	ND	ND
	MPA	ND	N/A	ND	ND	ND	ND
SB-33A-25	IMPA	ND	N/A	ND	1.78	ND	N/A
	MPA	ND	N/A	ND	ND	ND	N/A
SB-33A-26	IMPA	42	N/A	ND	ND	ND	ND
	MPA	16.4	N/A	ND	ND	ND	ND
SB-33A-27	IMPA	ND	N/A	2.56	ND	ND	ND
	MPA	0.799	N/A	ND	ND	ND	ND
SB-33A-28	IMPA	18	N/A	ND	ND	ND	ND
	MPA	31	N/A	ND	ND	ND	ND
SB-33A-29	IMPA	ND	N/A	ND	ND	ND	ND
	MPA	200	N/A	21	ND	ND	2.98

LEGEND:

- SWMU 33
- GRAVEL DRIVE
- RAILROAD
- PHASE II SOIL BORING (0–1 FT. BLS)
- PHASE II SOIL BORING (0–0.5 FT. BLS)
- PHASE IIA SOIL BORING LOCATION
- IMPA ..... ISOPROPYLMETHYL PHOSPHONATE ACID
- MPA ..... METHYL PHOSPHONATE ACID
- ND ..... NOT DETECTED
- N/A ..... DEPTH NOT SAMPLED
- PHASE IIA LITHOLOGIC BOREHOLES

VEGETATION TYPES:

- D ..... DISTURBED AREAS–NO VEGETATION
- GF ..... BUNCHGRASSES/ANNUAL FORBS

NOTES:

1.) BASE MAP INFO. WAS SCANNED AND IS ACCURATE TO 1:1000.

2.) UNITS ARE IN ug/g.

N

0 25 50

SCALE:1"=50'

AREA 1 | AREA 2 | AREA 3
AREA 4 | AREA 5 | AREA 6

KEY MAP
NOT TO SCALE

Deseret Chemical Depot
Tooele, Utah

SWMU 33A – PHASE II SOIL SAMPLE RESULTS, AGENT BREAKDOWN PRODUCTS

Figure:	Project:	File:	Date:
9–6	01–0827–03–6523–042	7109/RF133ABP	NOV. 2000

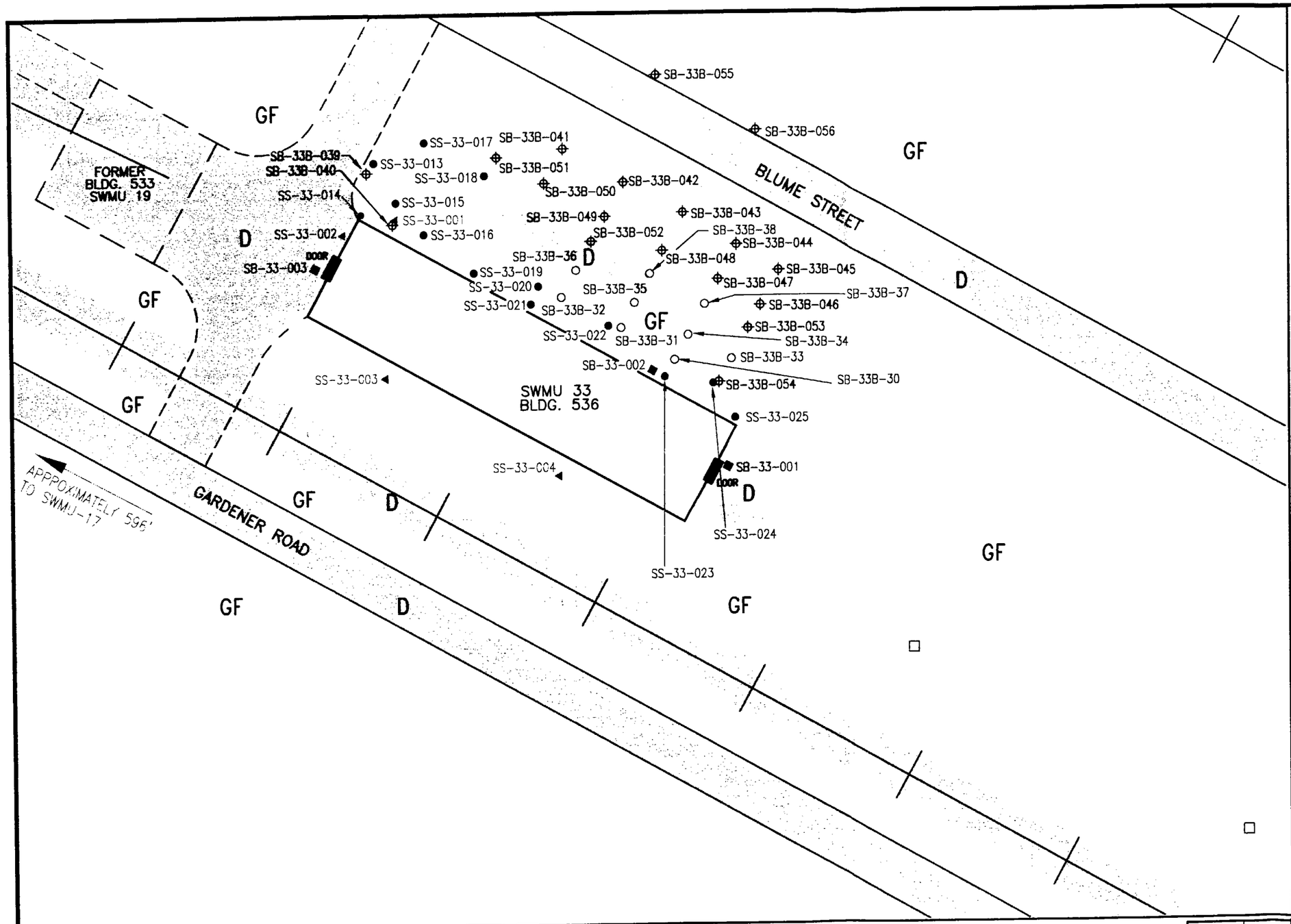
ranging from 2.13 to 19.1 µg/g. The maximum concentration of each agent breakdown product was detected in boring SB-33-010 at 1 foot BLS. These breakdown products are inconsistently identified with depth (e.g., detected at 1, 3, and 12 feet BLS and not at 10 feet BLS in the same boring [SB-33A-12, SB-33A-16, and SB-33A-17]) with no single, identifiable source area. Figure 9-6 presents the distribution and concentration of the detected agent breakdown products.

Summary of SWMU 33A Soil Sampling Results—The Phase II results confirmed the random and limited presence of inorganics above background and agent breakdown products within Building 536. A limited number of inorganic COPCs exceeding their respective UTL was identified. Cadmium was identified as a COPC only in the surface soil; silver was identified as a COPC only in the subsurface soil. The COPCs antimony, cyanide, lead, and mercury were identified in the surface and subsurface soils at concentrations exceeding their respective UTL. The magnitude of the concentration of all inorganic COPCs was the same in the surface as it was in the subsurface soil. Generally, COPCs exceeding their UTL were not found in more than one sample per boring with the maximum concentration never deeper than 3.5 feet BLS (antimony, 12 µg/g, 3.5 feet BLS). Mercury concentrations exceeding its UTL were not detected in samples collected from greater than the 1-foot BLS sampling depth. The distribution of inorganic COPCs exceeding their respective UTL inside Building 536 does not suggest an identifiable source for inorganic contamination. The concentrations of inorganics COPCs identified were the same order of magnitude as their respective background UTL.

Chemical agent breakdown products were distributed throughout the inside of the building. IMPA, MPA, and thiodiglycol predominantly were detected in the surface soils. The maximum concentrations for all breakdown products were identified in the surface soils (thiodiglycol was detected only in the surface soil). IMPA and MPA generally decreased with depth, sometimes by two orders of magnitude between the surface and deepest samples collected from a boring (e.g., SB-33A-12 [880 µg/g, surface – 21 µg/g, 12 feet BLS; SB-33A-22 [260 µg/g, surface – 1.13 µg/g, 12 feet BLS], and SB-33A-29 [200 µg/g, surface – 2.98 µg/g, 12 feet BLS]). IMPA and MPA tend to remain in the surface soils, as shown in borings SB-33A-13, SB-33A-14, and SB-33A-15, in which the chemicals are found in the surface but not in any of the subsurface samples. The higher concentrations of agent breakdown products are found in the center of the building, along the walls (in areas where you would anticipate drum storage), and near the building doors. The inconsistent areal distribution of the agent breakdown products does not suggest a single consistent source area. The limited horizontal and vertical extent of the agent breakdown products supports the historical reports that limited, random spills, attributable to the type of drums in which the "dried organic salts" were stored (i.e., cardboard), are the source of the contamination.

9.5.3.2 Inside Building 536 (SWMU 33A) Chemical Transport Model Results

Because of the lack of groundwater analytical data at SWMU 33, chemical transport of selected constituents from the shallow soil to the groundwater table was estimated using the Pesticide Root Zone Model (PRZM-2) developed by the U.S. Environmental Protection Agency (EPA) (1993). Mercury was selected as the parameter of concern for the modeling effort at SWMU 33B. Parameters for the model were obtained from site data, literature values, and model default values. The model estimates assume that the initial (maximum) concentrations obtained during Phase II activities are representative of site conditions and that the source of the



Site ID	Depth (BLS ft.)				
	0	0.5	1	5	10
SB-33-001	0.471	0.43	0.661	N/A	N/A
SB-33-002	3.8	2.7	0.94	N/A	N/A
SB-33-003	0.108	0.615	ND	N/A	N/A
SS-33-001	25	N/A	N/A	N/A	N/A
SS-33-002	0.28	N/A	N/A	N/A	N/A
SS-33-003	0.958	N/A	N/A	N/A	N/A
SS-33-004	0.52	N/A	N/A	N/A	N/A
SS-33-013	2.1	N/A	N/A	N/A	N/A
SS-33-014	0.4	N/A	N/A	N/A	N/A
SS-33-015	0.7	N/A	N/A	N/A	N/A
SS-33-016	ND	N/A	N/A	N/A	N/A
SS-33-017	0.4	N/A	N/A	N/A	N/A
SS-33-018	0.8	N/A	N/A	N/A	N/A
SS-33-019	0.7	N/A	N/A	N/A	N/A
SS-33-020	42	N/A	N/A	N/A	N/A
SS-33-021	0.6	N/A	N/A	N/A	N/A
SS-33-022	236	N/A	N/A	N/A	N/A
SS-33-023	0.7	N/A	N/A	N/A	N/A
SS-33-024	3	N/A	N/A	N/A	N/A
SS-33-025	ND	N/A	N/A	N/A	N/A
SB-33B-30	1.45	N/A	ND	ND	N/A
SB-33B-31	0.772	N/A	0.070	0.05	N/A
SB-33B-32	0.82	N/A	ND	ND	N/A
SB-33B-33	1.53	N/A	0.067	ND	N/A
SB-33B-34	2.62	N/A	0.058	ND	N/A
SB-33B-35	2.07	N/A	ND	ND	N/A
SB-33B-36	167	N/A	0.080	ND	N/A
SB-33B-37	118	N/A	ND	0.681	0.054
SB-33B-38	190	N/A	0.279	0.102	N/A
SB-33B-39	0.36	N/A	0.074	ND	N/A
SB-33B-40	0.244	N/A	ND	ND	N/A
SB-33B-41	0.186	N/A	0.043	ND	ND
SB-33B-42	0.12	N/A	0.096	ND	ND
SB-33B-43	0.067	N/A	0.050	ND	ND
SB-33B-44	0.245	N/A	0.065	ND	ND
SB-33B-45	0.394	N/A	0.571	ND	ND
SB-33B-46	0.224	N/A	1.12	ND	ND
SB-33B-47	0.176	N/A	0.678	ND	ND
SB-33B-48	0.103	N/A	0.111	ND	ND
SB-33B-49	0.132	N/A	0.129	ND	ND
SB-33B-50	0.123	N/A	ND	ND	ND
SB-33B-51	0.27	N/A	ND	ND	ND
SB-33B-52	6.22	N/A	0.735	ND	ND
SB-33B-53	17.5	N/A	0.446	ND	ND
SB-33B-54	1.77	N/A	ND	ND	ND
SB-33B-55	0.214	N/A	ND	ND	ND
SB-33B-56	0.485	N/A	ND	ND	ND

All data in ug/g.
Upper Tolerance Limit for Mercury is 0.359 µg/g.
All data shaded yellow exceeds associated UTL.
ND = Not Detected
N/A = Depth Not Sampled

LEGEND:

- ..... SWMU 33
- ○...PHASE IIA SOIL BORING LOCATION
- – – – ..... GRAVEL DRIVE
- +++++++ ..... RAILROAD
- ■... PHASE II SOIL BORING (0–1 FT)
- ▲.. PHASE II SOIL BORING (0–0.5 FT)
- ●.... PHASE II ADDITIONAL MERCURY SURFACE SAMPLE (0–0.5 FT. BLS)
- ⊕...PHASE IIB SOIL BORING LOCATION
- □.. PHASE IIA LITHOLOGIC BOREHOLES

VEGETATION TYPES:

D .....DISTURBED AREAS–NO VEGETATION
GF .....BUNCHGRASSES/ANNUAL FORBS

NOTES:

1.) BASE MAP INFO. WAS SCANNED AND IS ACCURATE TO 1:1000.
2.) UNITS ARE IN ug/g. (PPM)
3.) SWMU 17 Hg ACTION LEVEL: 5 ug/g.

N

0 25 50
SCALE:1"=50'

AREA 1 | AREA 2 | AREA 3
AREA 4 | AREA 5 | AREA 6

KEY MAP
NOT TO SCALE

Deseret Chemical Depot
Tooele, Utah

SWMU 33B – PHASE II SOIL SAMPLE RESULTS, MERCURY CONCENTRATIONS GREATER THAN THE UTL

Figure:	Project:	File:	Date:
9–7	01–0827–03–6523–042	7109/RFI33MCG	NOV. 2000

Summary of SWMU 33B Soil Sampling Results—The distribution of the inorganic COPCs, except for mercury, exceeding their respective UTL at SWMU 33B does not suggest an identifiable source for inorganic contamination. The identified inorganics were the same order of magnitude as their respective background UTL.

The mercury concentrations exceeding the UTL are predominantly confined to the surface soils. Thirty-four of 48 surface samples exceeded the UTL; 8 of 74 subsurface samples exceeded the UTL. Only 8 of the 48 surface samples exceed 5 µg/g, the cleanup level for mercury that was established at SWMU 17 (EBASCO 1993a). The maximum mercury concentration in the subsurface samples is 1.12 µg/g, with concentrations generally decreasing with depth. Only one sample at 5 feet BLS exceeded the UTL; no samples collected at 10 feet BLS exceeded the mercury UTL. The locations of sample points exceeding the respective UTL generally are found within 50 feet of Building 536, south of Blume Street, with the exception of one point north of Blume Street (SB-33B-056, 0.485 µg/g). Surface sample points along the eastern boundary exceed the UTL, but only one concentration is greater than 3 µg/g (17.5 µg/g [SB-33B-053]). The distribution of the mercury concentrations also is variable; the maximum concentration (236 µg/g [SB-33-022]) was detected adjacent to a sample point at a concentration of 0.772 µg/g (SB-33B-031). The vertical and horizontal extent of mercury has been defined; however, there is not an apparent source area.

9.5.3.4 Outside Building 536 (SWMU 33B) Chemical Transport Model Results

Because of the lack of groundwater analytical data at SWMU 33, chemical transport of selected constituents from the shallow soil to the groundwater table was estimated using the PRZM-2 developed by EPA (1993). IMPA was selected as the parameter of concern for the modeling effort at SWMU 33A. Parameters for the model were obtained from site data, literature values, and model default values. The model estimates assume that the initial (maximum) concentrations obtained during Phase II activities are representative of site conditions and that the source of the chemical constituents has been abated. Historical meteorological conditions as represented by conditions at Salt Lake City, Utah, are assumed to sufficiently estimate conditions at DCD. The subsurface conceptual model was determined based on the observations recorded during the drilling and sampling of monitoring wells at SWMU 19. This assumption is based on the fact that the soil sampling at SWMU 33A was confined to the upper 15 feet, the lithologic sampling of the well borings at SWMU 19 extended to the groundwater table, and SWMU 33A is directly adjacent to SWMU 19.

IMPA is the most mobile compound detected in soil at SWMU 33A. The source of IMPA in the surface soil is the result of dried organic salts leaking from containers stored within an enclosed structure (Building 536). For the purposes of these transport estimates, the enclosure structure is disregarded in the conceptual model and the soil concentrations are subject to infiltrating precipitation. Chemical properties for IMPA were obtained from the various sources identified in Section 3.2.8. The compound is highly soluble (48,000 mg/L) in water, does not readily adsorb to soil (K_d=1.32), and is not particularly volatile from water ($K_H = 6.88 \times 10^{-9}$ atm m^3/mol). The diffusivity in air (8,858 cm^2/day) and the soil degradation rate constant (2.88×10^{-3} day^{-1}) indicate that the compound may substantially degrade under variably saturated soil conditions.

The results of PRZM-2 estimates of chemical transport in the variably saturated DCD soil indicate that IMPA concentrations may degrade to concentrations below the detection limit (0.5 µg/g). After 7 years, IMPA would not reach the water table (approximately 117 feet BLS) in detectable concentrations over 35 years under the conditions of the model. Section 3.2.8 provides details on the model and Appendix F presents the model calculations. These results are regarded as conservative in that the study area is enclosed in a structure that inhibits precipitation infiltration. Chemical concentrations at the last modeled 1-foot interval (20 feet BLS) are below detection limits throughout the model period (35 years).

9.5.3.5 Drainage Swale (SWMU 33C) Soil Sampling Results

Eight test pits (TP-33-001 through TP-33-008) were excavated to 10 feet BLS within the drainage swale located southeast of Building 536. Construction materials were identified during the test pit excavation, including wood, sheet metal, roofing shingles and gutters, and cement debris. Four samples were collected from between 0 and 10 feet BLS at each test pit and analyzed for metals, cyanide, VOCs, SVOCs, PCBs, explosives, and agent breakdown products. Figure 9-4 presents the location of the sample points for each investigation event. Table 9-8 summarizes the results of these analyses. Data tables presenting all analytical results are presented in Appendix I.

SWMU 33C Surface Soil Sampling Results—Cyanide, PCBs, explosives, and agent breakdown products were not identified in the surface soils at SWMU 33C. No inorganic elements were detected at concentrations exceeding their respective UTL. Trichlorofluoromethane and naphthalene were the only organic compounds detected in the surface samples. Naphthalene was detected in one of the eight surface samples (0.052 µg/g, TP-33-002A); trichlorofluoromethane was detected in three of the eight surface samples at concentrations ranging from 0.011 to 0.015 µg/g. Table 9-9 presents a statistical evaluation of the inorganic and organic chemicals detected in the surface soils, including the range of detected concentrations and the location of the maximum detected result. Figure 9-5 presents the soil sample results for SWMU 33C.

SWMU 33C Subsurface Soil Sampling Results—Cyanide, PCBs, explosives, and agent breakdown products were not identified in the SWMU 33C subsurface soils (greater than 0.5 feet BLS). Cadmium, copper, lead, mercury, and zinc were identified as inorganic COPCs with concentrations greater than their respective UTL. The distribution of the test pits subsurface sample results for these inorganic COPCs and all detected organic compounds is presented in Figure 9-5.

Cadmium, copper, mercury, and zinc were detected in only 1 of the 24 subsurface soil samples at concentrations exceeding their respective UTL, with cadmium, copper, and zinc exceeding the UTL only in TP-33-007. Mercury was detected at a concentration exceeding its UTL (0.359 µg/g) in only one sample (0.551 µg/g, TP-33-001, 10 feet BLS). Lead was detected in three samples at concentrations (16 to 644 µg/g) exceeding its UTL (401 µg/g). Table 9-9 presents a statistical summary of the inorganics detected in the subsurface soils and their range of concentrations.

Four SVOCs (2-methylnaphthalene, di-n-butyl phthalate [DNBP], phenanthrene, and naphthalene) and four VOCs (chloroform, benzene, trichlorofluoromethane, and toluene) were

detected at varying depths in the subsurface soils. Figure 9-5 presents the distributions of the identified organic chemicals. The concentration of the detected organic compounds were relatively low with none of the concentrations exceeding 0.97 µg/g. Table 9-9 presents a statistical summary of the organic compounds detected in the subsurface soils, their range of concentrations, and the location of the maximum concentration.

Summary of SWMU 33C Soil Sampling Results—A limited number of inorganic chemicals and organic compounds were detected at SWMU 33C. Concentrations of both were relatively low, with inorganic concentrations the same order of magnitude as their respective UTL. There is no significant source of organic contamination as confirmed by the nondetect results during the SOV survey and the limited organic compounds detected in the soils. The organic compounds may be related to the asphalt roofing shingles that were identified.

9.6 SWMU 33 HUMAN HEALTH RISK ASSESSMENT

A baseline human health risk assessment was conducted to determine the risks associated with exposure to chemicals detected at SWMU 33. Baseline risks are defined as risks in the absence of remediation or institutional controls at the SWMU. All of the human health risk data tables for SWMU 33 are presented at the end of Section 9.

9.6.1 Baseline Human Health Risk Assessment

This section presents the results and conclusions along with SWMU-specific information pertaining to the human health risk assessment for SWMU 33. The general methods used to conduct the risk assessment and information applicable to all of the SWMU is presented in Section 4.1.

9.6.1.1 Methodology Overview

The methods for selecting COPCs are detailed in Section 4.1.1.2. As part of the COPC selection process, data were aggregated into three exposure units (i.e., inside Building 536, outside Building 536, and the drainage swale) and compared to the corresponding background data set. Monitoring data for produce and beef tissue are not available at SWMU 33. However, the risk assessment evaluates exposures to these media. Exposure point concentrations for these media were derived from soil concentrations using simple models (see Section 4.1.2.3). Therefore, the COPCs selected for soils are also the COPCs for produce and beef.

The COPCs in soil for SWMU 33 are listed in Tables 9-10 through 9-12. Additional information is presented in the Appendix K tables entitled, "Summary Statistics and Exposure Point Concentrations." These tables present general summary statistics (e.g., minimum and maximum detected values, minimum and maximum certified reporting limits [CRLs], mean, and 95 percent upper confidence limit [UCL]) and exposure point concentrations.

The risk assessment evaluates exposures under both current and potential future land uses. Under current land use, an industrial land use scenario has been evaluated in which the receptors at potential risk of exposure are Depot workers. The most likely future land use of DCD is the

same as current land use (i.e., industrial). At SWMU 33, risks under a future industrial land use scenario would be the same as the risks under the current industrial scenario. Therefore, the industrial land use scenario has a "current/future" designation to show that it is applicable to both current and future land use. Additional future land use scenarios include a residential scenario, evaluated in accordance with the Utah Hazardous Waste Management Rules (Utah 1999), and a future construction worker scenario. Exposure pathways evaluated in the risk assessment are shown in Table 4-2.

The derivation of the exposure point concentrations for all pathways is explained in Section 4.1.2.3. The exposure point concentrations for the COPCs are presented in the Appendix K tables entitled, "Summary Statistics and Exposure Point Concentrations" and in each chemical-specific risk characterization table in Appendix L. The exposure assumptions used to estimate chronic daily intake are presented in Table 4-3.

The methods used in the risk characterization are detailed in Section 4.1.4. The human health risks are presented in terms of excess lifetime cancer risks (ELCRs), hazard indices (HIs), and blood lead levels for each pathway and receptor. The State of Utah has established target risk levels for use in determining the need for remediation. The risk assessment calculates risks and compares these to target levels. If the target levels are exceeded, the chemicals of concern (COCs) responsible for the exceedances are identified. As opposed to COPCs, COCs are identified after the quantitative risk assessment has been completed. To be consistent with the guidelines set by the State of Utah for corrective action, COCs in the human health risk assessment are individual chemicals that contribute to pathway risks exceeding any of the following:

- HI of 1
- Cancer risk greater than 1×10^{-4} for the actual or potential land use scenario
- Cancer risk greater than 1×10^{-6} for the residential land use scenario.

COCs have been identified separately for each land use scenario and may either independently exceed targets or combine to exceed targets.

9.6.1.2 Human Health Risk Assessment Results for SWMU 33A – Inside Building 536

The results of the risk characterization for all analytes except lead are presented in Tables 9-13 and 9-14 (food chain pathway risks are presented separately). Table 9-15 presents the COCs for the food chain pathways, their respective reasonable maximum exposure (RME) risk, and contribution to the total RME HI or cancer risk. No COCs were identified for the pathways involving direct contact with the surface and subsurface soil. These results are summarized below.

Depot Workers (Current/Future Land Use)—The combined noncancer HI resulting from surface soil exposures for the current Depot worker is 0.08, which is less than the target HI of 1. The combined cancer risk for the current Depot worker is 1×10^{-9}, which is less than the target cancer risk of 1×10^{-4}. The maximum concentration of lead in the surface soil at SWMU 33A exceeds the 400 parts per million (ppm) screening level. Therefore, modeling to evaluate receptor blood lead levels in the fetus of a female adult Depot worker was conducted. The

modeling results (using the arithmetic mean as the exposure point concentration) show that the mean blood lead level in the fetus is 7 µg/dL, which is below the Centers for Disease Control and Prevention(CDC) target (10 µg/dL).

Construction Workers (Future Land Use)—The combined noncancer HIs for the construction worker are 0.07 for surface soil exposures and 0.01 for subsurface soil exposures. Both are less than the target HI of 1. The combined cancer risks are 5×10^{-11} for surface soil exposures and 7×10^{-10} for subsurface soil exposures, which are less than the target cancer risk of 1×10^{-4}. The maximum concentrations of lead in the surface and subsurface soils at SWMU 33A exceed the 400 ppm screening level. Therefore, modeling to evaluate receptor blood lead levels in the fetus of a female adult construction worker was conducted. The modeling results (using the arithmetic mean as the exposure point concentration) show that mean blood lead levels in the fetus are 8 µg/dL (for surface soils) and 7 µg/dL (for subsurface soils), which are below the CDC target (10 µg/dL).

Residents (Future Land Use)—The combined noncancer HIs for the child (1 for surface soil exposures and 0.2 for subsurface soil exposures) are at or below the target HI of 1. The combined noncancer HIs for the adult (0.1 for surface soil exposures and 0.02 for subsurface soil exposures) are below the target HI of 1. The combined cancer risks for the integrated child/adult resident (2×10^{-9} for surface soil exposures and 3×10^{-8} for subsurface soil exposures) are below the cancer risk target of 1×10^{-6}. The maximum concentrations of lead in the surface and subsurface soils at SWMU 33A exceed the 400 ppm screening level. Therefore, modeling to evaluate receptor blood lead levels in resident children was conducted. The modeling results (using the arithmetic mean as the exposure point concentration) show that mean blood lead levels from both surface and subsurface soil exposures (10 and 7 µg/dL, respectively) are at or below the CDC target for the resident child.

For the food chain pathways (produce and beef ingestion), the combined noncancer HIs for the surface soil (500 for the resident child and 200 for the resident adult) exceed the target HI of 1. The combined noncancer HIs for the subsurface soil (1 for the resident child and 0.4 for the resident adult) are at or below the target HI of 1. Cancer risks are not quantified because none of the soil COPCs has an EPA-approved toxicity value for carcinogenic effects.

The following were identified as COCs associated with produce grown in surface soils for residents:

- Cadmium
  - Leafy vegetable ingestion hazard quotient (HQ) = 0.9 (child), 0.3 (adult)
  - Tuberous vegetable ingestion HQ = 0.3 (child), 0.08 (adult)
  - Fruit ingestion HQ = 0.3 (child), 0.1 (adult)
- IMPA
  - Leafy vegetable ingestion HQ = 200 (child), 60 (adult)
  - Tuberous vegetable ingestion HQ = 100 (child), 30 (adult)
  - Fruit ingestion HQ = 7 (child), 2 (adult)

- MPA — Leafy vegetable ingestion HQ = 50 (child), 20 (adult)
  Tuberous vegetable ingestion HQ = 100 (child), 40 (adult)
  Fruit ingestion HQ = 2 (child), 0.6 (adult).

9.6.1.3 Human Health Risk Assessment Results for SWMU 33B – Outside Building 536

The results of the risk characterization for all analytes except lead are presented in Tables 9-16 and 9-17 (food chain pathway risks are presented separately). Tables 9-18 and 9-19 present the COCs for each medium, their respective RME risk, and contribution to the total RME HI or cancer risk. These results are summarized below.

Depot Workers (Current/Future Land Use)—The combined noncancer HI resulting from surface soil exposures for the current Depot worker is 0.3, which is less than the target HI of 1. The combined cancer risk for the current Depot worker is 4×10^{-9}, which is less than the target cancer risk of 1×10^{-4}. The maximum concentration of lead in the surface soil at SWMU 33B exceeds the 400 ppm screening level. Therefore, modeling to evaluate receptor blood lead levels in the fetus of a female adult Depot worker was conducted. The modeling results (using the arithmetic mean as the exposure point concentration) show that the mean blood lead level in the fetus is 8 µg/dL, which is below the CDC target (10 µg/dL).

Construction Workers (Future Land Use)—The combined noncancer HIs for the construction worker are 0.1 for surface soil exposures and 0.04 for subsurface soil exposures. Both are less than the target HI of 1. The combined cancer risks are 2×10^{-10} for surface soil exposures and 4×10^{-11} for subsurface soil exposures, which are less than the target cancer risk of 1×10^{-4}. The maximum concentrations of lead in the surface and subsurface soils at SWMU 33B exceed the 400 ppm screening level. Therefore, modeling to evaluate receptor blood lead levels in the fetus of a female adult construction worker was conducted. The modeling results (using the arithmetic mean as the exposure point concentration) show that mean blood lead levels in the fetus are 10 µg/dL (for surface soils) and 9 µg/dL (for subsurface soils), which are at or below the CDC target (10 µg/dL).

Residents (Future Land Use)—The combined noncancer HIs for the child are 4 for surface soil exposures and 0.5 for subsurface soil exposures. The surface soil HI exceeds the target HI of 1. For the child, noncancer HIs were segregated according to target organ. The target organ HI (TOHI) exceeds 1 for the liver and blood (due to thallium exposure). The combined noncancer HIs for the adult (0.4 for surface soil exposures and 0.07 for subsurface soil exposures) are below the target HI of 1. The combined cancer risks for the integrated child/adult resident (9×10^{-9} for surface soil exposures and 2×10^{-9} for subsurface soil exposures) are below the cancer risk target of 1×10^{-6}. The maximum concentrations of lead in the surface and subsurface soils at SWMU 33B exceed the 400 ppm screening level. Therefore, modeling to evaluate receptor blood lead levels in resident children was conducted. The modeling results (using the arithmetic mean as the exposure point concentration) show that mean blood lead levels from both surface and subsurface soil exposures exceed the CDC target for the resident child.

The following were identified as COCs in soils for residents:

- Lead — Surface soil, 95th percentile mean blood lead level = 16 µg/dL
  Subsurface soil, 95th percentile mean blood lead level = 13 µg/dL
- Thallium — Surface soil ingestion HQ = 2 (child), 0.2 (adult).

For the food chain pathways (produce and beef ingestion), the combined noncancer HIs for the surface soil (60 for the resident child and 20 for the resident adult) exceed the target HI of 1. The combined noncancer HIs for the subsurface soil (70 for the resident child and 20 for the resident adult) also exceed the target HI of 1. Cancer risks are not quantified because none of the soil COPCs has an EPA-approved toxicity value for carcinogenic effects.

The following were identified as COCs associated with produce grown in surface soils for residents:

- Cadmium — Leafy vegetable ingestion HQ = 3 (child), 1 (adult)
  Tuberous vegetable ingestion HQ = 1 (child), 0.3 (adult)
  Fruit ingestion HQ = 1 (child), 0.4 (adult)
- Copper — Leafy vegetable ingestion HQ = 4 (child), 1 (adult)
  Tuberous vegetable ingestion HQ = 4 (child), 1 (adult)
  Fruit ingestion HQ = 4 (child), 1 (adult)
- Mercury — Leafy vegetable ingestion HQ = 0.9 (child), 0.3 (adult)
  Tuberous vegetable ingestion HQ = 2 (child), 0.8 (adult)
  Fruit ingestion HQ = 2 (child), 0.5 (adult).

The following was identified as a COC associated with produce grown in subsurface soils for residents:

- Manganese — Leafy vegetable ingestion HQ = 20 (child), 7 (adult)
  Tuberous vegetable ingestion HQ = 9 (child), 3 (adult)
  Fruit ingestion HQ = 3 (child), 0.9 (adult).

The following were identified as COCs associated with ingestion of beef for residents:

- Mercury — Beef ingestion HQ = 30 (child), 10 (adult)
- Thallium — Beef ingestion HQ = 7 (child), 3 (adult).

9.6.1.4 Human Health Risk Assessment Results for SWMU 33C – Drainage Swale

The results of the risk characterization for all analytes except lead are presented in Tables 9-20 and 9-21 (food chain pathway risks are presented separately). Table 9-22 presents the COCs for the food chain pathways, their RME risk, and contribution to the total RME HI or cancer risk. No COCs were identified for the pathways involving direct contact with the surface and subsurface soil. These results are summarized below.

Depot Workers (Current/Future Land Use)—The combined noncancer HI resulting from surface soil exposures for the current Depot worker is 0.01, which is less than the target HI of 1. The combined cancer risk for the current Depot worker is 2×10^{-9}, which is less than the target cancer risk of 1×10^{-4}.

Construction Workers (Future Land Use)—The combined noncancer HIs for the construction worker are 0.007 for surface soil exposures and 0.01 for subsurface soil exposures. Both are less than the target HI of 1. The combined cancer risks are 8×10^{-11} for surface soil exposures and 1×10^{-10} for subsurface soil exposures, which are less than the target cancer risk of 1×10^{-4}. The maximum concentration of lead in the subsurface soil at SWMU 33C exceeds the 400 ppm screening level. Therefore, modeling to evaluate receptor blood lead levels in the fetus of a female adult construction worker was conducted. The modeling results (using the arithmetic mean as the exposure point concentration) show that the mean blood lead levels in the fetus is 8 µg/dL (for subsurface soils), which is below the CDC target (10 µg/dL).

Residents (Future Land Use)—The combined noncancer HIs for the child (0.09 for surface soil exposures and 0.1 for subsurface soil exposures) are below the target HI of 1. The combined noncancer HIs for the adult (0.02 for surface soil exposures and 0.02 for subsurface soil exposures) also are below the target HI of 1. The combined cancer risks for the integrated child/adult resident (4×10^{-9} for surface soil exposures and 6×10^{-9} for subsurface soil exposures) are below the cancer risk target of 1×10^{-6}. The maximum concentration of lead in the subsurface soil at SWMU 33C exceeds the 400 ppm screening level. Therefore, modeling to evaluate receptor blood lead levels in resident children was conducted. The modeling results (using the arithmetic mean as the exposure point concentration) show that the mean blood lead level from subsurface soil exposures exceeds the CDC target for the resident child.

The following was identified as a COC in soils for residents:

- Lead — Subsurface soil, 95th percentile mean blood lead level = 11 µg/dL.

For the food chain pathways (produce and beef ingestion), the combined noncancer HIs for the surface soil (5 for the resident child and 2 for the resident adult) exceed the target HI of 1. The combined noncancer HIs for the subsurface soil (7 for the resident child and 2 for the resident adult) also exceed the target HI of 1. The combined cancer risk for the integrated child/adult resident (4×10^{-8} for subsurface soil exposures) is below the cancer risk target of 1×10^{-6}. Cancer risks for surface soil are not quantified because none of the surface soil COPCs has an EPA-approved toxicity value for carcinogenic effects.

The following were identified as COCs associated with produce grown in surface soils for residents:

- Cadmium — Leafy vegetable ingestion HQ = 1 (child), 0.5 (adult)
  Tuberous vegetable ingestion HQ = 0.4 (child), 0.1 (adult)
  Fruit ingestion HQ = 0.6 (child), 0.2 (adult)

- Copper — Leafy vegetable ingestion HQ = 0.6 (child), 0.2 (adult)
  Tuberous vegetable ingestion HQ = 0.7 (child), 0.2 (adult)
  Fruit ingestion HQ = 0.6 (child), 0.2 (adult).

The following were identified as COCs associated with produce grown in subsurface soils for residents:

- Cadmium — Leafy vegetable ingestion HQ = 2 (child), 0.7 (adult)
  Tuberous vegetable ingestion HQ = 0.6 (child), 0.2 (adult)
  Fruit ingestion HQ = 0.8 (child), 0.3 (adult)
- Copper — Leafy vegetable ingestion HQ = 0.9 (child), 0.3 (adult)
  Tuberous vegetable ingestion HQ = 0.9 (child), 0.3 (adult)
  Fruit ingestion HQ = 0.9 (child), 0.3 (adult).

9.7 SWMU 33 SCREENING-LEVEL ECOLOGICAL RISK ASSESSMENT

This section presents conclusions along with SWMU-specific information pertaining to the screening-level ecological risk assessment (SERA) conducted for SWMU 33. Details on the methodology employed to support this analysis are provided in Section 4.2. All of the SERA data tables for SWMU 33 are presented at the end of Section 9.

9.7.1 Ecological Resources

SWMU 33 consists of a rectangular building (Building 536), approximately 175 by 50 feet, and a drainage swale southwest of the building. This area is bordered to the north by Blume Street and to the south by Gardener Road. SWMU 33 covers approximately 1.15 acres and lies approximately 75 feet to the southeast of SWMU 19. Vegetation mapping by EBASCO (1994) indicates the land surrounding Building 536 lies within a bunchgrass/annual forb habitat. The limited 1994 ecological reconnaissance that Science Applications International Corporation (SAIC) conducted confirmed the expected sparseness of the vegetation adjacent to the building. During the visit, numerous deer droppings were noted within 100 feet of the building. Across the road and approximately 100 feet to the north, dense clumps of cheat grass and sagebrush are present. During Phase II field activities, SAIC geologists observed a deer resting in the shadow cast by the building.

9.7.2 Ecological Risk Methodology

An ecological risk assessment is necessary at SWMU 33 because habitat conditions are sufficient on and near the SWMU to support small mammals, such as a white-footed deer mouse (*Peromyscus maniculatus*), black-tailed jackrabbit (*Lepus californicus*), and larger native vertebrates, such as mule deer (*Odocoileus hemionus*). The size of the available habitat is approximately 1.15 acres and composed primarily of grasses and rabbitbrush. The size of the home range of the black-tailed jackrabbit in desert conditions is approximately 40 acres (French et al. 1965). When this desert home range is compared to the available habitat on the SWMU, it becomes apparent that approximately 3 percent of the home range area is needed for a black-tailed jackrabbit. The implication is that insufficient habitat exists for jackrabbits.

The area immediately surrounding the SWMU, however, also is capable of supporting individuals and populations that can easily utilize the SWMU area for food, water, and cover. A SERA is performed on a SWMU having open habitat in most directions, having at least one-third the area of an animal's home range, or having a unique characteristic (e.g., water) on it. Since one condition exists on SWMU 33, a SERA is needed.

The methods for conducting ecological risk assessments are detailed in Section 4.2. In summary, the systematic methods follow four inter-related steps: problem formulation, exposure assessment, effects assessment, and risk characterization. The following summarization of risk characterization uses the previously described methods and applies them to SWMU 33.

The conceptual site model (CSM) (Figure 9-8) for ecological receptors presents the projected completed pathways for SWMU 33. Vegetation exposure is via root uptake from soil. Ingestion of soil and vegetation was evaluated for jackrabbits. Ingestion of small mammals (i.e., jackrabbits) was evaluated for golden eagles.

The SERA consisted of a two-step process. First, detected chemicals were selected as ecological chemicals of potential concern (ecoCOPCs) based on a comparison with EPA Region V ecological data quality levels (EDQLs) for surface soil (EPA 1999c) and background concentrations. The ecoCOPCs were evaluated further in the risk characterization section below.

Risk characterization compares exposures to effects to determine the risk or likelihood of harm to plants and animals. An evaluation of the ecological assessment endpoints, using HQs for ecoCOPCs at SWMU 33, forms the quantitative basis of this risk characterization. The use of HQs to calculate the risks to ecological receptors is supported by available guidance (EPA 1992f, 1997c, and 1998).

HQs compare the estimated exposure concentrations to toxicity threshold concentrations. Exposure concentrations are derived from measured environmental concentrations, such as the 95 percent UCL, by multiplying the measured concentration by exposure parameters. As detailed in Section 4.2.5, the exposure parameter incorporates realistic adjustments to the measured environmental concentration (e.g., fraction of ingestion diet that comes from contaminated soil for small mammals) and realistic and reasonable assumptions (e.g., continuous year-round exposure). That is:

$$HQ = \frac{\text{Exposure Point Concentration} \times \text{Exposure Parameters}}{\text{Toxicity Reference Value}}$$

There are instances at SWMU 33 where an HQ cannot be calculated for an ecoCOPC because insufficient data were available to establish a toxicity threshold. These ecoCOPCs are carried through the risk characterization as ecoCOPCs of uncertain risk to ecological receptors.

In determining the ecological assessment endpoints for DCD (Section 4.2.4), an HQ greater than or equal to unity (1) indicates that there is a potential for harmful ecological effects and that the ecoCOPC qualifies as an ecological chemical of concern (ecoCOC). Moreover, the risk of potential effects, severity of effects, or both, is assumed to increase with the magnitude of the

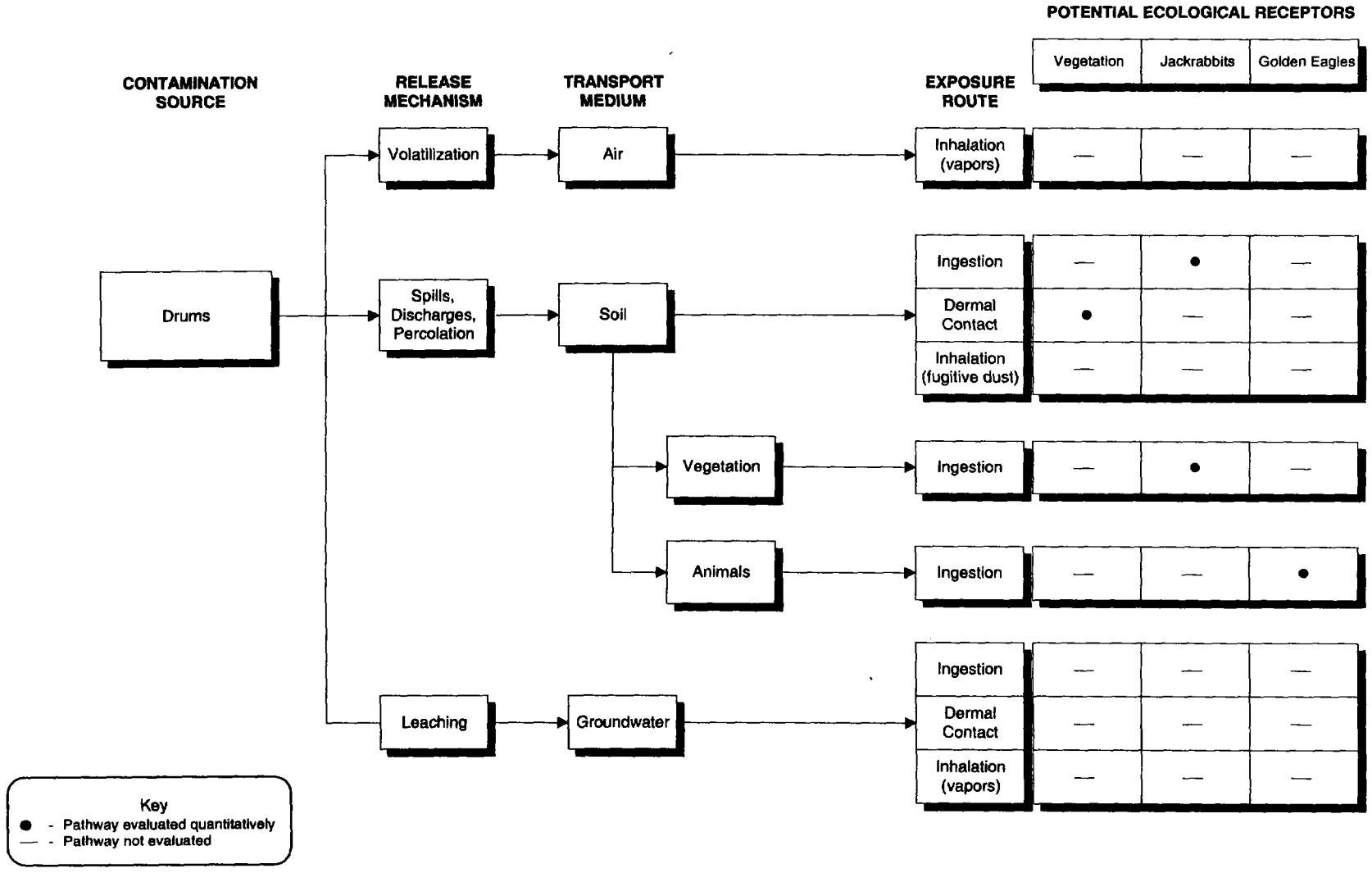


Figure 9-8. Conceptual Site Model for DCD Screening-level Ecological Risk Assessment at SWMU 33

ratio. An HQ threshold of 1 assumes that the toxicity threshold and exposure concentrations are based on accurate predictions and measurements. As detailed in Section 4.2.4 regarding assessment endpoints, setting the threshold of the HQ ratio at 10 rather than 1 adjusts for the overestimation of risk to receptor populations resulting from the use of conservative exposure factors and toxicity thresholds. The eagle is an exception to the 10 threshold; its threshold is 1 because of the necessity to protect individual organisms for threatened and endangered (T&E) organisms.

For SWMU 33, there are two exposure units at two soil depths (0 to 0.5 feet and 0.5 to 15 feet). The exposure units comprise the area outside the building (SWMU 33B), including the test pit, and the drainage swale (SWMU 33C). The receptors are vegetation, black-tailed jackrabbits, and golden eagles. A SERA was not conducted for SWMU 33A because the entire SWMU occurs within Building 536. As a result, few, if any, wildlife exposures would be expected. In the absence of exposure, no ecological risks are associated with SWMU 33A.

9.7.3 Ecological Risk Findings

No stressed plants or animals were observed during the qualitative habitat surveys. Thus, no imminent threat to ecological receptors appears to exist. The chemicals detected in the SWMU 33B surface and subsurface soil samples are presented in Tables 9-23 and 9-24, respectively, while the chemicals detected in the SMWU 33C surface and subsurface soil samples are presented in Tables 9-25 and 9-26, respectively. These tables include a summary of the frequency of detection, the location of the maximum detected concentration, the site exposure point concentration and range of detected concentrations, and the results of the ecological toxicity and background screens. The methods for selecting ecoCOPCs are discussed briefly in Section 5.7.2.2 and are presented in greater detail in Section 4.2.

For SWMU 33B, antimony, cadmium, copper, lead, mercury, silver, thallium, and zinc were selected as ecoCOPCs in surface soil (Table 9-23). Beryllium, lead, manganese, mercury, silver, and zinc were selected as ecoCOPCs in SWMU 33B subsurface soil (Table 9-24). These ecoCOPCs were evaluated further in the SERA using HQs.

For SWMU 33C, cadmium, copper, lead, and zinc were selected as ecoCOPCs in surface soils (Table 9-25). Cadmium, copper, lead, mercury, nickel, zinc, DNBP, and naphthalene were selected as ecoCOPCs in SWMU 33C subsurface soil (Table 9-26). These ecoCOPCs were evaluated further in the SERA using HQs.

At SWMU 33B, there are eight inorganic ecoCOPCs in surface soil and four inorganic ecoCOPCs in subsurface soil (Table 9-27) with HQs above the threshold of 1. As Table 9-27 shows, in the surface soil, three of these contaminants (lead, mercury, and thallium) have HQs greater than 10 for terrestrial plants (12, 94, and 14, respectively). Lead in subsurface soil also had an HQ (11) greater than 10 for terrestrial plants (Table 9-27). Data from the subsurface soil showed slightly lower risks to receptors from these chemicals. Antimony, cadmium, copper, silver, and zinc had HQs calculated between 1 and 10 for terrestrial plants in surface soil; manganese, silver, and zinc had similar HQs for terrestrial plants in subsurface soils. Antimony and silver had HQs calculated between 1 and 10 for jackrabbits exposed to surface soil; silver had a similar HQ for jackrabbits exposed to subsurface soil. No inorganic ecoCOPCs had HQs exceeding 1 for golden

eagles, in part because the size of SWMU 33B is smaller relative to their home ranges. Risks for all ecoCOPCs at SWMU 33B are presented in Tables M-20 through M-25 of Appendix M. A TRV was not available for beryllium for the golden eagle.

At SWMU 33C, there are two inorganic ecoCOPCs in surface soil (Table 9-27) and three inorganic ecoCOPCs in subsurface soil (Table 9-27) with HQs above the threshold of 1. No ecoCOPCs were greater than 10 in either surface or subsurface soil. Lead and zinc had HQs calculated between 1 and 10 for terrestrial plants in surface soil; cadmium, lead, and zinc had similar HQs for terrestrial plants in subsurface soils. No inorganic ecoCOPCs had HQs exceeding 1 for black-tailed jackrabbits and golden eagles, in part because the size of SWMU 33C is smaller relative to their home ranges. Risks for all ecoCOPCs at SWMU 33C are presented in Tables M-26 through M-31 of Appendix M.

An HQ above the threshold of 1, but below 10, indicates a potential risk to individuals rather than a risk to the population as a whole. Thus, many of the ecoCOPCs are likely not of concern at SWMU 33B and 33C because the HQs for plants and jackrabbits are under 10. Assuming an HQ of 10 as being a more realistic assessment endpoint for plant and rabbit populations, the ecoCOCs at SWMU 33B include lead, mercury, and thallium associated with the outside of Building 536. No ecoCOCs are associated with SWMU 33C.

Future estimated risks to plants and animals at SWMU 33 are considered similar to current risks. The same species of plants and animals are assumed to be present at SWMU 33 in the future. Habitats may change as a result of ecological succession and land use changes. This may affect the exact set of receptors at some locations. However, these changes are likely subtle in the context of this work because of the similarity of habitat in all directions, and no risk calculations were made solely for future conditions. Again, future and current risks are assumed to be similar.

Table 9-4. Data Summary Table: Soil - SWMU 33A - Inside Building
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33A-11		SB-33A-11		SB-33A-12	SB-33A-12		SB-33A-13		SB-33A-13		SB-33A-14
Field Sample Number			SAIC01		SAIC01D		SAIC01	SAIC01D		SAIC01		SAIC01D		SAIC01
Site Type			BORE		BORE		BORE	BORE		BORE		BORE		BORE
Collection Date			2/18/99		2/18/99		2/18/99	2/18/99		2/18/99		2/18/99		2/18/99
Depth (ft)			0.00		0.00		0.00	0.00		0.00		0.00		0.00
Associated Field QC Sample - Site Id														
Associated Field QC Sample - Field Sample No.														
Associated Field QC Sample - Site Id														
Associated Field QC Sample - Field Sample No.														
Agent Breakdown (LT04)														
Laboratory Id Number			99U00307		99U00308		99U00467	99U00468		99U00311		99U00312		99U00491
Parameter	Units	RL												
Isopropyl methylphosphonate	ug/g	0.5	LT 0.500	LT	0.500 D		880	1300 D		5.69		3.27 D		73.0
Methylphosphonic acid	ug/g	0.5	1.69		1.88 D		240	540 D		1.19	LT	0.500 D		8.08
Metals (6010)														
Laboratory Id Number			99U00307		99U00308		99U00467	99U00468		99U00311		99U00312		99U00491
Parameter	Units	RL												
Aluminum	ug/g	20	7570		7850 D		6360	6220 D		4410		5080 D		6710
Antimony	ug/g	7	LT 6.00	LT	6.00 D		9.01	LT 6.00 D	LT	6.00		9.42 D		12.3
Arsenic	ug/g	0.5	10.8		9.84 D		10.9	9.75 D		7.96		7.06 D		10.2
Barium	ug/g	2	71.4		63.1 D		55.3	71.8 D		47.3		47.5 D		78.4
Cadmium	ug/g	0.2	0.995		0.769 D		1.12	1.05 D		1.01		1.30 D		1.68
Calcium	ug/g	10	154000		151000 D		151000	164000 D		125000		124000 D		137000
Chromium	ug/g	1	17.7		18.5 D		27.2	24.1 D		37.9		28.3 D		83.9
Copper	ug/g	2	12.6		11.4 D		20.0	18.5 D		20.4		18.9 D		28.1
Iron	ug/g	5	9710		8350 D		8880	8050 D		7250		6930 D		8490
Lead	ug/g	0.3	72.9		41.4 D		102	98.3 D		167		128 D		329
Magnesium	ug/g	10	10600		9790 D		10500	10200 D		7800		8290 D		15800
Manganese	ug/g	1	252		245 D		232	214 D		189		181 D		231
Nickel	ug/g	4	12.9		13.3 D		14.0	10.4 D		10.9		13.5 D		13.1
Potassium	ug/g	300	1840		2000 D		1470	1470 D		1210		1420 D		1720
Silver	ug/g	1	LT 1.00	LT	1.00 D	LT	1.00	LT 1.00 D	LT	1.00	LT	1.00 D	LT	1.00
Sodium	ug/g	20	580		607 D		1780	1800 D		940		1020 D		3940
Vanadium	ug/g	5	17.3		18.0 D		18.8	18.0 D		10.4		11.6 D		19.1
Zinc	ug/g	2	57.7		58.0 D		117	93.0 D		91.4		116 D		144
Metals (7471)														
Laboratory Id Number			99U00307		99U00308		99U00467	99U00468		99U00311		99U00312		99U00491
Parameter	Units	RL												
Mercury	ug/g	0.0500	LT 0.0500		0.0717 D		0.117	0.101 D		0.0919		0.0830 D		0.119

Boolean Codes:
LT - Less than the certified reporting limit
ND - Not detected
Footnotes:
CRL - Certified reporting limits
ID - Identification
N/A - Not applicable
TICs - Tentatively Identified Compound
Flagging Codes:
D - Duplicate analysis.
Qualifiers:
U - Analyte was analyzed for, but was not detected above the reported sampl

Table 9-4. Data Summary Table: Soil - SWMU 33A - Inside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33A-14		SB-33A-15		SB-33A-15		SB-33A-16		SB-33A-17		SB-33A-18		SB-33A-19
Field Sample Number			SAIC01D		SAIC01		SAIC01D		SAIC01		SAIC01		SAIC01		SAIC01
Site Type			BORE		BORE		BORE		BORE		BORE		BORE		BORE
Collection Date			2/18/99		2/18/99		2/18/99		2/18/99		2/18/99		2/18/99		2/18/99
Depth (ft)			0.00		0.00		0.00		0.00		0.00		0.00		0.00
Associated Field QC Sample - Site Id															
Associated Field QC Sample - Field Sample No.															
Associated Field QC Sample - Site Id															
Associated Field QC Sample - Field Sample No.															
Agent Breakdown (LT04)															
Laboratory Id Number			99U00492		99U00315		99U00316		99U00317		99U00318		99U00319		99U00320
Parameter	Units	RL													
Isopropyl methylphosphonate	ug/g	0.5	**130** D		**12.0**		**12.4** D	LT	50.0		**10.9**		**19.1**		**420**
Methylphosphonic acid	ug/g	0.5	**48.0** D		**1.24**		**1.46** D		**90.0**		**5.57**		**7.63**	LT	0.500
Metals (6010)															
Laboratory Id Number			99U00492		99U00315		99U00316		99U00317		99U00318		99U00319		99U00320
Parameter	Units	RL													
Aluminum	ug/g	20	**5880** D		**7030**		**7130** D		**7880**		**4810**		**5880**		**6470**
Antimony	ug/g	7	LT 6.00 D	LT	6.00	LT	6.00 D	LT	6.00	LT	6.00	LT	6.00		**7.06**
Arsenic	ug/g	0.5	**8.89** D		**10.9**		**9.69** D		**10.5**		**8.13**		**7.53**		**13.0**
Barium	ug/g	2	**74.3** D		**60.9**		**47.6** D		**70.6**		**42.9**		**43.2**		**79.5**
Cadmium	ug/g	0.2	**1.77** D		**0.883**		**1.18** D		**0.888**		**0.605**		**0.564**		**1.51**
Calcium	ug/g	10	**160000** D		**126000**		**110000** D		**156000**		**153000**		**166000**		**128000**
Chromium	ug/g	1	**91.8** D		**21.5**		**22.5** D		**23.6**		**15.1**		**13.1**		**55.9**
Copper	ug/g	2	**30.0** D		**19.0**		**17.6** D		**15.3**		**8.59**	U	**6.33**	U	**29.5**
Iron	ug/g	5	**7770** D		**8840**		**7570** D		**9090**		**6200**		**6870**		**9580**
Lead	ug/g	0.3	**385** D		**91.9**		**88.5** D		**70.9**		**50.0**		**16.6**		**273**
Magnesium	ug/g	10	**14600** D		**13700**		**8820** D		**13400**		**12600**		**10200**		**11000**
Manganese	ug/g	1	**228** D		**228**		**191** D		**234**		**193**		**204**		**263**
Nickel	ug/g	4	**9.88** D		**11.7**		**11.8** D		**12.3**		**9.63**		**10.9**		**13.9**
Potassium	ug/g	300	**1700** D		**1710**		**1720** D		**1730**		**1100**		**1240**		**1650**
Silver	ug/g	1	LT 1.00 D	LT	1.00	LT	1.00 D	LT	1.00	LT	1.00	LT	1.00	LT	1.00
Sodium	ug/g	20	**3900** D		**1540**		**1390** D		**2610**		**1060**		**1150**		**2430**
Vanadium	ug/g	5	**16.6** D		**15.5**		**15.8** D		**17.0**		**12.1**		**14.2**		**18.4**
Zinc	ug/g	2	**145** D		**93.6**		**90.2** D		**127**		**44.4**		**40.0**		**138**
Metals (7471)															
Laboratory Id Number			99U00492		99U00315		99U00316		99U00317		99U00318		99U00319		99U00320
Parameter	Units	RL													
Mercury	ug/g	0.0500	**0.110** D		**0.104**		**0.0595** D		**0.568**		**0.232**	LT	0.0500		**0.144**

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Table 9-4. Data Summary Table: Soil - SWMU 33A - Inside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33A-19	SB-33A-20	SB-33A-21	SB-33A-22	SB-33A-23	SB-33A-24	SB-33A-24
Field Sample Number			SAIC01D	SAIC01	SAIC01	SAIC01	SAIC01	SAIC01	SAIC01D
Site Type			BORE	BORE	BORE	BORE	BORE	BORE	BORE
Collection Date			2/18/99	2/18/99	2/18/99	2/18/99	2/18/99	2/18/99	2/18/99
Depth (ft)			0.00	0.00	0.00	0.00	0.00	0.00	0.00
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Agent Breakdown (LT04)									
Laboratory Id Number			99U00321	99U00322	99U00323	99U00324	99U00325	99U00326	99U00327
Parameter	Units	RL							
Isopropyl methylphosphonate	ug/g	0.5	**130** D	**320**	**220**	**260**	LT 0.500	**7.10**	**6.80** D
Methylphosphonic acid	ug/g	0.5	LT 0.500 D	**140**	**89.0**	**160**	LT 0.500	LT 20.0	**14.8** D
Metals (6010)									
Laboratory Id Number			99U00321	99U00322	99U00323	99U00324	99U00325	99U00326	99U00327
Parameter	Units	RL							
Aluminum	ug/g	20	**5430** D	**7090**	**9410**	**5550**	**4460**	**8800**	**8270** D
Antimony	ug/g	7	LT 6.00 D	LT 6.00	LT 6.00	LT 6.00	**24.0**	LT 6.00	LT 6.00 D
Arsenic	ug/g	0.5	**9.25** D	**12.6**	**11.5**	**7.47**	**7.23**	**10.8**	**9.10** D
Barium	ug/g	2	**62.0** D	**64.7**	**80.6**	**58.0**	**45.1**	**94.4**	**86.6** D
Cadmium	ug/g	0.2	**1.32** D	**0.887**	**0.797**	**0.654**	**0.402**	**2.36**	**2.37** D
Calcium	ug/g	10	**165000** D	**170000**	**155000**	**174000**	**156000**	**147000**	**171000** D
Chromium	ug/g	1	**49.1** D	**25.3**	**20.0**	**26.8**	**12.4**	**77.2**	**56.2** D
Copper	ug/g	2	**23.6** D	**11.4**	**7.80**	**12.4**	**7.66**	**34.3**	**28.4** D
Iron	ug/g	5	**6590** D	**8890**	**9400**	**7150**	**6560**	**10800**	**9220** D
Lead	ug/g	0.3	**244** D	**82.0**	**21.2**	**75.5**	**18.3**	**328**	**230** D
Magnesium	ug/g	10	**10300** D	**11400**	**9570**	**10700**	**11100**	**12600**	**10700** D
Manganese	ug/g	1	**175** D	**253**	**240**	**248**	**209**	**302**	**251** D
Nickel	ug/g	4	**10.1** D	**13.2**	**11.9**	**9.14**	**9.86**	**15.4**	**16.1** D
Potassium	ug/g	300	**1470** D	**1530**	**2070**	**1200**	**810**	**2200**	**2220** D
Silver	ug/g	1	LT 1.00 D	LT 1.00	LT 1.00	LT 1.00	LT 1.00	LT 1.00	LT 1.00 D
Sodium	ug/g	20	**1930** D	**2540**	**1880**	**1730**	**779**	**843**	**733** D
Vanadium	ug/g	5	**16.4** D	**21.0**	**25.9**	**16.5**	**13.7**	**23.8**	**24.4** D
Zinc	ug/g	2	**98.3** D	**81.7**	**67.3**	**71.4**	**41.9**	**175**	**139** D
Metals (7471)									
Laboratory Id Number			99U00321	99U00322	99U00323	99U00324	99U00325	99U00326	99U00327
Parameter	Units	RL							
Mercury	ug/g	0.0500	**0.157** D	LT 0.0500	**0.0537**	LT 0.0500	LT 0.0500	**0.110**	**0.111** D

Table 9-4. Data Summary Table: Soil - SWMU 33A - Inside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33A-25		SB-33A-25		SB-33A-26		SB-33A-27		SB-33A-28		SB-33A-28		SB-33A-29
Field Sample Number			SAIC01		SAIC01D		SAIC01		SAIC01		SAIC01		SAIC01D		SAIC01
Site Type			BORE		BORE		BORE		BORE		BORE		BORE		BORE
Collection Date			2/18/99		2/18/99		2/18/99		2/18/99		2/18/99		2/18/99		2/18/99
Depth (ft)			0.00		0.00		0.00		0.00		0.00		0.00		0.00
Associated Field QC Sample - Site Id															
Associated Field QC Sample - Field Sample No.															
Associated Field QC Sample - Site Id															
Associated Field QC Sample - Field Sample No.															
Agent Breakdown (LT04)															
Laboratory Id Number			99U00328		99U00329		99U00330		99U00331		99U00332		99U00333		99U00391
Parameter	Units	RL													
Isopropyl methylphosphonate	ug/g	0.5	LT 0.500		LT 0.500 D		**42.0**		LT 0.500		**18.0**		**7.42** D		LT 0.500
Methylphosphonic acid	ug/g	0.5	LT 0.500		LT 0.500 D		**16.4**		**0.799**		**31.0**		**11.0** D		**200**
Metals (6010)															
Laboratory Id Number			99U00328		99U00329		99U00330		99U00331		99U00332		99U00333		99U00391
Parameter	Units	RL													
Aluminum	ug/g	20	**7030**		**8340** D		**7750**		**5260**		**10900**		**11300** D		**7270**
Antimony	ug/g	7	LT 6.00		LT 6.00 D		LT 6.00		LT 6.00		LT 6.00		LT 6.00 D		LT 6.00
Arsenic	ug/g	0.5	**5.98**		**6.91** D		**7.36**		**5.55**		**4.61**		**5.58** D		**9.34**
Barium	ug/g	2	**62.4**		**67.6** D		**53.6**		**46.6**		**79.8**		**104** D		**65.5**
Cadmium	ug/g	0.2	**1.01**		**1.13** D		**0.490**		**0.400**		LT 0.200		**0.401** D		**1.17**
Calcium	ug/g	10	**133000**		**124000** D		**150000**		**82800**		**80400**		**108000** D		**166000**
Chromium	ug/g	1	**17.7**		**18.9** D		**17.1**		**11.3**		**36.8**		**39.8** D		**37.8**
Copper	ug/g	2	**11.2**		**11.5** D		**8.17**		**8.34**		**17.8**		**18.9** D		**15.7**
Iron	ug/g	5	**8390**		**9050** D		**7080**		**6590**		**10600**		**12000** D		**7610**
Lead	ug/g	0.3	**77.7**		**74.2** D		**15.0**		**11.1**		**33.0**		**40.6** D		**123**
Magnesium	ug/g	10	**11500**		**10500** D		**10800**		**6990**		**9070**		**11500** D		**21200**
Manganese	ug/g	1	**219**		**241** D		**218**		**292**		**184**		**227** D		**218**
Nickel	ug/g	4	**9.19**		**11.3** D		**10.6**		**12.9**		**26.7**		**24.9** D		**11.7**
Potassium	ug/g	300	**1810**		**2210** D		**1810**		**1150**		**1060**		**1420** D		**2020**
Silver	ug/g	1	LT 1.00		LT 1.00 D		LT 1.00		LT 1.00		LT 1.00		LT 1.00 D		LT 1.00
Sodium	ug/g	20	**975**		**1040** D		**565**		**267**		**1260**		**1300** D		**2940**
Vanadium	ug/g	5	**19.0**		**21.6** D		**20.5**		**15.4**		**38.9**		**38.9** D		**25.0**
Zinc	ug/g	2	**307**		**262** D		**42.1**		**36.0**		**69.7**		**82.4** D		**88.4**
Metals (7471)															
Laboratory Id Number			99U00328		99U00329		99U00330		99U00331		99U00332		99U00333		99U00391
Parameter	Units	RL													
Mercury	ug/g	0.0500	LT 0.0500		**0.0621** D		**0.0788**		LT 0.0500		**0.0836**		**0.0750** D		LT 0.0500

Created on. 12/13/00

Table 9-4. Data Summary Table: Soil - SWMU 33A - Inside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID				SB-33A-29	
Field Sample Number				SAIC01D	
Site Type				BORE	
Collection Date				2/18/99	
Depth (ft)				0.00	
Associated Field QC Sample - Site Id					
Associated Field QC Sample - Field Sample No.					
Associated Field QC Sample - Site Id					
Associated Field QC Sample - Field Sample No.					
Agent Breakdown (LT04)					
Laboratory Id Number				99U00392	
Parameter	Units	RL			
Isopropyl methylphosphonate	ug/g	0.5	LT	0.500	D
Methylphosphonic acid	ug/g	0.5		**250**	D
Metals (6010)					
Laboratory Id Number				99U00392	
Parameter	Units	RL			
Aluminum	ug/g	20		**7400**	D
Antimony	ug/g	7	LT	6.00	D
Arsenic	ug/g	0.5		**10.9**	D
Barium	ug/g	2		**74.3**	D
Cadmium	ug/g	0.2		**1.17**	D
Calcium	ug/g	10		**151000**	D
Chromium	ug/g	1		**52.6**	D
Copper	ug/g	2		**17.8**	D
Iron	ug/g	5		**8740**	D
Lead	ug/g	0.3		**191**	D
Magnesium	ug/g	10		**18500**	D
Manganese	ug/g	1		**218**	D
Nickel	ug/g	4		**11.5**	D
Potassium	ug/g	300		**2010**	D
Silver	ug/g	1		**1.43**	D
Sodium	ug/g	20		**3030**	D
Vanadium	ug/g	5		**26.6**	D
Zinc	ug/g	2		**104**	D
Metals (7471)					
Laboratory Id Number				99U00392	
Parameter	Units	RL			
Mercury	ug/g	0.0500	LT	0.0500	D

Table 9-4. Data Summary Table: Soil - SWMU 33A - Inside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33A-11		SB-33A-11		SB-33A-12		SB-33A-12		SB-33A-12		SB-33A-12		SB-33A-12
Field Sample Number			SAIC02		SAIC03		SAIC02		SAIC03		SAIC04		SAIC04D		SAIC05
Site Type			BORE		BORE		BORE		BORE		BORE		BORE		BORE
Collection Date			2/24/99		2/24/99		2/25/99		2/25/99		2/25/99		2/25/99		2/25/99
Depth (ft)			1 00		3.50		1.00		4 00		10.00		10.00		12 00
Associated Field QC Sample - Site Id															
Associated Field QC Sample - Field Sample No.															
Associated Field QC Sample - Site Id															
Associated Field QC Sample - Field Sample No.															
Agent Breakdown (LT04)															
Laboratory Id Number			99U00465		99U00466		99U00469		99U00470		99U00471		99U00472		99U00473
Parameter	Units	RL													
Isopropyl methylphosphonate	ug/g	0.5	LT 0.500		LT 0 500		**6.72**		**17.2**		LT 0 500		**5.36** D		**21.0**
Methylphosphonic acid	ug/g	0.5	LT 0.500		LT 0.500		LT 0.500		**1.20**		LT 0 500		LT 0.500 D		**1.92**
Metals (6010)															
Laboratory Id Number			99U00465		99U00466		99U00469		99U00470		99U00471		99U00472		99U00473
Parameter	Units	RL													
Aluminum	ug/g	20	**19700**		**12300**		**24300**		**18500**		**17200**		**16700** D		**14300**
Antimony	ug/g	7	LT 6.00		LT 6 00		LT 6.00		LT 6.00		LT 6.00		LT 6 00 D		LT 6.00
Arsenic	ug/g	0.5	**11.6**		**8.33**		**15.0**		**8.82**		**9.64**		**9.98** D		**8.75**
Barium	ug/g	2	**163**		**120**		**175**		**159**		**114**		**112** D		**98.4**
Beryllium	ug/g	0.5	**1.04**		**0.647**		**1.13**		**0.892**		**0.828**		**0.847** D		**0.770**
Cadmium	ug/g	0.2	**1.26**		**0.559**		**1.58**		**0.845**		**0.843**		**0.830** D		**0.837**
Calcium	ug/g	10	**95400**		**135000**		**100000**		**68800**		**98700**		**96700** D		**90900**
Chromium	ug/g	1	**28.8**		**21.3**		**36.5**		**26.9**		**33.1**		**33.8** D		**26.2**
Cobalt	ug/g	5	LT 5 00		LT 5 00		**5.82**		LT 5.00		LT 5.00		LT 5.00 D		LT 5.00
Copper	ug/g	2	**19.6**		**9.59**		**28.9**		**16.1**		**11.3**		**12.1** D		**12.5**
Iron	ug/g	5	**18300**		**12300**		**19200**		**16200**		**15400**		**15500** D		**14800**
Lead	ug/g	0.3	**41.4**		**14.6**		**64.3**		**28.8**		**21.4**		**22.8** D		**31.7**
Magnesium	ug/g	10	**12200**		**11300**		**12500**		**10900**		**12400**		**12900** D		**16900**
Manganese	ug/g	1	**526**		**301**		**559**		**418**		**389**		**406** D		**466**
Nickel	ug/g	4	**26.1**		**16.7**		**25.3**		**23.6**		**24.7**		**26.3** D		**22.5**
Potassium	ug/g	300	**5700**		**3030**		**6760**		**4930**		**3930**		**3980** D		**3390**
Selenium	ug/g	0.5	LT 0.500		LT 0.500		**0.661**		LT 0.500		LT 0.500		LT 0.500 D		LT 0.500
Silver	ug/g	1	LT 1.00		LT 1.00		**1.17**		LT 1.00		LT 1.00		LT 1 00 D		LT 1.00
Sodium	ug/g	20	**342**	U	**290**	U	**480**		**380**		**296**		**300** D		**275**
Thallium	ug/g	1	LT 1.00		LT 1.00		LT 1.00		LT 1 00		LT 1 00		LT 1.00 D		LT 1 00
Vanadium	ug/g	5	**40.6**		**34.0**		**51.3**		**41.2**		**40.7**		**42.0** D		**36.9**
Zinc	ug/g	2	**135**		**90.7**		**139**		**79.1**		**86.3**		**88.1** D		**93.1**
Metals (7471)															
Laboratory Id Number			99U00465		99U00466		99U00469		99U00470		99U00471		99U00472		99U00473
Parameter	Units	RL													
Mercury	ug/g	0.0500	**0.566**		LT 0.0500		**0.481**		LT 0.0500		LT 0.0500		LT 0.0500 D		LT 0.0500

Boolean Codes:
- LT - Less than the certified reporting limit
- ND - Not detected

Footnotes:
- CRL - Certified reporting limits
- ID - Identification
- N/A - Not applicable
- TICs - Tentatively Identified Compound

Flagging Codes:
- D - Duplicate analysis

Qualifiers
- ? - Control chart not yet approved by USAEC
- J - Analyte was positively identified, the associated numerical value is th
- R - Sample result is rejected due to serious deficiencies in the ability to
- U - Analyte was analyzed for, but was not detected above the reported sampl

Created on: 12/13/00

Table 9-4. Data Summary Table: Soil - SWMU 33A - Inside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID				SB-33A-12		SB-33A-13		SB-33A-13		SB-33A-13		SB-33A-13		SB-33A-14		SB-33A-14	
Field Sample Number				SAIC05D		SAIC02		SAIC03		SAIC04		SAIC05		SAIC02		SAIC03	
Site Type				BORE		BORE		BORE		BORE		BORE		BORE		BORE	
Collection Date				2/25/99		2/24/99		2/24/99		2/24/99		2/24/99		2/24/99		2/24/99	
Depth (ft)				12.00		1 00		3.50		5.00		10.00		1 00		3 50	
Associated Field QC Sample - Site Id																	
Associated Field QC Sample - Field Sample No.																	
Associated Field QC Sample - Site Id																	
Associated Field QC Sample - Field Sample No																	
Agent Breakdown (LT04)																	
Laboratory Id Number				99U00474		99U00475		99U00476		99U00477		99U00478		99U00479		99U00480	
Parameter	Units	RL															
Isopropyl methylphosphonate	ug/g	0.5		7.15	D	LT 0 500		LT 0.500		LT 0.500		LT 0 500		LT 0 500	?	LT 0.500	?
Methylphosphonic acid	ug/g	0.5	LT	0.500	D	LT 0.500		LT 0.500		LT 0.500		LT 0 500		LT 0 500	?	LT 0.500	?
Metals (6010)																	
Laboratory Id Number				99U00474		99U00475		99U00476		99U00477		99U00478		99U00479		99U00480	
Parameter	Units	RL															
Aluminum	ug/g	20		**17200**	D	**20000**		**13200**		**14900**		**11800**		**22300**		**20300**	
Antimony	ug/g	7	LT	6.00	D	LT 6 00		LT 6.00		LT 6.00		LT 6 00		LT 6.00		**12.4**	
Arsenic	ug/g	0.5		**9.53**	D	**12.2**		**9.06**		**8.44**		**9.80**		**11.7**		7.55	
Barium	ug/g	2		**105**	D	**163**		**109**		**117**		**83.7**		**167**		**193**	
Beryllium	ug/g	0 5		**0.786**	D	**1.09**		**0.745**		**0.799**		**0.627**		**1.10**		**0.998**	
Cadmium	ug/g	0.2		**0.865**	D	**1.21**		**0.517**		**0.809**		**0.813**		**0.857**	LT	0.200	
Calcium	ug/g	10		**96800**	D	**88500**		**104000**		**86800**		**147000**		**96100**		**41800**	
Chromium	ug/g	1		**34.1**	D	**28.5**		**25.0**		**28.4**		**23.6**		**32.7**		**25.2**	
Cobalt	ug/g	5	LT	5.00	D	LT 5 00		LT 5.00		LT 5.00		LT 5.00		LT 5.00		**6.08**	
Copper	ug/g	2		**11.8**	D	**21.3**		**10.9**		**11.4**		**11.6**		**21.4**		**14.8**	
Iron	ug/g	5		**14800**	D	**19000**		**13900**		**15600**		**12200**		**19100**		**19100**	
Lead	ug/g	0.3		**32.5**	D	**43.0**		**17.0**		**20.4**		**27.6**		**44.7**		**18.6**	
Magnesium	ug/g	10		**16700**	D	**12200**		**8250**		**12600**		**14000**		**12800**		**10400**	
Manganese	ug/g	1		**433**	D	**501**		**347**		**406**		**484**		**493**		**620**	
Nickel	ug/g	4		**21.5**	D	**27.2**		**19.0**		**19.6**		**19.8**		**26.5**		**20.4**	
Potassium	ug/g	300		**4220**	D	**5610**		**2880**		**3290**		**2630**		**6110**		**5230**	
Selenium	ug/g	0 5	LT	0.500	D	LT 0.500		LT 0.500		LT 0.500		LT 0.500		LT 0.500	LT	0 500	
Silver	ug/g	1	LT	1 00	D	**1.27**		LT 1 00		LT 1.00		LT 1.00		LT 1 00	LT	1.00	
Sodium	ug/g	20		**364**	D	**424**	U	**240**	U	**251**	U	**241**	U	**453**	U	**319**	U
Thallium	ug/g	1	LT	1.00	D	LT 1.00		LT 1.00		LT 1.00		LT 1.00		LT 1 00	LT	1 00	
Vanadium	ug/g	5		**45.1**	D	**41.1**		**34.7**		**35.7**		**32.0**		**46.1**		**44.1**	
Zinc	ug/g	2		**130**	D	**125**		**72.5**		**93.4**		**75.5**		**125**		**75.8**	
Metals (7471)																	
Laboratory Id Number				99U00474		99U00475		99U00476		99U00477		99U00478		99U00479		99U00480	
Parameter	Units	RL															
Mercury	ug/g	0.0500	LT	0.0500	D	LT 0 0500		LT 0.0500		LT 0.0500	J	**0.0582**		**0.122**	LT	0 0500	

Table 9-4. Data Summary Table: Soil - SWMU 33A - Inside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33A-15		SB-33A-15		SB-33A-16		SB-33A-16		SB-33A-16		SB-33A-16		SB-33A-17	
Field Sample Number			SAIC02		SAIC03		SAIC02		SAIC03		SAIC04		SAIC05		SAIC02	
Site Type			BORE		BORE		BORE		BORE		BORE		BORE		BORE	
Collection Date			2/24/99		2/24/99		2/24/99		2/24/99		2/24/99		2/24/99		2/24/99	
Depth (ft)			1.00		3.00		1.50		5.00		10.00		12.00		1.50	
Associated Field QC Sample - Site Id																
Associated Field QC Sample - Field Sample No.																
Associated Field QC Sample - Site Id																
Associated Field QC Sample - Field Sample No.																
Agent Breakdown (LT04)																
Laboratory Id Number			99U00481		99U00482		99U00483		99U00484		99U00485		99U00486		99U00487	
Parameter	Units	RL														
Isopropyl methylphosphonate	ug/g	0.5	LT 0.500	?	LT 0.500	?	**7.02**	?	**1.47**	?	LT 0.500	?	**8.59**	?	**1.57**	?
Methylphosphonic acid	ug/g	0.5	LT 0.500	?	LT 0.500	?	LT 0.500	?	LT 0.500	?	LT 0.500	?	LT 0.500	?	LT 0.500	?
Metals (6010)																
Laboratory Id Number			99U00481		99U00482		99U00483		99U00484		99U00485		99U00486		99U00487	
Parameter	Units	RL														
Aluminum	ug/g	20	**22300**		**13300**		**17300**		**11300**		**20800**		**12700**		**19800**	
Antimony	ug/g	7	LT 6.00		LT 6.00		LT 6.00		LT 6.00		LT 6.00		LT 6.00		LT 6.00	
Arsenic	ug/g	0.5	**10.8**		**6.91**		**16.4**		**8.06**		**10.5**		**6.71**		**18.9**	
Barium	ug/g	2	**179**		**108**		**142**		**106**		**128**		**107**		**153**	
Beryllium	ug/g	0.5	**1.12**		**0.688**		**0.939**		**0.624**		**1.02**		**0.658**		**1.06**	
Cadmium	ug/g	0.2	**0.914**		**0.226**		**1.45**		**0.322**		**0.518**		**0.335**		**1.58**	
Calcium	ug/g	10	**84100**		**140000**		**106000**		**155000**		**108000**		**178000**		**105000**	
Chromium	ug/g	1	**33.7**		**19.8**		**26.9**		**34.7**		**40.4**		**26.0**		**31.9**	
Cobalt	ug/g	5	**8.70**		LT 5.00		LT 5.00		LT 5.00		LT 5.00		LT 5.00		LT 5.00	
Copper	ug/g	2	**21.1**		**10.0**		**42.1**		**8.97**		**14.1**		**9.99**		**58.2**	
Iron	ug/g	5	**19800**		**13000**		**16400**		**12000**		**18700**		**11000**		**17900**	
Lead	ug/g	0.3	**37.9**		**12.5**		**110**		**11.6**		**24.0**		**13.8**		**161**	
Magnesium	ug/g	10	**12600**		**14000**		**13600**		**10500**		**13900**		**12200**		**13200**	
Manganese	ug/g	1	**586**		**457**		**452**		**254**		**446**		**278**		**566**	
Nickel	ug/g	4	**25.7**		**15.6**		**25.3**		**23.7**		**29.0**		**17.9**		**27.5**	
Potassium	ug/g	300	**6660**		**3360**		**5240**		**2260**		**4490**		**3070**		**5910**	
Selenium	ug/g	0.5	LT 0.500		LT 0.500		LT 0.500		LT 0.500		LT 0.500		LT 0.500		LT 0.500	
Silver	ug/g	1	LT 1.00		**1.25**		**2.10**		LT 1.00		LT 1.00		LT 1.00		**2.00**	
Sodium	ug/g	20	**407**	U	**265**	U	**407**	U	**240**	U	**322**	U	**333**	U	**474**	U
Thallium	ug/g	1	**1.39**		LT 1.00		LT 1.00		LT 1.00		**1.33**		LT 1.00		LT 1.00	
Vanadium	ug/g	5	**45.0**		**31.9**		**36.4**		**29.3**		**50.0**		**32.4**		**42.6**	
Zinc	ug/g	2	**146**		**57.2**		**155**		**56.5**		**111**		**63.0**		**184**	
Metals (7471)																
Laboratory Id Number			99U00481		99U00482		99U00483		99U00484		99U00485		99U00486		99U00487	
Parameter	Units	RL														
Mercury	ug/g	0.0500	**0.0761**		LT 0.0500		**0.506**		LT 0.0500		LT 0.0500		LT 0.0500		**0.555**	

Created on. 12/13/00

Table 9-4. Data Summary Table: Soil - SWMU 33A - Inside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33A-17			SB-33A-17			SB-33A-17			SB-33A-18			SB-33A-18			SB-33A-18			SB-33A-18	
Field Sample Number			SAIC03			SAIC04			SAIC05			SAIC02			SAIC03			SAIC04			SAIC05	
Site Type			BORE			BORE			BORE			BORE			BORE			BORE			BORE	
Collection Date			2/24/99			2/24/99			2/24/99			2/24/99			2/24/99			2/24/99			2/24/99	
Depth (ft)			5.00			10.00			12.00			1.00			5.00			10.00			12.00	
Associated Field QC Sample - Site Id																						
Associated Field QC Sample - Field Sample No.																						
Associated Field QC Sample - Site Id																						
Associated Field QC Sample - Field Sample No																						
Agent Breakdown (LT04)																						
Laboratory Id Number			99U00488			99U00489			99U00490			99U00397			99U00398			99U00399			99U00400	
Parameter	Units	RL																				
Isopropyl methylphosphonate	ug/g	0.5	**1.04**	?	LT	0.500	?	LT	0.500	?		**19.3**	?		**1.34**	?	LT	0.500	?		**9.06**	?
Methylphosphonic acid	ug/g	0.5	LT 0.500	?	LT	0.500	?		**22.2**	?		**2.73**	?	LT	0.500	?	LT	0.500	?	LT	0.500	?
Metals (6010)																						
Laboratory Id Number			99U00488			99U00489			99U00490			99U00397			99U00398			99U00399			99U00400	
Parameter	Units	RL																				
Aluminum	ug/g	20	**13400**			**17300**			**14100**			**23100**			**8790**			**23600**			**16100**	
Antimony	ug/g	7	LT 6.00		LT	6.00		LT	6.00		LT	6.00		LT	6.00		LT	6.00		LT	6.00	
Arsenic	ug/g	0.5	**8.80**			**8.47**			**9.12**			**12.9**			**8.82**			**8.76**			**7.29**	
Barium	ug/g	2	**111**			**105**			**107**			**170**			**82.7**			**133**			**123**	
Beryllium	ug/g	0.5	**0.676**			**0.897**			**0.717**			**1.04**		LT	0.500			**1.04**			**0.745**	
Cadmium	ug/g	0.2	**0.300**			**0.525**			**0.277**			**0.936**			**0.314**			**0.386**		LT	0.2	
Calcium	ug/g	10	**109000**			**95700**			**177000**			**100000**			**186000**			**79300**			**181000**	
Chromium	ug/g	1	**28.7**			**32.7**			**25.2**			**36.1**			**17.9**			**45.9**			**32.0**	
Cobalt	ug/g	5	LT 5.00		LT	5.00		LT	5.00		LT	5.00		LT	5.00		LT	5.00		LT	5.00	
Copper	ug/g	2	**9.60**			**12.0**			**9.24**			**26.5**			**6.73**			**13.3**			**10.7**	
Iron	ug/g	5	**12900**			**16800**			**11400**			**18100**			**9710**			**18400**			**11600**	
Lead	ug/g	0.3	**16.0**			**24.0**			**14.4**			**62.7**			**10.1**			**22.0**			**12.9**	
Magnesium	ug/g	10	**12600**			**12900**			**11700**			**12300**			**9650**			**13500**			**11300**	
Manganese	ug/g	1	**333**			**421**			**227**			**519**			**258**			**503**			**226**	
Nickel	ug/g	4	**21.0**			**24.9**			**17.9**			**28.2**			**14.8**			**28.7**			**18.6**	
Potassium	ug/g	300	**2950**			**3750**			**3400**			**6550**			**1760**			**5310**			**4040**	
Selenium	ug/g	0.5	LT 0.500		LT	0.500		LT	0.500		LT	0.5		LT	0.5		LT	0.5		LT	0.5	
Silver	ug/g	1	LT 1.00		LT	1.00		LT	1.00			**1.31**		LT	1.00		LT	1.00		LT	1.00	
Sodium	ug/g	20	**353**	U		**260**	U		**317**	U		**712**			**202**	U		**438**	U		**500**	U
Thallium	ug/g	1	LT 1.00		LT	1.00		LT	1.00			**1.67**		LT	1			**1.62**			**1.25**	
Vanadium	ug/g	5	**37.7**			**40.5**			**32.5**			**50.9**			**24.2**			**55.3**			**34.2**	
Zinc	ug/g	2	**158**			**105**			**73.2**			**129**			**45.2**			**103**			**42.5**	
Metals (7471)																						
Laboratory Id Number			99U00488			99U00489			99U00490			99U00397			99U00398			99U00399			99U00400	
Parameter	Units	RL																				
Mercury	ug/g	0.0500	LT 0.0500		LT	0.0500		LT	0.0500			**0.366**		LT	0.0500		LT	0.0500		LT	0.0500	

Table 9-4. Data Summary Table: Soil - SWMU 33A - Inside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33A-19			SB-33A-19			SB-33A-19			SB-33A-19			SB-33A-20			SB-33A-20			SB-33A-21	
Field Sample Number			SAIC02			SAIC02D			SAIC03			SAIC03D			SAIC02			SAIC03			SAIC02	
Site Type			BORE			BORE			BORE			BORE			BORE			BORE			BORE	
Collection Date			2/24/99			2/24/99			2/24/99			2/24/99			2/23/99			2/23/99			2/23/99	
Depth (ft)			1.00			1.00			5.00			5.00			1.00			5.00			1.00	
Associated Field QC Sample - Site Id																						
Associated Field QC Sample - Field Sample No																						
Associated Field QC Sample - Site Id																						
Associated Field QC Sample - Field Sample No.																						
Agent Breakdown (LT04)																						
Laboratory Id Number			99U00401			99U00402			99U00403			99U00404			99U00370			99U00371			99U00372	
Parameter	Units	RL																				
Isopropyl methylphosphonate	ug/g	0.5	1.42	?		11.3	D ?	LT	0.500	?		1.04	D ?		2.15	?	LT	0.500	?		6.95	?
Methylphosphonic acid	ug/g	0.5	LT 0.500	?		0.954	D ?	LT	0.500	?	LT	0.500	D ?	LT	0.500	?	LT	0.500	?		1.22	?
Metals (6010)																						
Laboratory Id Number			99U00401			99U00402			99U00403			99U00404			99U00370			99U00371			99U00372	
Parameter	Units	RL																				
Aluminum	ug/g	20	25200			22500	D		9520			12700	D		20500			10200			21300	
Antimony	ug/g	7	LT 6.00			10.2	D	LT	6.00		LT	6.00	D	LT	6.00	R	LT	6.00	R	LT	6.00	R
Arsenic	ug/g	0.5	13.1			12.9	D		7.98			9.44	D		11.6			11.8			12.8	
Barium	ug/g	2	181			156	D		75.4			88.1	D		159			83.8			163	
Beryllium	ug/g	0.5	1.15			1.04	D	LT	0.500			0.595	D		0.934		LT	0.500			0.969	
Cadmium	ug/g	0.2	0.884			1.35	D		0.342			0.304	D		1.00			0.459			1.47	
Calcium	ug/g	10	95000			97000	D		147000			122000	D		103000			138000			102000	
Chromium	ug/g	1	37.3			41.6	D		21.2			32.4	D		33.8			26.9			30.0	
Cobalt	ug/g	5	LT 5.00		LT	5.00	D	LT	5.00		LT	5.00	D	LT	5.00		LT	5.00		LT	5.00	
Copper	ug/g	2	28.8			37.2	D		7.13			8.46	D		20.1			6.27			32.3	
Iron	ug/g	5	20000			17700	D		10300			11300	D		17500			10400			17400	
Lead	ug/g	0.3	49.9			104	D		17.5			16.5	D		35.7			14.3			79.3	
Magnesium	ug/g	10	15300			12400	D		14500			11600	D		11600			9890			19600	
Manganese	ug/g	1	561			427	D		271			288	D		503			232			511	
Nickel	ug/g	4	27.2			24.8	D		17.5			20.0	D		26.7			20.6			21.4	
Potassium	ug/g	300	6610			6050	D		1920			2650	D		5590			2270			5710	
Selenium	ug/g	0.5	LT 0.5		LT	0.5	D	LT	0.5		LT	0.5	D	LT	0.500		LT	0.500		LT	0.500	
Silver	ug/g	1	1.47			1.91	D		1.24		LT	1.00	D	LT	1.00		LT	1.00			1.84	
Sodium	ug/g	20	512	U		646	D		218	U		342	D U		533			230			541	
Thallium	ug/g	1	1.54			1.12	D	LT	1		LT	1	D	LT	1.00		LT	1.00		LT	1.00	
Vanadium	ug/g	5	56.0			49.6	D		30.4			37.9	D		43.9			27.8			45.5	
Zinc	ug/g	2	131			159	D		49.6			55.9	D		102	J		50.4	J		131	J
Metals (7471)																						
Laboratory Id Number			99U00401			99U00402			99U00403			99U00404			99U00370			99U00371			99U00372	
Parameter	Units	RL																				
Mercury	ug/g	0.0500	0.181			0.219	D	LT	0.0500		LT	0.0500	D		0.129		LT	0.0500			0.123	

Table 9-4. Data Summary Table: Soil - SWMU 33A - Inside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33A-21			SB-33A-21			SB-33A-21			SB-33A-22			SB-33A-22			SB-33A-22			SB-33A-22	
Field Sample Number			SAIC03			SAIC04			SAIC05			SAIC02			SAIC03			SAIC04			SAIC05	
Site Type			BORE			BORE			BORE			BORE			BORE			BORE			BORE	
Collection Date			2/23/99			2/23/99			2/23/99			2/23/99			2/23/99			2/23/99			2/23/99	
Depth (ft)			5.00			10 00			12.00			1.00			5.00			10 00			12.00	
Associated Field QC Sample - Site Id																						
Associated Field QC Sample - Field Sample No																						
Associated Field QC Sample - Site Id																						
Associated Field QC Sample - Field Sample No																						
Agent Breakdown (LT04)																						
Laboratory Id Number			99U00373			99U00374			99U00375			99U00405			99U00406			99U00407			99U00408	
Parameter	Units	RL																				
Isopropyl methylphosphonate	ug/g	0 5	LT	0.500	?		1.19	?	LT	0.500	?		4.11	?	LT	0 500	?	LT	0 500	?		1.13	?
Methylphosphonic acid	ug/g	0.5	LT	0.500	?	LT	0.500	?	LT	0.500	?		1.45	?	LT	0.500	?	LT	0 500	?	LT	0 500	?
Metals (6010)																						
Laboratory Id Number			99U00373			99U00374			99U00375			99U00405			99U00406			99U00407			99U00408	
Parameter	Units	RL																				
Aluminum	ug/g	20		14100			11200			12000			23300			15800			14900			12200	
Antimony	ug/g	7	LT	6.00	R	LT	6.00	R	LT	6 00	R	LT	6 00		LT	6 00		LT	6 00		LT	6 00	
Arsenic	ug/g	0 5		9.36			10.0			7.73			15.2			8.98			8.51			8.16	
Barium	ug/g	2		121			66.5			71.3			175			124			82.2			94.5	
Beryllium	ug/g	0.5		0.685			0.598			0.604			1.11			0.714			0.661			0.614	
Cadmium	ug/g	0.2		0.583			0.463			0.593			1.38			0.304			0.351			0.319	
Calcium	ug/g	10		149000			86100			104000			106000			115000			79900			147000	
Chromium	ug/g	1		26.9			22.9			23.8			36.7			31.2			33.7			22.1	
Cobalt	ug/g	5	LT	5.00		LT	5 00		LT	5.00		LT	5.00		LT	5.00		LT	5 00		LT	5.00	
Copper	ug/g	2		9.28			8.09			9.67			40.3			8.01			7.85			8.31	
Iron	ug/g	5		12300			12300			12100			19100			13500			13000			11100	
Lead	ug/g	0 3		16.5			16.0			19.7			91.4			14.5			15.0			14.7	
Magnesium	ug/g	10		10500			11600			13300			12800			12200			13400			11600	
Manganese	ug/g	1		283			331			397			667			312			385			252	
Nickel	ug/g	4		17.6			20.9			19.0			24.4			20.6			21.7			13.8	
Potassium	ug/g	300		3260			2220			2840			6540			3270			3280			2740	
Selenium	ug/g	0.5	LT	0.500		LT	0.500		LT	0.500		LT	0 5		LT	0.5		LT	0.5		LT	0 5	
Silver	ug/g	1	LT	1.00		LT	1 00			1.27			1.43			1.48		LT	1 00		LT	1 00	
Sodium	ug/g	20		316			194			238			553			352	U		334	U		393	U
Thallium	ug/g	1	LT	1.00		LT	1.00		LT	1.00			1.25		LT	1		LT	1		LT	1	
Vanadium	ug/g	5		37.2			32.5			33.9			50.1			40.4			42.0			36.6	
Zinc	ug/g	2		55.9	J		61.2	J		62.4	J		164			62.3			65.3			47.2	
Metals (7471)																						
Laboratory Id Number			99U00373			99U00374			99U00375			99U00405			99U00406			99U00407			99U00408	
Parameter	Units	RL																				
Mercury	ug/g	0.0500	LT	0 0500		LT	0.0500		LT	0.0500			0.211		LT	0.0500		LT	0 0500		LT	0 0500	

Table 9-5. Summary of Chemicals Detected in Soils at SWMU 33A
Deseret Chemical Depot, DCD, Tooele, Utah

Chemical	Units	Proportion of Detects All Samples[a]	Detects Minimum	Detects Maximum	95% UTL of Background Data Set		Proportion of Detected Results Greater Than Background UTL	Maximum Concentration Location	Maximum Concentration Depth	COPC?
Surface Soils										
Inorganics										
Aluminum	ug/g	41 / 41	1,180	10,900	24,256		0 / 41	SB-33A-28	0	No
Antimony	ug/g	7 / 47	7.1	24	12		2 / 7	SB-33A-23	0	Yes
Arsenic	ug/g	47 / 47	2.3	19	3.4	*	0 / 47	SB-33-007B	0.5	No
Barium	ug/g	41 / 41	25	183	423		0 / 41	SB-33-007B	0.5	No
Beryllium	ug/g	1 / 47	0.56	0.56	1.2		0 / 1	SB-33-004A	0	No
Cadmium	ug/g	29 / 47	0.40	23	21		1 / 29	SB-33-005A	0	Yes
Calcium	ug/g	41 / 41	80,400	210,000	250,000		0 / 41	SS-33-005	0	Yes
Chromium	ug/g	43 / 47	6.9	116	56		5 / 43	SS-33-009	0	No
Cobalt	ug/g	19 / 41	1.7	6.4	10		0 / 19	SB-33-007A	0	No
Copper	ug/g	45 / 47	5.2	69	162		0 / 45	SB-33-009A	0	No
Cyanide	ug/g	1 / 41	1.3	1.3	0.0		1 / 1	SB-33-005A	0	Yes
Iron	ug/g	41 / 41	2,520	32,000	21,340		1 / 41	SB-33-006A	0	No
Lead	ug/g	47 / 47	11	685	401		2 / 47	SS-33-009	0	Yes
Magnesium	ug/g	41 / 41	6,990	27,900	35,700		0 / 41	SB-33-004B	0.5	No
Manganese	ug/g	41 / 41	144	374	649		0 / 41	SB-33-005A	0	No
Mercury	ug/g	25 / 47	0.051	0.61	0.36		2 / 25	SB-33-008B	0.5	Yes
Nickel	ug/g	41 / 47	5.8	27	33		0 / 41	SB-33A-28	0	No
Potassium	ug/g	41 / 41	337	2,370	6,751		0 / 41	SB-33-007B	0.5	No
Silver	ug/g	6 / 47	0.082	0.40	0.47	*	0 / 6	S-SS-33-01	0.3	No
Sodium	ug/g	47 / 47	267	11,400	5,610		2 / 47	SS-33-009	0	No
Thallium	ug/g	5 / 47	8.2	11	34		0 / 5	SB-33-004A	0	No
Vanadium	ug/g	41 / 41	6.1	39	55		0 / 41	SB-33A-28	0	No
Zinc	ug/g	44 / 47	29	594	385		2 / 44	SB-33-010A	0	No
Organics										
Isopropyl methylphosphonate	ug/g	30 / 42	1.2	2,300	0.0		30 / 30	SS-33-009	0	Yes
Methylphosphonic acid	ug/g	32 / 42	0.80	530	0.0		32 / 32	SS-33-009	0	Yes
Thiodiglycol	ug/g	3 / 47	4.0	4.5	0.0		3 / 3	SS-33-009	0	Yes
Subsurface Soils										
Inorganics										
Aluminum	ug/g	72 / 72	2,280	25,200	24,256		4 / 72	SB-33A-19	1	No
Antimony	ug/g	4 / 55	6.7	12	12		1 / 4	SB-33A-14	3.5	Yes
Arsenic	ug/g	72 / 72	3.4	23	3.4	*	0 / 72	SB-33-005C	1	No
Barium	ug/g	72 / 72	42	297	423		0 / 72	SB-33A-28	5	No
Beryllium	ug/g	62 / 72	0.60	1.2	1.2		0 / 62	SB-33A-19	1	Yes
Cadmium	ug/g	65 / 72	0.20	7.5	21		0 / 65	SB-33-008C	1	No
Calcium	ug/g	72 / 72	33,300	213,000	250,000		0 / 72	SB-33A-28	15	Yes
Chromium	ug/g	72 / 72	6.5	46	56		0 / 72	SB-33A-18	10	Yes
Cobalt	ug/g	13 / 72	2.2	6.7	10		0 / 13	SB-33-007C	1	No
Copper	ug/g	72 / 72	4.1	152	162		0 / 72	SB-33-008C	1	No
Cyanide	ug/g	1 / 72	1.3	1.3	0.0		1 / 1	SB-33-008C	1	Yes
Iron	ug/g	72 / 72	4,860	20,800	21,340		0 / 72	SB-33A-29	5	No
Lead	ug/g	72 / 72	6.4	544	401		1 / 72	SB-33-008C	1	Yes
Magnesium	ug/g	72 / 72	7,120	19,600	35,700		0 / 72	SB-33A-21	1	No
Manganese	ug/g	72 / 72	155	667	649		1 / 72	SB-33A-22	1	No
Mercury	ug/g	19 / 72	0.058	1.5	0.36		8 / 19	SB-33A-28	1	Yes
Nickel	ug/g	72 / 72	8.7	32	33		0 / 72	SB-33A-24	1	Yes
Potassium	ug/g	72 / 72	600	6,760	6,751		1 / 72	SB-33A-12	1	No
Selenium	ug/g	2 / 72	0.65	0.66	2.9		0 / 2	SB-33A-12	1	No
Silver	ug/g	23 / 72	0.90	3.3	0.47	*	5 / 23	SB-33-008C	1	Yes
Sodium	ug/g	72 / 72	194	1,800	5,610		0 / 72	SB-33-010C	1	No
Thallium	ug/g	14 / 72	1.0	17	34		0 / 14	SB-33-008C	1	No
Vanadium	ug/g	72 / 72	9.5	59	55		4 / 72	SB-33A-29	5	No
Zinc	ug/g	72 / 72	33	439	385		2 / 72	SB-33-008C	1	Yes
Organics										
Isopropyl methylphosphonate	ug/g	26 / 72	0.68	64	0.0		26 / 26	SB-33-010C	1	Yes
Methylphosphonic acid	ug/g	13 / 72	1.2	22	0.0		13 / 13	SB-33A-17	12	Yes

* 95% UTL is presented in log-space. In order to conduct an accurate comparison, take the natural log of the maximum concentration before comparing to the 95% UTL.

[a] For the proportion of detects, counts were based on the unaveraged data set.

[1] Surface samples are collected within the range of 0 to 0.5 feet BLS.

[2] Subsurface samples are collected within the range of >0.5 feet BLS.

Table 9-6. Data Summary Table: Soil - SWMU 33B - Outside Building
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33B-30	SB-33B-31	SB-33B-32	SB-33B-33	SB-33B-34	SB-33B-34	SB-33B-35
Field Sample Number			SAIC01	SAIC01	SAIC01	SAIC01	SAIC01	SAIC01D	SAIC01
Site Type			BORE	BORE	BORE	BORE	BORE	BORE	BORE
Collection Date			2/17/99	2/17/99	2/17/99	2/17/99	2/17/99	2/17/99	2/17/99
Depth (ft)			0.00	0.00	0.00	0.00	0.00	0.00	0.00
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Metals (7471)									
Laboratory Id Number			99U00267	99U00268	99U00269	99U00270	99U00271	99U00272	99U00273
Parameter	Units	RL							
Mercury	ug/g	0.0500	1.45	0.772	0.820	1.53	2.62	3.90 D	2.07

Boolean Codes:
- LT - Less than the certified reporting limit
- ND - Not detected

Footnotes:
- CRL - Certified reporting limits
- ID - Identification
- N/A - Not applicable
- TICs - Tentatively Identified Compound

Flagging Codes:
- D - Duplicate analysis.

Table 9-6. Data Summary Table: Soil - SWMU 33B - Outside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33B-35	SB-33B-36	SB-33B-37	SB-33B-38	SB-33B-38	SB-33B-39	SB-33B-40
Field Sample Number			SAIC01D	SAIC01	SAIC01	SAIC01	SAIC01D	SAIC01	SAIC01
Site Type			BORE	BORE	BORE	BORE	BORE	BORE	BORE
Collection Date			2/17/99	2/17/99	2/17/99	2/17/99	2/17/99	1/25/00	1/25/00
Depth (ft)			0.00	0.00	0.00	0.00	0.00	0.00	0.00
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Metals (7471)									
Laboratory Id Number			99U00274	99U00363	99U00276	99U00277	99U00278	00U00367	00U00370
Parameter	Units	RL							
Mercury	ug/g	0.0500	1.41 D	167	118	190	192 D	0.360	0.244

Created on: 12/13/00

Table 9-6. Data Summary Table: Soil - SWMU 33B - Outside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33B-40	SB-33B-41	SB-33B-41	SB-33B-42	SB-33B-43	SB-33B-44	SB-33B-45
Field Sample Number			SAIC01D	SAIC01	SAIC01D	SAIC01	SAIC01	SAIC01	SAIC01
Site Type			BORE	BORE	BORE	BORE	BORE	BORE	BORE
Collection Date			1/25/00	1/25/00	1/25/00	1/25/00	1/25/00	1/25/00	1/25/00
Depth (ft)			0.00	0.00	0.00	0.00	0.00	0.00	0.00
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Metals (7471)									
Laboratory Id Number			00U00371	00U00375	00U00376	00U00380	00U00384	00U00388	00U00393
Parameter	Units	RL							
Mercury	ug/g	0.0500	**0.307** D	**0.186**	**0.174** D	**0.120**	**0.0686**	**0.245**	**0.394**

Table 9-6. Data Summary Table: Soil - SWMU 33B - Outside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33B-46	SB-33B-47	SB-33B-48	SB-33B-49	SB-33B-50	SB-33B-51	SB-33B-51
Field Sample Number			SAIC01	SAIC01	SAIC01	SAIC01	SAIC01	SAIC01	SAIC01D
Site Type			BORE	BORE	BORE	BORE	BORE	BORE	BORE
Collection Date			1/24/00	1/24/00	1/24/00	1/24/00	1/24/00	1/24/00	1/24/00
Depth (ft)			0.00	0.00	0.00	0.00	0.00	0.00	0.00
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Metals (7471)									
Laboratory Id Number			00U00304	00U00308	00U00312	00U00316	00U00320	00U00324	00U00325
Parameter	Units	RL							
Mercury	ug/g	0.0500	**0.224**	**0.176**	**0.103**	**0.132**	**0.123**	**0.270**	**0.151** D

Created on: 12/13/00

Table 9-6. Data Summary Table: Soil - SWMU 33B - Outside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33B-52	SB-33B-53	SB-33B-53	SB-33B-54	SB-33B-55	SB-33B-56	SB-33B-56
Field Sample Number			SAIC01	SAIC01	SAIC01D	SAIC01	SAIC01	SAIC01	SAIC01D
Site Type			BORE	BORE	BORE	BORE	BORE	BORE	BORE
Collection Date			1/24/00	1/24/00	1/24/00	1/24/00	1/25/00	1/25/00	1/25/00
Depth (ft)			0.00	0.00	0.00	0.00	0.00	0.00	0.00
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Metals (7471)									
Laboratory Id Number			00U00330	00U00334	00U00335	00U00339	00U00397	00U00402	00U00403
Parameter	Units	RL							
Mercury	ug/g	0.0500	**6.22**	**17.5**	**18.5** D	**1.77**	**0.214**	**0.485**	**0.450** D

Table 9-6. Data Summary Table: Soil - SWMU 33B - Outside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33B-30		SB-33B-30	SB-33B-31	SB-33B-31	SB-33B-32		SB-33B-32		SB-33B-32
Field Sample Number			SAIC02		SAIC03	SAIC02	SAIC03	SAIC02		SAIC02D		SAIC03
Site Type			BORE		BORE	BORE	BORE	BORE		BORE		BORE
Collection Date			2/22/99		2/22/99	2/22/99	2/22/99	2/22/99		2/22/99		2/22/99
Depth (ft)			1.00		5.00	1.00	5.00	1.00		1.00		5.00
Associated Field QC Sample - Site Id												
Associated Field QC Sample - Field Sample No.												
Associated Field QC Sample - Site Id												
Associated Field QC Sample - Field Sample No.												
Metals (7471)												
Laboratory Id Number			99U00350		99U00351	99U00352	99U00353	99U00354		99U00355		99U00356
Parameter	Units	RL										
Mercury	ug/g	0.0500	LT 0.0500		LT 0.0500	**0.0697**	**0.0531**	LT 0.0500		LT 0.0500 D		LT 0.0500

Boolean Codes:
- LT - Less than the certified reporting limit
- ND - Not detected

Footnotes:
- CRL - Certified reporting limits
- ID - Identification
- N/A - Not applicable
- TICs - Tentatively Identified Compound

Flagging Codes:
- D - Duplicate analysis.
- J - Value is estimated.
- P - Results less than reporting limit but greater than instrumental detecti

Created on: 12/13/00

Table 9-6. Data Summary Table: Soil - SWMU 33B - Outside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID				SB-33B-32		SB-33B-33		SB-33B-33		SB-33B-34		SB-33B-34		SB-33B-35		SB-33B-35
Field Sample Number				SAIC03D		SAIC02		SAIC03		SAIC02		SAIC03		SAIC02		SAIC03
Site Type				BORE		BORE		BORE		BORE		BORE		BORE		BORE
Collection Date				2/22/99		2/22/99		2/22/99		2/22/99		2/22/99		2/22/99		2/22/99
Depth (ft)				5.00		1.00		5.00		1.00		5.00		1.00		5.00
Associated Field QC Sample - Site Id																
Associated Field QC Sample - Field Sample No.																
Associated Field QC Sample - Site Id																
Associated Field QC Sample - Field Sample No.																
Metals (7471)																
Laboratory Id Number				99U00357		99U00358		99U00359		99U00360		99U00361		99U00362		99U00339
Parameter	Units	RL														
Mercury	ug/g	0.0500	LT	0.0500	D	**0.0685**		LT 0.0500		**0.0577**		LT 0.0500		LT 0.0500		LT 0.0500

Table 9-6. Data Summary Table: Soil - SWMU 33B - Outside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33B-36		SB-33B-36	SB-33B-37		SB-33B-37	SB-33B-37	SB-33B-38	SB-33B-38
Field Sample Number			SAIC02		SAIC03	SAIC02		SAIC03	SAIC04	SAIC02	SAIC03
Site Type			BORE		BORE	BORE		BORE	BORE	BORE	BORE
Collection Date			2/22/99		2/22/99	2/22/99		2/22/99	1/24/00	2/22/99	2/22/99
Depth (ft)			1.00		5.00	1.00		5.00	10.00	1.00	5.00
Associated Field QC Sample - Site Id											
Associated Field QC Sample - Field Sample No.											
Associated Field QC Sample - Site Id											
Associated Field QC Sample - Field Sample No.											
Metals (7471)											
Laboratory Id Number			99U00340		99U00341	99U00342		99U00343	00U00303	99U00275	99U00287
Parameter	Units	RL									
Mercury	ug/g	0.0500	**0.0798**	LT	0.0500	LT	0.0500	**0.681**	**0.0540**	**0.279**	**0.102**

Created on 12/13/00

Table 9-6. Data Summary Table: Soil - SWMU 33B - Outside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33B-39		SB-33B-39		SB-33B-40		SB-33B-40		SB-33B-40		SB-33B-41		SB-33B-41
Field Sample Number			SAIC02		SAIC03		SAIC02		SAIC03		SAIC03D		SAIC02		SAIC03
Site Type			BORE		BORE		BORE		BORE		BORE		BORE		BORE
Collection Date			1/25/00		1/25/00		1/25/00		1/25/00		1/25/00		1/25/00		1/25/00
Depth (ft)			1.00		5.00		1.00		5.00		5.00		1.00		5.00
Associated Field QC Sample - Site Id															
Associated Field QC Sample - Field Sample No.															
Associated Field QC Sample - Site Id															
Associated Field QC Sample - Field Sample No.															
Metals (7471)															
Laboratory Id Number			00U00368		00U00369		00U00372		00U00373		00U00374		00U00377		00U00378
Parameter	Units	RL													
Mercury	ug/g	0.0500	**0.0740**		LT 0.0500		LT 0.0500		LT 0.0500		LT 0.0500 D		**0.0426** JP		LT 0.0500

Table 9-6. Data Summary Table: Soil - SWMU 33B - Outside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID				SB-33B-41		SB-33B-42		SB-33B-42		SB-33B-42		SB-33B-43		SB-33B-43		SB-33B-43	
Field Sample Number				SAIC04		SAIC02		SAIC03		SAIC04		SAIC02		SAIC03		SAIC04	
Site Type				BORE		BORE		BORE		BORE		BORE		BORE		BORE	
Collection Date				1/25/00		1/25/00		1/25/00		1/25/00		1/25/00		1/25/00		1/25/00	
Depth (ft)				10.00		1.00		5.00		10.00		1.00		5.00		10.00	
Associated Field QC Sample - Site Id																	
Associated Field QC Sample - Field Sample No.																	
Associated Field QC Sample - Site Id																	
Associated Field QC Sample - Field Sample No.																	
Metals (7471)																	
Laboratory Id Number				00U00379		00U00381		00U00382		00U00383		00U00385		00U00386		00U00387	
Parameter	Units	RL															
Mercury	ug/g	0.0500	LT	0.0500		**0.0964**		LT 0.0500		LT 0.0500		**0.0499** JP		LT 0.0500		LT 0.0500	

Created on: 12/13/00

Table 9-6. Data Summary Table: Soil - SWMU 33B - Outside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33B-44		SB-33B-44	SB-33B-44		SB-33B-44	SB-33B-45		SB-33B-45	SB-33B-45	
Field Sample Number			SAIC02		SAIC03	SAIC03D		SAIC04	SAIC02		SAIC03	SAIC04	
Site Type			BORE		BORE	BORE		BORE	BORE		BORE	BORE	
Collection Date			1/25/00		1/25/00	1/25/00		1/25/00	1/25/00		1/25/00	1/25/00	
Depth (ft)			1.00		5.00	5.00		10.00	1.00		5.00	10.00	
Associated Field QC Sample - Site Id													
Associated Field QC Sample - Field Sample No.													
Associated Field QC Sample - Site Id													
Associated Field QC Sample - Field Sample No.													
Metals (7471)													
Laboratory Id Number			00U00389		00U00390	00U00391		00U00392	00U00394		00U00395	00U00396	
Parameter	Units	RL											
Mercury	ug/g	0.0500	**0.0653**		LT 0.0500	**0.0453** DJP		LT 0.0500	**0.571**		LT 0.0500	LT 0.0500	

Table 9-6. Data Summary Table: Soil - SWMU 33B - Outside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33B-46		SB-33B-46		SB-33B-46	SB-33B-47		SB-33B-47		SB-33B-47	SB-33B-48
Field Sample Number			SAIC02		SAIC03		SAIC04	SAIC02		SAIC03		SAIC04	SAIC02
Site Type			BORE		BORE		BORE	BORE		BORE		BORE	BORE
Collection Date			1/24/00		1/24/00		1/24/00	1/24/00		1/24/00		1/24/00	1/24/00
Depth (ft)			1.00		5.00		10.00	1.00		5.00		10.00	1.00
Associated Field QC Sample - Site Id													
Associated Field QC Sample - Field Sample No.													
Associated Field QC Sample - Site Id													
Associated Field QC Sample - Field Sample No.													
Metals (7471)													
Laboratory Id Number			00U00305		00U00306		00U00307	00U00309		00U00310		00U00311	00U00313
Parameter	Units	RL											
Mercury	ug/g	0.0500	**1.12**	LT	0.0500	LT	0.0500	**0.678**	LT	0.0500	LT	0.0500	**0.111**

Boolean Codes:
- LT - Less than the certified reporting limit
- ND - Not detected

Footnotes:
- CRL - Certified reporting limits
- ID - Identification
- N/A - Not applicable
- TICs - Tentatively Identified Compound

Flagging Codes:
- D - Duplicate analysis.
- J - Value is estimated.
- P - Results less than reporting limit but greater than instrumental detecti

Created on: 12/13/00

Table 9-6. Data Summary Table: Soil - SWMU 33B - Outside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID				SB-33B-48		SB-33B-48		SB-33B-49		SB-33B-49		SB-33B-49		SB-33B-50		SB-33B-50
Field Sample Number				SAIC03		SAIC04		SAIC02		SAIC03		SAIC04		SAIC02		SAIC03
Site Type				BORE		BORE		BORE		BORE		BORE		BORE		BORE
Collection Date				1/24/00		1/24/00		1/24/00		1/24/00		1/24/00		1/24/00		1/24/00
Depth (ft)				5.00		10.00		1.00		5.00		10.00		1.00		5.00
Associated Field QC Sample - Site Id																
Associated Field QC Sample - Field Sample No.																
Associated Field QC Sample - Site Id																
Associated Field QC Sample - Field Sample No.																
Metals (7471)																
Laboratory Id Number				00U00314		00U00315		00U00317		00U00318		00U00319		00U00321		00U00322
Parameter	Units	RL														
Mercury	ug/g	0.0500	LT	0.0500	LT	0.0500		**0.129**	LT	0.100	LT	0.100	LT	0.100	LT	0.100

Table 9-6. Data Summary Table: Soil - SWMU 33B - Outside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33B-50		SB-33B-51		SB-33B-51		SB-33B-51		SB-33B-51		SB-33B-52		SB-33B-52
Field Sample Number			SAIC04		SAIC02		SAIC03		SAIC04		SAIC04D		SAIC02		SAIC03
Site Type			BORE		BORE		BORE		BORE		BORE		BORE		BORE
Collection Date			1/24/00		1/24/00		1/24/00		1/24/00		1/24/00		1/24/00		1/24/00
Depth (ft)			10.00		1.00		5.00		10.00		10.00		1.00		5.00
Associated Field QC Sample - Site Id															
Associated Field QC Sample - Field Sample No.															
Associated Field QC Sample - Site Id															
Associated Field QC Sample - Field Sample No.															
Metals (7471)															
Laboratory Id Number			00U00323		00U00326		00U00327		00U00328		00U00329		00U00331		00U00332
Parameter	Units	RL													
Mercury	ug/g	0.0500	LT	0.100	LT	0.100	LT	0.100	LT	0.100	LT	0.0500 D	0.735	LT	0.0500

Created on: 12/13/00

Table 9-6. Data Summary Table: Soil - SWMU 33B - Outside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33B-52		SB-33B-53		SB-33B-53		SB-33B-53		SB-33B-54		SB-33B-54		SB-33B-54	
Field Sample Number			SAIC04		SAIC02		SAIC03		SAIC04		SAIC02		SAIC03		SAIC04	
Site Type			BORE		BORE		BORE		BORE		BORE		BORE		BORE	
Collection Date			1/24/00		1/24/00		1/24/00		1/24/00		1/24/00		1/24/00		1/24/00	
Depth (ft)			10.00		1.00		5.00		10.00		1.00		5.00		10.00	
Associated Field QC Sample - Site Id																
Assqciated Field QC Sample - Field Sample No.																
Associated Field QC Sample - Site Id																
Associated Field QC Sample - Field Sample No.																
Metals (7471)																
Laboratory Id Number			00U00333		00U00336		00U00337		00U00338		00U00340		00U00341		00U00342	
Parameter	Units	RL														
Mercury	ug/g	0.0500	LT	0.0500	**0.446**		LT	0.100	LT	0.100	LT	0.100	LT	0.100	LT	0.100

Table 9-6. Data Summary Table: Soil - SWMU 33B - Outside Building (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			SB-33B-55		SB-33B-55		SB-33B-55		SB-33B-55		SB-33B-56		SB-33B-56		SB-33B-56	
Field Sample Number			SAIC02		SAIC03		SAIC03D		SAIC04		SAIC02		SAIC03		SAIC04	
Site Type			BORE		BORE		BORE		BORE		BORE		BORE		BORE	
Collection Date			1/25/00		1/25/00		1/25/00		1/25/00		1/25/00		1/25/00		1/25/00	
Depth (ft)			1.00		5.00		5.00		10.00		1.00		5.00		10.00	
Associated Field QC Sample - Site Id																
Associated Field QC Sample - Field Sample No.																
Associated Field QC Sample - Site Id																
Associated Field QC Sample - Field Sample No.																
Metals (7471)																
Laboratory Id Number			00U00398		00U00399		00U00400		00U00401		00U00404		00U00405		00U00406	
Parameter	Units	RL														
Mercury	ug/g	0.0500	LT 0.0500		LT 0.0500		LT 0.0500 D		LT 0.0500		LT 0.0500		LT 0.0500		LT 0.0500	

Created on: 12/13/00

Table 9-7. Summary of Chemicals Detected in Soils at SWMU 33B
Deseret Chemical Depot, DCD, Tooele, Utah

Chemical	Units	Proportion of Detects All Samples[a]	Detects Minimum	Detects Maximum	95% UTL of Background Data Set		Proportion of Detected Results Greater Than Background UTL	Maximum Concentration Location	Maximum Concentration Depth	COPC?
Surface Soils										
Inorganics										
Aluminum	ug/g	10 / 10	4,640	19,000	24,256		0 / 10	SS-33-001	0	No
Antimony	ug/g	2 / 10	12	12	12		1 / 2	SS-33-004	0	Yes
Arsenic	ug/g	10 / 10	6.6	64	3.4	*	1 / 10	SS-33-003	0	No
Barium	ug/g	10 / 10	59	173	423		0 / 10	SS-33-001	0	No
Beryllium	ug/g	7 / 10	0.59	1.1	1.2		0 / 7	SB-33-002B	0.5	No
Cadmium	ug/g	10 / 10	1.8	12	21		0 / 10	SS-33-003	0	Yes
Calcium	ug/g	10 / 10	75,000	160,000	250,000		0 / 10	SB-33-001A	0	No
Chromium	ug/g	10 / 10	8.4	32	56		0 / 10	SS-33-002	0	No
Cobalt	ug/g	10 / 10	3.1	7.4	10		0 / 10	SS-33-001	0	No
Copper	ug/g	10 / 10	30	427	162		3 / 10	SS-33-002	0	Yes
Iron	ug/g	10 / 10	7,020	19,500	21,340		0 / 10	SS-33-001	0	No
Lead	ug/g	10 / 10	91	958	401		3 / 10	SS-33-003	0	Yes
Magnesium	ug/g	10 / 10	8,990	16,600	35,700		0 / 10	SB-33-001A	0	No
Manganese	ug/g	10 / 10	237	689	649		1 / 10	SS-33-001	0	No
Mercury	ug/g	48 / 50	0.067	236	0.36		34 / 48	SS-33-022	0	Yes
Nickel	ug/g	10 / 10	11	29	33		0 / 10	SS-33-001	0	No
Potassium	ug/g	10 / 10	1,790	6,400	6,751		0 / 10	SS-33-001	0	No
Selenium	ug/g	1 / 10	0.68	0.68	2.9		0 / 1	SB-33-003B	0.5	No
Silver	ug/g	7 / 10	0.84	6.6	0.47	*	4 / 7	SS-33-003	0	Yes
Sodium	ug/g	10 / 10	394	697	5,610		0 / 10	SS-33-001	0	No
Thallium	ug/g	8 / 10	8.6	19	34		0 / 8	SS-33-001	0	Yes
Vanadium	ug/g	10 / 10	12	33	55		0 / 10	SS-33-001	0	No
Zinc	ug/g	10 / 10	110	655	385		2 / 10	SS-33-003	0	Yes
Subsurface Soils										
Inorganics										
Aluminum	ug/g	3 / 3	13,000	19,200	24,256		0 / 3	SB-33-002C	1	No
Arsenic	ug/g	3 / 3	6.8	22	3.4	*	0 / 3	SB-33-001C	1	No
Barium	ug/g	3 / 3	125	178	423		0 / 3	SB-33-002C	1	No
Beryllium	ug/g	3 / 3	0.95	1.4	1.2		1 / 3	SB-33-001C	1	Yes
Cadmium	ug/g	3 / 3	1.3	6.7	21		0 / 3	SB-33-001C	1	No
Calcium	ug/g	3 / 3	95,000	100,000	250,000		0 / 3	SB-33-001C	1	No
Chromium	ug/g	3 / 3	20	26	56		0 / 3	SB-33-002C	1	No
Cobalt	ug/g	3 / 3	6.3	7.6	10		0 / 3	SB-33-002C	1	No
Copper	ug/g	3 / 3	23	140	162		0 / 3	SB-33-001C	1	No
Iron	ug/g	3 / 3	15,700	18,800	21,340		0 / 3	SB-33-002C	1	No
Lead	ug/g	3 / 3	36	530	401		1 / 3	SB-33-001C	1	Yes
Magnesium	ug/g	3 / 3	12,900	15,000	35,700		0 / 3	SB-33-002C	1	No
Manganese	ug/g	3 / 3	550	765	649		1 / 3	SB-33-002C	1	Yes
Mercury	ug/g	23 / 74	0.043	1.1	0.36		8 / 23	SB-33B-46	1	Yes
Nickel	ug/g	3 / 3	24	28	33		0 / 3	SB-33-002C	1	No
Potassium	ug/g	3 / 3	3,780	5,710	6,751		0 / 3	SB-33-002C	1	No
Silver	ug/g	2 / 3	1.00	4.1	0.47	*	1 / 2	SB-33-001C	1	Yes
Sodium	ug/g	3 / 3	570	709	5,610		0 / 3	SB-33-002C	1	No
Thallium	ug/g	2 / 3	17	20	34		0 / 2	SB-33-001C	1	No
Vanadium	ug/g	3 / 3	24	32	55		0 / 3	SB-33-002C	1	No
Zinc	ug/g	3 / 3	115	424	385		1 / 3	SB-33-001C	1	Yes

* 95% UTL is presented in log-space. In order to conduct an accurate comparison, take the natural log of the maximum concentration before comparing to the 95% UTL.

[a] For the proportion of detects, counts were based on the unaveraged data set.

[1] Surface samples are collected within the range of 0 to 0.5 feet BLS.

[2] Subsurface samples are collected within the range of >0.5 feet BLS.

Table 9-8. Data Summary Table: Soil - SWMU 33C
Deseret Chemical Depot, Tooele, Utah

Site ID			TP-33-001A		TP-33-001A	TP-33-002A	TP-33-002A	TP-33-003A	TP-33-004A	TP-33-005A
Field Sample Number			SAIC01		SAIC02	SAIC01	SAIC02	SAIC01	SAIC01	SAIC01
Site Type			BORE		BORE	BORE	BORE	BORE	BORE	BORE
Collection Date			10/7/94		10/7/94	10/7/94	10/7/94	10/7/94	10/7/94	10/7/94
Depth (ft)			0.50		0.50	0.50	0.50	0.50	0.50	0.50
Associated Field QC Sample - Site Id										
Associated Field QC Sample - Field Sample No.										
Associated Field QC Sample - Site Id										
Associated Field QC Sample - Field Sample No.										
Metals (JB01)										
Laboratory Id Number			TSSA*201		TSSA*202	TSSA*206	TSSA*207	TSSA*211	TSSA*228	TSSA*232
Parameter	Units	RL								
Mercury	ug/g	0.05	0.229 BG		0.228 D	0.353 B	0.221 D	0.184 BG	0.200 BG	0.0540 BG
Metals (JD19)										
Laboratory Id Number			TSSA*201		TSSA*202	TSSA*206	TSSA*207	TSSA*211	TSSA*228	TSSA*232
Parameter	Units	RL								
Arsenic	ug/g	0.25	9.40		11.0 D	12.0	11.0 D	12.6	9.81	6.42
Metals (JS16)										
Laboratory Id Number			TSSA*201		TSSA*202	TSSA*206	TSSA*207	TSSA*211	TSSA*228	TSSA*232
Parameter	Units	RL								
Aluminum	ug/g	2.350	4150		4240 D	12000	12000 D	7330	12300	11400
Barium	ug/g	5.180	165		124 D	172	175 D	102	152	140
Beryllium	ug/g	0.500	LT 0.500	LT	0.500 D	0.773	LT 0.500 D	LT 0.500	0.907	0.826
Cadmium	ug/g	0.700	3.23		4.32 D	3.03	3.62 D	3.67	1.88	1.00
Calcium	ug/g	100.000	150000		140000 D	75000	84000 D	76000	84000	120000
Chromium	ug/g	4.050	16.0		17.8 D	27.4	38.3 D	25.1	18.0	16.1
Cobalt	ug/g	1.420	2.98		2.01 D	5.61	5.56 D	4.00	5.72	5.11
Copper	ug/g	0.965	48.4		34.3 D	57.4	51.8 D	33.7	31.9	20.5
Iron	ug/g	3.680	8540		6870 D	13600	14200 D	9220	14400	12300
Lead	ug/g		199		197 D	167	203 D	150	90.6	40.5
Magnesium	ug/g	100.000	9170		6450 D	10600	12400 D	7750	11100	10500
Manganese	ug/g	2.050	215		174 D	424	439 D	303	504	353
Nickel	ug/g	1.710	14.4		10.8 D	21.4	22.0 D	14.2	22.6	17.7
Potassium	ug/g	100.000	2050		1710 D	3720	4220 D	2900	3820	3150
Silver	ug/g	0.589	LT 0.589	LT	0.589 D	LT 0.589	0.774 D	0.689	0.920	LT 0.589
Sodium	ug/g	100.000	725		540 D	/ 629	262 D	496	589	649
Vanadium	ug/g	3.390	11.6		10.9 D	19.9	22.7 D	14.9	21.8	20.3
Zinc	ug/g	8.030	201		168 D	139	160 D	116	133	81.6
Semivolatiles (LM18)										
Laboratory Id Number			TSSA*201		TSSA*202	TSSA*206		TSSA*211	TSSA*228	TSSA*232
Parameter	Units	RL								
Naphthalene	ug/g	0.037	LT 0.700	LT	0.700 D	0.0520	N/A	LT 0.0370	LT 0.0370	LT 0 0370

Created on: 12/13/00

Table 9-8. Data Summary Table: Soil - SWMU 33C (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			TP-33-001A	TP-33-001A	TP-33-002A	TP-33-002A	TP-33-003A	TP-33-004A	TP-33-005A
Field Sample Number			SAIC01	SAIC02	SAIC01	SAIC02	SAIC01	SAIC01	SAIC01
Site Type			BORE	BORE	BORE	BORE	BORE	BORE	BORE
Collection Date			10/7/94	10/7/94	10/7/94	10/7/94	10/7/94	10/7/94	10/7/94
Depth (ft)			0.50	0.50	0.50	0.50	0.50	0.50	0.50
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Volatiles (LM10)									
Laboratory Id Number			TSSA*201	TSSA*202	TSSA*206	TSSA*207	TSSA*211	TSSA*228	TSSA*232
Parameter	Units	RL							
Toluene	ug/g	0.780	LT 0.000780	**0.000850** D	LT 0.000780	LT 0.000780 D	LT 0.000780	LT 0.000780	LT 0.000780
Trichlorofluoromethane	ug/g	5.900	LT 0.00590	LT 0.00590 D	**0.0150**	**0.0210** D	LT 0.00590	LT 0.00590	**0.0110**

Boolean Codes:
- LT - Less than the certified reporting limit
- ND - Not detected

Footnotes:
- CRL - Certified reporting limits
- ID - Identification
- N/A - Not applicable
- TICs - Tentatively Identified Compound

Flagging Codes:
- B - Analyte found in the method blank or QC blank
- D - Duplicate analysis.
- G - Analyte found in rinse blank as well as in sample.

Table 9-8. Data Summary Table: Soil - SWMU 33C (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			TP-33-006A		TP-33-007A		TP-33-008A	
Field Sample Number			SAIC01		SAIC01		SAIC01	
Site Type			BORE		BORE		BORE	
Collection Date			10/7/94		10/7/94		10/7/94	
Depth (ft)			0.50		0.50		0.50	
Associated Field QC Sample - Site Id								
Associated Field QC Sample - Field Sample No.								
Associated Field QC Sample - Site Id								
Associated Field QC Sample - Field Sample No.								
Metals (JB01)								
Laboratory Id Number			TSSA*212		TSSA*217		TSSA*222	
Parameter	Units	RL						
Mercury	ug/g	0.05	**0.211**	BG	**0.192**	BG	**0.424**	B
Metals (JD19)								
Laboratory Id Number			TSSA*212		TSSA*217		TSSA*222	
Parameter	Units	RL						
Arsenic	ug/g	0.25	**16.0**		**15.0**		**22.0**	
Metals (JS16)								
Laboratory Id Number			TSSA*212		TSSA*217		TSSA*222	
Parameter	Units	RL						
Aluminum	ug/g	2.350	**15400**		**14600**		**7850**	
Barium	ug/g	5.180	**157**		**159**		**101**	
Beryllium	ug/g	0.500	**0.656**		**0.699**		**0.743**	
Cadmium	ug/g	0.700	**2.74**		**2.67**		**4.08**	
Calcium	ug/g	100.000	**89000**		**90000**		**110000**	
Chromium	ug/g	4.050	**22.0**		**25.7**		**19.2**	
Cobalt	ug/g	1.420	**5.95**		**5.98**		**3.21**	
Copper	ug/g	0.965	**55.5**		**48.8**		**66.0**	
Iron	ug/g	3.680	**15700**		**15300**		**9780**	
Lead	ug/g		**165**		**136**		**283**	
Magnesium	ug/g	100.000	**12500**		**12000**		**10800**	
Manganese	ug/g	2.050	**504**		**506**		**333**	
Nickel	ug/g	1.710	**23.7**		**24.0**		**14.8**	
Potassium	ug/g	100.000	**4930**		**4710**		**3100**	
Silver	ug/g	0.589	**1.18**		**0.990**		**1.19**	
Sodium	ug/g	100.000	**589**		**674**		**527**	
Vanadium	ug/g	3.390	**26.8**		**25.8**		**16.7**	
Zinc	ug/g	8.030	**192**		**181**		**229**	
Semivolatiles (LM18)								
Laboratory Id Number			TSSA*212		TSSA*217		TSSA*222	
Parameter	Units	RL						
Naphthalene	ug/g	0.037	LT 0.0370		LT 0.0370		LT 0.0370	

Created on: 12/13/00

Table 9-8. Data Summary Table: Soil - SWMU 33C (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			TP-33-006A		TP-33-007A		TP-33-008A
Field Sample Number			SAIC01		SAIC01		SAIC01
Site Type			BORE		BORE		BORE
Collection Date			10/7/94		10/7/94		10/7/94
Depth (ft)			0.50		0.50		0.50
Associated Field QC Sample - Site Id							
Associated Field QC Sample - Field Sample No.							
Associated Field QC Sample - Site Id							
Associated Field QC Sample - Field Sample No.							
Volatiles (LM19)							
Laboratory Id Number			TSSA*212		TSSA*217		TSSA*222
Parameter	Units	RL					
Toluene	ug/g	0.780	**0.00140** B	LT	0.000780	LT	0.000780
Trichlorofluoromethane	ug/g	5.900	LT 0.00590		**0.0130**	LT	0.00590

Table 9-8. Data Summary Table: Soil - SWMU 33C (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			TP-33-001B	TP-33-001C	TP-33-001D	TP-33-002B	TP-33-002C	TP-33-002D	TP-33-003B
Field Sample Number			SAIC02	SAIC03	SAIC04	SAIC02	SAIC03	SAIC04	SAIC02
Site Type			BORE	BORE	BORE	BORE	BORE	BORE	BORE
Collection Date			10/7/94	10/7/94	10/7/94	10/7/94	10/7/94	10/7/94	10/7/94
Depth (ft)			3.00	5.00	10.00	3.00	6.00	10.00	3.50
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Metals (JB01)									
Laboratory Id Number			TSSA*203	TSSA*204	TSSA*205	TSSA*208	TSSA*209	TSSA*210	TSSA*225
Parameter	Units	RL							
Mercury	ug/g	0.05	**0.235**	**0.240**	**0.512**	**0.404** B	LT 0.0500	LT 0.0500	**0.265** B
Metals (JD19)									
Laboratory Id Number			TSSA*203	TSSA*204	TSSA*205	TSSA*208	TSSA*209	TSSA*210	TSSA*225
Parameter	Units	RL							
Arsenic	ug/g	0.25	**7.60**	**12.0**	**15.0**	**19.0**	**7.18**	**6.65**	**12.3**
Metals (JS16)									
Laboratory Id Number			TSSA*203	TSSA*204	TSSA*205	TSSA*208	TSSA*209	TSSA*210	TSSA*225
Parameter	Units	RL							
Aluminum	ug/g	2.350	**7240**	**10300**	**5280**	**13000**	**3480**	**4370**	**12400**
Barium	ug/g	5.180	**222**	**246**	**348**	**214**	**37.4**	**46.9**	**140**
Beryllium	ug/g	0.500	LT 0.500	**0.715**	**0.642**	**0.742**	LT 0.500	LT 0.500	LT 0.500
Cadmium	ug/g	0.700	**4.15**	**3.42**	**2.35**	**3.30**	LT 0.700	LT 0.700	**2.06**
Calcium	ug/g	100.000	**92000**	**85000**	**60000**	**85000**	**110000**	**130000**	**100000**
Chromium	ug/g	4.050	**20.8**	**38.1**	**39.6**	**36.3**	**10.1**	**13.6**	**19.6**
Cobalt	ug/g	1.420	**3.91**	**4.76**	**3.83**	**5.58**	**2.43**	**2.30**	**6.29**
Copper	ug/g	0.965	**50.4**	**45.0**	**39.9**	**82.8**	**7.40**	**8.73**	**31.6**
Iron	ug/g	3.680	**10000**	**12400**	**20500**	**14500**	**7540**	**7170**	**14000**
Lead	ug/g		**212**	**318**	**546**	**287**	**16.0**	**20.5**	**87.4**
Magnesium	ug/g	100.000	**9160**	**10100**	**7890**	**11500**	**9150**	**9580**	**11600**
Manganese	ug/g	2.050	**310**	**366**	**201**	**427**	**226**	**318**	**440**
Nickel	ug/g	1.710	**15.4**	**17.6**	**20.4**	**23.2**	**12.3**	**16.2**	**22.1**
Potassium	ug/g	100.000	**2940**	**3650**	**1450**	**4340**	**653**	**1030**	**3900**
Silver	ug/g	0.589	LT 0.589	LT 0.589	LT 0.589	**0.824**	LT 0.589	LT 0.589	**0.711**
Sodium	ug/g	100.000	**573**	**682**	**766**	**298**	**364**	**419**	**572**
Thallium	ug/g	6.623	**8.96**	LT 6.62	**8.97**	LT 6.62	LT 6.62	LT 6.62	LT 6.62
Vanadium	ug/g	3.390	**15.2**	**18.3**	**11.2**	**23.2**	**13.4**	**13.7**	**23.7**
Zinc	ug/g	8.030	**204**	**272**	**369**	**188**	**42.8**	**56.8**	**125**
Semivolatiles (LM18)									
Laboratory Id Number			TSSA*203	TSSA*204	TSSA*205	TSSA*208	TSSA*209	TSSA*210	TSSA*225
Parameter	Units	RL							
2-Methylnaphthalene	ug/g	0.049	LT 1.00	**0.400**	LT 2.00	LT 0.200	LT 0.0490	LT 0.0490	LT 0.0490
Naphthalene	ug/g	0.037	LT 0.700	LT 0.200	LT 2.00	LT 0.200	LT 0.0370	LT 0.0370	LT 0.0370

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Table 9-8. Data Summary Table: Soil - SWMU 33C (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID				TP-33-001B		TP-33-001C		TP-33-001D		TP-33-002B		TP-33-002C		TP-33-002D		TP-33-003B
Field Sample Number				SAIC02		SAIC03		SAIC04		SAIC02		SAIC03		SAIC04		SAIC02
Site Type				BORE		BORE		BORE		BORE		BORE		BORE		BORE
Collection Date				10/7/94		10/7/94		10/7/94		10/7/94		10/7/94		10/7/94		10/7/94
Depth (ft)				3.00		5.00		10.00		3.00		6.00		10.00		3.50
Associated Field QC Sample - Site Id																
Associated Field QC Sample - Field Sample No.																
Associated Field QC Sample - Site Id																
Associated Field QC Sample - Field Sample No.																
Phenanthrene	ug/g	0.033	LT	0.700	LT	0.200	LT	2.00	LT	0.200	LT	0.0330	LT	0.0330	LT	0.0330
di-N-Butyl Phthalate	ug/g	0.061	LT	1.00	LT	0.300	LT	3.00	LT	0.300	LT	0.0610	LT	0.0610	LT	0.0610

Volatiles (LM19)

Laboratory Id Number				TSSA*203		TSSA*204		TSSA*205		TSSA*208		TSSA*209		TSSA*210		TSSA*225
Parameter	Units	RL														
Benzene	ug/g	1.500	LT	0.00150	LT	0.00150	LT	0.00150	LT	0.00150	LT	0.00150		**0.00320**	LT	0.00150
Chloroform	ug/g	0.870	LT	0.000870	LT	0.000870	LT	0.000870	LT	0.000870	LT	0.000870	LT	0.000870	LT	0.000870
Toluene	ug/g	0.780	LT	0.000780		**0.00150**		**0.00100**	LT	0.000780	LT	0.000780	LT	0.000780	LT	0.000780
Trichlorofluoromethane	ug/g	5.900	LT	0.00590	LT	0.00590	LT	0.00590		***0.0130***		***0.0100***		***0.0300***		***0.00930***

Boolean Codes:
- LT - Less than the certified reporting limit
- ND - Not detected

Footnotes:
- CRL - Certified reporting limits
- ID - Identification
- N/A - Not applicable
- TICs - Tentatively Identified Compound

Flagging Codes:
- B - Analyte found in the method blank or QC blank
- D - Duplicate analysis.
- G - Analyte found in rinse blank as well as in sample.

Table 9-8. Data Summary Table: Soil - SWMU 33C (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			TP-33-003C	TP-33-003D	TP-33-004B	TP-33-004C	TP-33-004D	TP-33-005B	TP-33-005C
Field Sample Number			SAIC03	SAIC04	SAIC02	SAIC03	SAIC04	SAIC02	SAIC03
Site Type			BORE	BORE	BORE	BORE	BORE	BORE	BORE
Collection Date			10/7/94	10/7/94	10/7/94	10/7/94	10/7/94	10/7/94	10/7/94
Depth (ft)			6.00	10.00	3.75	6.75	10.00	3.00	6.00
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Metals (JB01)									
Laboratory Id Number			TSSA*226	TSSA*227	TSSA*229	TSSA*230	TSSA*231	TSSA*233	TSSA*234
Parameter	Units	RL							
Mercury	ug/g	0.05	LT 0.0500	0.0545	0.174 GB	0.104 BG	LT 0.0500	0.395 B	0.205 BG
Metals (JD19)									
Laboratory Id Number			TSSA*226	TSSA*227	TSSA*229	TSSA*230	TSSA*231	TSSA*233	TSSA*234
Parameter	Units	RL							
Arsenic	ug/g	0.25	8.10	8.40	11.1	8.19	5.59	10.3	8.69
Metals (JS16)									
Laboratory Id Number			TSSA*226	TSSA*227	TSSA*229	TSSA*230	TSSA*231	TSSA*233	TSSA*234
Parameter	Units	RL							
Aluminum	ug/g	2.350	5210	4800	11100	4110	2750	10800	8920
Barium	ug/g	5.180	56.7	54.5	140	52.9	34.5	148	110
Beryllium	ug/g	0.500	LT 0.500	LT 0.500	0.912	LT 0.500	LT 0.500	0.814	0.582
Cadmium	ug/g	0.700	LT 0.700	0.865	2.30	1.35	LT 0.700	2.65	1.76
Calcium	ug/g	100.000	110000	130000	100000	110000	100000	100000	97000
Chromium	ug/g	4.050	11.3	11.6	20.3	11.2	8.14	21.6	17.7
Cobalt	ug/g	1.420	3.43	2.68	4.95	2.69	1.84	5.45	4.31
Copper	ug/g	0.965	10.9	13.4	35.8	14.1	7.98	45.1	28.8
Iron	ug/g	3.680	8910	7610	12500	6830	5800	13600	10900
Lead	ug/g		26.9	34.2	118	45.8	23.4	153	89.5
Magnesium	ug/g	100.000	11200	10000	19500	10200	7860	11900	12000
Manganese	ug/g	2.050	289	266	405	240	199	446	375
Nickel	ug/g	1.710	14.7	12.1	19.5	11.1	11.5	21.5	18.2
Potassium	ug/g	100.000	1210	1170	3950	1130	581	3630	2540
Silver	ug/g	0.589	LT 0.589	LT 0.589	LT 0.589	LT 0.589	LT 0.589	0.810	0.665
Sodium	ug/g	100.000	415	452	527	436	340	505	503
Thallium	ug/g	6.623	LT 6.62	LT 6.62	13.3	LT 6.62	LT 6.62	LT 6.62	LT 6.62
Vanadium	ug/g	3.390	15.2	13.5	20.4	11.9	10.6	21.0	19.4
Zinc	ug/g	8.030	58.0	58.4	139	63.0	47.0	172	116
Semivolatiles (LM18)									
Laboratory Id Number			TSSA*226	TSSA*227	TSSA*229	TSSA*230	TSSA*231	TSSA*233	TSSA*234
Parameter	Units	RL							
2-Methylnaphthalene	ug/g	0.049	LT 0.0490	LT 0.0490	LT 0.0490	LT 0.0490	LT 0.0490	LT 0.0490	LT 0.0490
Naphthalene	ug/g	0.037	LT 0.0370	LT 0.0370	LT 0.0370	LT 0.0370	LT 0.0370	LT 0.0370	LT 0.0370

Created on: 12/13/00

Table 9-8. Data Summary Table: Soil - SWMU 33C (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID				TP-33-003C		TP-33-003D		TP-33-004B		TP-33-004C		TP-33-004D		TP-33-005B		TP-33-005C
Field Sample Number				SAIC03		SAIC04		SAIC02		SAIC03		SAIC04		SAIC02		SAIC03
Site Type				BORE		BORE		BORE		BORE		BORE		BORE		BORE
Collection Date				10/7/94		10/7/94		10/7/94		10/7/94		10/7/94		10/7/94		10/7/94
Depth (ft)				6.00		10.00		3.75		6.75		10.00		3.00		6.00
Associated Field QC Sample - Site Id																
Associated Field QC Sample - Field Sample No.																
Associated Field QC Sample - Site Id																
Associated Field QC Sample - Field Sample No.																
Phenanthrene	ug/g	0.033	LT	0.0330	LT	0.0330	LT	0.0330	LT	0.0330	LT	0.0330	LT	0.0330	LT	0.0330
di-N-Butyl Phthalate	ug/g	0.061	LT	0.0610	LT	0.0610	LT	0.0610	LT	0.0610	LT	0.0610	LT	0.0610	LT	0.0610

Volatiles (LM19)

Laboratory Id Number				TSSA*226		TSSA*227		TSSA*229		TSSA*230		TSSA*231		TSSA*233		TSSA*234
Parameter	Units	RL														
Benzene	ug/g	1.500	LT	0.00150	LT	0.00150	LT	0.00150	LT	0.00150	LT	0.00150	LT	0.00150	LT	0.00150
Chloroform	ug/g	0.870	LT	0.000870	LT	0.000870		**0.00110**	LT	0.000870	LT	0.000870	LT	0.000870	LT	0.000870
Toluene	ug/g	0.780	LT	0.000780	LT	0.000780	LT	0.000780	LT	0.000780	LT	0.000780	LT	0.000780	LT	0.000780
Trichlorofluoromethane	ug/g	5.900	LT	0.00590	LT	0.00590	LT	0.00590	LT	0.00590		**0.00680**		**0.0150**		**0.0160**

Table 9-8. Data Summary Table: Soil - SWMU 33C (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			TP-33-005D	TP-33-006B	TP-33-006C	TP-33-006D	TP-33-006D	TP-33-007B	TP-33-007C
Field Sample Number			SAIC04	SAIC02	SAIC03	SAIC04	SAIC05	SAIC02	SAIC03
Site Type			BORE	BORE	BORE	BORE	BORE	BORE	BORE
Collection Date			10/7/94	10/7/94	10/7/94	10/7/94	10/7/94	10/7/94	10/7/94
Depth (ft)			10.00	3.00	6.00	10.00	10.00	3.00	6.50
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Metals (JB01)									
Laboratory Id Number			TSSA*235	TSSA*213	TSSA*214	TSSA*215	TSSA*216	TSSA*218	TSSA*219
Parameter	Units	RL							
Mercury	ug/g	0.05	LT 0.0500	**0.236** B	**0.0989** BG	LT 0.0500	LT 0.0500 D	**0.295** B	**0.154** BG
Metals (JD19)									
Laboratory Id Number			TSSA*235	TSSA*213	TSSA*214	TSSA*215	TSSA*216	TSSA*218	TSSA*219
Parameter	Units	RL							
Arsenic	ug/g	0.25	**7.70**	**12.3**	**10.5**	**8.70**	**9.55** D	**16.0**	**10.5**
Metals (JS16)									
Laboratory Id Number			TSSA*235	TSSA*213	TSSA*214	TSSA*215	TSSA*216	TSSA*218	TSSA*219
Parameter	Units	RL							
Aluminum	ug/g	2.350	**7870**	**11100**	**10700**	**8980**	**8980** D	**11500**	**10500**
Barium	ug/g	5.180	**91.0**	**121**	**114**	**76.8**	**79.9** D	**169**	**151**
Beryllium	ug/g	0.500	**0.624**	**0.755**	LT 0.500	LT 0.500	LT 0.500 D	LT 0.500	LT 0.500
Cadmium	ug/g	0.700	**0.964**	**3.24**	**1.44**	**1.02**	**0.945** D	**41.1**	**3.17**
Calcium	ug/g	100.000	**88000**	**100000**	**77000**	**110000**	**110000** D	**97000**	**120000**
Chromium	ug/g	4.050	**15.4**	**19.2**	**17.0**	**18.2**	**18.5** D	**24.9**	**29.3**
Cobalt	ug/g	1.420	**4.65**	**4.46**	**5.07**	**4.39**	**4.85** D	**5.73**	**5.16**
Copper	ug/g	0.965	**14.9**	**54.7**	**24.2**	**12.1**	**12.4** D	**83.1**	**576**
Iron	ug/g	3.680	**10800**	**12500**	**12600**	**11200**	**11400** D	**14500**	**16700**
Lead	ug/g		**34.2**	**178**	**63.2**	**29.8**	**29.2** D	**644**	**535**
Magnesium	ug/g	100.000	**12100**	**12500**	**12100**	**13500**	**13400** D	**10900**	**10100**
Manganese	ug/g	2.050	**348**	**405**	**418**	**322**	**349** D	**399**	**407**
Nickel	ug/g	1.710	**18.8**	**18.8**	**19.0**	**18.8**	**19.9** D	**22.6**	**28.3**
Potassium	ug/g	100.000	**1860**	**3830**	**3180**	**2030**	**2040** D	**3900**	**3330**
Silver	ug/g	0.589	LT 0.589	**0.946**	LT 0.589	LT 0.589	LT 0.589 D	**1.04**	**0.731**
Sodium	ug/g	100.000	**445**	**576**	**579**	**468**	**514** D	**621**	**626**
Thallium	ug/g	6.623	LT 6.62	LT 6.62	LT 6.62	LT 6.62	LT 6.62 D	LT 6.62	LT 6.62
Vanadium	ug/g	3.390	**19.8**	**21.3**	**22.0**	**22.3**	**22.4** D	**21.2**	**20.3**
Zinc	ug/g	8.030	**78.1**	**190**	**103**	**74.8**	**77.3** D	**223**	**392**
Semivolatiles (LM18)									
Laboratory Id Number			TSSA*235	TSSA*213	TSSA*214	TSSA*215	TSSA*216	TSSA*218	TSSA*219
Parameter	Units	RL							
2-Methylnaphthalene	ug/g	0.049	LT 0.0490	LT 0.0490	LT 0.0490	LT 0.0490	LT 0.0490 D	**0.110**	**0.170**
Naphthalene	ug/g	0.037	LT 0.0370	LT 0.0370	LT 0.0370	LT 0.0370	LT 0.0370 D	**0.0930**	**0.120**

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Table 9-8. Data Summary Table: Soil - SWMU 33C (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			TP-33-005D	TP-33-006B	TP-33-006C	TP-33-006D	TP-33-006D	TP-33-007B	TP-33-007C
Field Sample Number			SAIC04	SAIC02	SAIC03	SAIC04	SAIC05	SAIC02	SAIC03
Site Type			BORE	BORE	BORE	BORE	BORE	BORE	BORE
Collection Date			10/7/94	10/7/94	10/7/94	10/7/94	10/7/94	10/7/94	10/7/94
Depth (ft)			10.00	3.00	6.00	10.00	10.00	3.00	6.50
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Associated Field QC Sample - Site Id									
Associated Field QC Sample - Field Sample No.									
Phenanthrene	ug/g	0.033	LT 0.0330	LT 0.0330	LT 0.0330	LT 0.0330	LT 0.0330 D	**0.0470**	**0.0680**
di-N-Butyl Phthalate	ug/g	0.061	LT 0.0610	LT 0.0610	LT 0.0610	LT 0.0610	LT 0.0610 D	LT 0.0610	**0.970**

Volatiles (LM19)

Laboratory Id Number			TSSA*235	TSSA*213	TSSA*214	TSSA*215	TSSA*216	TSSA*218	TSSA*219
Parameter	Units	RL							
Benzene	ug/g	1.500	LT 0.00150	LT 0.00150	LT 0.00150	LT 0.00150	LT 0.00150 D	LT 0.00150	LT 0.00150
Chloroform	ug/g	0.870	LT 0.000870	LT 0.000870	LT 0.000870	LT 0.000870	LT 0.000870 D	LT 0.000870	LT 0.000870
Toluene	ug/g	0.780	LT 0.000780	LT 0.000780	LT 0.000780	LT 0.000780	LT 0.000780 D	**0.000940**	**0.00200**
Trichlorofluoromethane	ug/g	5.900	**0.0120**	**0.0320**	**0.0120**	**0.0390**	**0.0180** D	LT 0.00590	**0.0270**

Table 9-8. Data Summary Table: Soil - SWMU 33C (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID			TP-33-007D		TP-33-007D		TP-33-008B		TP-33-008C		TP-33-008D	
Field Sample Number			SAIC04		SAIC05		SAIC02		SAIC03		SAIC04	
Site Type			BORE		BORE		BORE		BORE		BORE	
Collection Date			10/7/94		10/7/94		10/7/94		10/7/94		10/7/94	
Depth (ft)			10.00		10.00		3.80		6.30		10.00	
Associated Field QC Sample - Site Id												
Associated Field QC Sample - Field Sample No.												
Associated Field QC Sample - Site Id												
Associated Field QC Sample - Field Sample No.												
Metals (JB01)												
Laboratory Id Number			TSSA*220		TSSA*221		TSSA*223		TSSA*224		TSSA*236	
Parameter	Units	RL										
Mercury	ug/g	0.05	**0.0665** BG		**0.201** D		**0.367** B		**0.116** BG		**0.0795** BG	
Metals (JD19)												
Laboratory Id Number			TSSA*220		TSSA*221		TSSA*223		TSSA*224		TSSA*236	
Parameter	Units	RL										
Arsenic	ug/g	0.25	**6.29**		**6.53** D		**15.0**		**8.87**		**6.88**	
Metals (JS16)												
Laboratory Id Number			TSSA*220		TSSA*221		TSSA*223		TSSA*224		TSSA*236	
Parameter	Units	RL										
Aluminum	ug/g	2.350	**4320**		**4740** D		**13500**		**12500**		**6080**	
Barium	ug/g	5.180	**37.4**		**39.3** D		**161**		**148**		**68.4**	
Beryllium	ug/g	0.500	LT 0.500	LT	0.500 D		**0.750**		**0.634**	LT	0.500	
Cadmium	ug/g	0.700	**1.29**		**1.19** D		**3.36**		**1.98**		**1.32**	
Calcium	ug/g	100.000	**130000**		**140000** D		**92000**		**92000**		**140000**	
Chromium	ug/g	4.050	**10.7**		**12.5** D		**26.1**		**21.4**		**12.7**	
Cobalt	ug/g	1.420	**2.31**		**2.71** D		**5.77**		**5.22**		**3.45**	
Copper	ug/g	0.965	**11.2**		**12.7** D		**68.4**		**39.9**		**19.3**	
Iron	ug/g	3.680	**7070**		**7650** D		**14600**		**13800**		**8230**	
Lead	ug/g		**27.3**		**26.1** D		**222**		**124**		**50.1**	
Magnesium	ug/g	100.000	**8800**		**8280** D		**11900**		**10700**		**9380**	
Manganese	ug/g	2.050	**217**		**215** D		**474**		**378**		**290**	
Nickel	ug/g	1.710	**13.4**		**13.5** D		**22.2**		**21.8**		**15.0**	
Potassium	ug/g	100.000	**981**		**1090** D		**4650**		**3710**		**1660**	
Silver	ug/g	0.589	LT 0.589	LT	0.589 D		**1.34**		**0.647**	LT	0.589	
Sodium	ug/g	100.000	**432**		**404** D		**579**		**529**		**422**	
Thallium	ug/g	6.623	LT 6.62	LT	6.62 D	LT	6.62	LT	6.62	LT	6.62	
Vanadium	ug/g	3.390	**12.4**		**13.8** D		**24.1**		**22.7**		**14.7**	
Zinc	ug/g	8.030	**55.2**		**56.8** D		**215**		**150**		**78.0**	
Semivolatiles (LM18)												
Laboratory Id Number			TSSA*220		TSSA*221		TSSA*223		TSSA*224		TSSA*236	
Parameter	Units	RL										
2-Methylnaphthalene	ug/g	0.049	LT 0.0490	LT	0.0490 D	LT	0.0490	LT	0.0490	LT	0.0490	
Naphthalene	ug/g	0.037	LT 0.0370	LT	0.0370 D	LT	0.0370	LT	0.0370	LT	0.0370	

Created on: 12/13/00

Table 9-8. Data Summary Table: Soil - SWMU 33C (Continued)
Deseret Chemical Depot, Tooele, Utah

Site ID				TP-33-007D		TP-33-007D		TP-33-008B		TP-33-008C		TP-33-008D
Field Sample Number				SAIC04		SAIC05		SAIC02		SAIC03		SAIC04
Site Type				BORE		BORE		BORE		BORE		BORE
Collection Date				10/7/94		10/7/94		10/7/94		10/7/94		10/7/94
Depth (ft)				10.00		10.00		3.80		6.30		10.00
Associated Field QC Sample - Site Id												
Associated Field QC Sample - Field Sample No.												
Associated Field QC Sample - Site Id												
Associated Field QC Sample - Field Sample No.												
Phenanthrene	ug/g	0.033	LT	0.0330	LT	0.0330 D	LT	0.0330	LT	0.0330	LT	0.0330
di-N-Butyl Phthalate	ug/g	0.061	LT	0.0610	LT	0.0610 D	LT	0.0610	LT	0.0610	LT	0.0610

Volatiles (LM19)

Laboratory Id Number				TSSA*220		TSSA*221		TSSA*223		TSSA*224		TSSA*236
Parameter	Units	RL										
Benzene	ug/g	1.500	LT	0.00150	LT	0.00150 D	LT	0.00150	LT	0.00150	LT	0.00150
Chloroform	ug/g	0.870	LT	0.000870	LT	0.000870 D	LT	0.000870	LT	0.000870	LT	0.000870
Toluene	ug/g	0.780	LT	0.000780		**0.000900** D	LT	0.000780	LT	0.000780		**0.000820**
Trichlorofluoromethane	ug/g	5.900	LT	0.00590		**0.0210** D	LT	0.00590	LT	0.00590		**0.0110**

Table 9-9. Summary of Chemicals Detected in Soils at SWMU 33C
Deseret Chemical Depot, DCD, Tooele, Utah

Chemical	Units	Proportion of Detects All Samples[a]	Detects Minimum	Detects Maximum	95% UTL of Background Data Set		Proportion of Detected Results Greater Than Background UTL	Maximum Concentration Location	Maximum Concentration Depth	COPC?
Surface Soils										
Inorganics										
Aluminum	ug/g	8 / 8	4,150	15,400	24,256		0 / 8	TP-33-006A	0.5	No
Arsenic	ug/g	8 / 8	6.4	22	3.4	*	0 / 8	TP-33-008A	0.5	No
Barium	ug/g	8 / 8	101	172	423		0 / 8	TP-33-002A	0.5	No
Beryllium	ug/g	6 / 8	0.66	0.91	1.2		0 / 6	TP-33-004A	0.5	No
Cadmium	ug/g	8 / 8	1.00	4.1	21		0 / 8	TP-33-008A	0.5	Yes
Calcium	ug/g	8 / 8	75,000	150,000	250,000		0 / 8	TP-33-001A	0.5	No
Chromium	ug/g	8 / 8	16	27	56		0 / 8	TP-33-002A	0.5	No
Cobalt	ug/g	8 / 8	3.0	6.0	10		0 / 8	TP-33-007A	0.5	No
Copper	ug/g	8 / 8	21	68	162		0 / 8	TP-33-008A	0.5	Yes
Iron	ug/g	8 / 8	8,540	15,700	21,340		0 / 8	TP-33-006A	0.5	No
Lead	ug/g	8 / 8	41	283	401		0 / 8	TP-33-008A	0.5	Yes
Magnesium	ug/g	8 / 8	7,750	12,500	35,700		0 / 8	TP-33-006A	0.5	No
Manganese	ug/g	8 / 8	215	506	649		0 / 8	TP-33-007A	0.5	No
Nickel	ug/g	8 / 8	14	24	33		0 / 8	TP-33-007A	0.5	No
Potassium	ug/g	8 / 8	2,050	4,930	6,751		0 / 8	TP-33-006A	0.5	No
Silver	ug/g	5 / 8	0.69	1.2	0.47	*	0 / 5	TP-33-008A	0.5	No
Sodium	ug/g	8 / 8	496	725	5,610		0 / 8	TP-33-001A	0.5	No
Vanadium	ug/g	8 / 8	12	27	55		0 / 8	TP-33-006A	0.5	No
Zinc	ug/g	8 / 8	82	229	385		0 / 8	TP-33-008A	0.5	Yes
Organics										
Naphthalene	ug/g	1 / 8	0.052	0.052	0.0		1 / 1	TP-33-002A	0.5	Yes
Trichlorofluoromethane	ug/g	3 / 8	0.011	0.015	0.0		3 / 3	TP-33-002A	0.5	Yes
Subsurface Soils										
Inorganics										
Aluminum	ug/g	24 / 24	2,750	13,500	24,256		0 / 24	TP-33-008B	3.8	No
Arsenic	ug/g	24 / 24	5.6	19	3.4	*	0 / 24	TP-33-002B	3	No
Barium	ug/g	24 / 24	35	348	423		0 / 24	TP-33-001D	10	No
Beryllium	ug/g	10 / 24	0.58	0.91	1.2		0 / 10	TP-33-004B	3.75	No
Cadmium	ug/g	20 / 24	0.87	41	21		1 / 20	TP-33-007B	3	Yes
Calcium	ug/g	24 / 24	60,000	140,000	250,000		0 / 24	TP-33-008D	10	No
Chromium	ug/g	24 / 24	8.1	40	56		0 / 24	TP-33-001D	10	No
Cobalt	ug/g	24 / 24	1.8	6.3	10		0 / 24	TP-33-003B	3.5	No
Copper	ug/g	24 / 24	7.4	576	162		1 / 24	TP-33-007C	6.5	Yes
Iron	ug/g	24 / 24	5,800	20,500	21,340		0 / 24	TP-33-001D	10	No
Lead	ug/g	24 / 24	16	644	401		3 / 24	TP-33-007B	3	Yes
Magnesium	ug/g	24 / 24	7,860	19,500	35,700		0 / 24	TP-33-004B	3.75	No
Manganese	ug/g	24 / 24	199	474	649		0 / 24	TP-33-008B	3.8	No
Mercury	ug/g	4 / 24	0.055	0.51	0.36		1 / 4	TP-33-001D	10	Yes
Nickel	ug/g	24 / 24	11	28	33		0 / 24	TP-33-007C	6.5	Yes
Potassium	ug/g	24 / 24	581	4,650	6,751		0 / 24	TP-33-008B	3.8	No
Silver	ug/g	9 / 24	0.65	1.3	0.47	*	0 / 9	TP-33-008B	3.8	No
Sodium	ug/g	24 / 24	298	766	5,610		0 / 24	TP-33-001D	10	No
Thallium	ug/g	3 / 24	9.0	13	34		0 / 3	TP-33-004B	3.75	No
Vanadium	ug/g	24 / 24	11	24	55		0 / 24	TP-33-008B	3.8	No
Zinc	ug/g	24 / 24	43	392	385		1 / 24	TP-33-007C	6.5	Yes
Organics										
2-Methylnaphthalene	ug/g	3 / 24	0.11	0.40	0.0		3 / 3	TP-33-001C	5	Yes
Benzene	ug/g	1 / 24	0.0032	0.0032	0.0		1 / 1	TP-33-002D	10	Yes
Chloroform	ug/g	1 / 24	0.0011	0.0011	0.0		1 / 1	TP-33-004B	3.75	Yes
Naphthalene	ug/g	2 / 24	0.093	0.12	0.0		2 / 2	TP-33-007C	6.5	Yes
Phenanthrene	ug/g	2 / 24	0.047	0.068	0.0		2 / 2	TP-33-007C	6.5	Yes
Toluene	ug/g	5 / 24	0.00082	0.0020	0.0		5 / 5	TP-33-007C	6.5	Yes
Trichlorofluoromethane	ug/g	13 / 24	0.0088	0.039	0.0		13 / 13	TP-33-006D	10	Yes
di-N-Butyl Phthalate	ug/g	1 / 24	0.97	0.97	0.0		1 / 1	TP-33-007C	6.5	Yes

* 95% UTL is presented in log-space. In order to conduct an accurate comparison, take the natural log of the maximum concentration before comparing to the 95% UTL.

[a] For the proportion of detects, counts were based on the unaveraged data set.

[1] Surface samples are collected within the range of 0 to 0.5 feet BLS.

[2] Subsurface samples are collected within the range of >0.5 feet BLS.

Table 9-10. Chemicals of Potential Concern in Soil at SWMU 33A
Inside Building 536
Deseret Chemical Depot, Tooele, Utah

Metals	Agent Breakdown Products
Surface Soil (0 to 0.5 feet BLS)	
Antimony	Isopropyl methylphosphonate
Cadmium	Methylphosphonic acid
Calcium	Thiodiglycol
Cyanide	
Lead	
Mercury	
Subsurface Soil (0.5 to 15 feet BLS)	
Antimony	Isopropyl methylphosphonate
Beryllium	Methylphosphonic acid
Calcium	
Chromium	
Cyanide	
Lead	
Mercury	
Nickel	
Silver	
Zinc	

Table 9-11. Chemicals of Potential Concern in Soil at SWMU 33B
Outside Building 536
Deseret Chemical Depot, Tooele, Utah

Metals
Surface Soil (0 to 0.5 feet BLS)
Antimony
Cadmium
Copper
Lead
Mercury
Silver
Thallium
Zinc
Subsurface Soil (0.5 to 15 feet BLS)
Beryllium
Lead
Manganese
Mercury
Silver
Zinc

Table 9-12. Chemicals of Potential Concern in Soil at SWMU 33C
Drainage Swale
Deseret Chemical Depot, Tooele, Utah

Metals	VOCs/SVOCs
Surface Soil (0 to 0.5 feet BLS)	
Cadmium	Naphthalene
Copper	Trichlorofluoromethane
Lead	
Zinc	
Subsurface Soil (0.5 to 15 feet BLS)	
Cadmium	2-Methylnaphthalene
Copper	Benzene
Lead	Chloroform
Mercury	di-N-Butyl Phthalate
Nickel	Naphthalene
Zinc	Phenanthrene
	Toluene
	Trichlorofluoromethane

Table 9-13. RME Risk Characterization Summary: SWMU 33A - Inside Building 536
Group 3 Phase II RFI, DCD, Tooele, Utah

Medium	Exposure Route	Current/Future Land Use		Future Land Use					
		Noncancer HI	Cancer Risk	Noncancer HI			Cancer Risk		
		Depot Worker	Depot Worker	Resident Child	Resident Adult	Construction Worker	Resident Integrated	Construction Worker	
Surface Soil (0 to 0.5 ft BLS)	Ingestion	7E-02 B	0E+00 B	1E+00 B	1E-01 B	7E-02 B	0E+00 B	0E+00 B	
	Dermal Contact	4E-03 B	0E+00 B	9E-03 B	6E-03 B	8E-04 B	0E+00 B	0E+00 B	
	Inhalation (Dust)	9E-06 B	1E-09 B	3E-05 B	1E-05 B	2E-06 B	2E-09 B	5E-11 B	
	Inhalation (Volatiles)	0E+00 B	0E+00 B	0E+00 B	0E+00 B	0E+00 B	0E+00 B	0E+00 B	
Subsurface Soil (>0.5 to 15 ft BLS)	Ingestion	NA	NA	2E-01 B	2E-02 B	1E-02 B	0E+00 B	0E+00 B	
	Dermal Contact	NA	NA	0E+00 B	0E+00 B	0E+00 B	0E+00 B	0E+00 B	
	Inhalation (Dust)	NA	NA	1E-04 B	5E-05 B	8E-06 B	3E-08 B	7E-10 B	
	Inhalation (Volatiles)	NA	NA	0E+00 B	0E+00 B	0E+00 B	0E+00 B	0E+00 B	
Surface Soil									
Combined Hazard Index (HI):		8E-02 B		1E+00 B	1E-01 B	7E-02 B			
Combined Cancer Risk:			1E-09 B				2E-09 B	5E-11 B	
Subsurface Soil									
Combined Hazard Index (HI):		NA		2E-01 B	2E-02 B	1E-02 B			
Combined Cancer Risk:			NA				3E-08 B	7E-10 B	

NA - pathway not evaluated

0E+00 - pathway evaluated but no risks could be calculated due to lack of EPA-approved toxicity values

B - HI ≤ 1 or ELCR ≤ 10^{-6} for the residential scenario; HI ≤ 1 or ELCR ≤ 10^{-4} for the worker scenarios

E - HI > 1 or ELCR > 10^{-6} for the residential scenario; HI > 1 or ELCR > 10^{-4} for the worker scenarios

Integrated receptor combines both child and adult exposures

Table 9-14. RME Risk Characterization Summary for Produce and Beef: SWMU 33A - Inside Building 536
Group 3 Phase II RFI, DCD, Tooele, Utah

Medium	Exposure Route	Future Land Use					
		Noncancer HI				Cancer Risk	
		Resident Child		Resident Adult		Resident Integrated	
Produce	Leafy Vegetable Ingestion	2E+02	E	7E+01	E	0E+00	B
Surface Soil (0 to 0.5 ft BLS)	Tuberous Vegetable Ingestion	2E+02	E	8E+01	E	0E+00	B
	Fruit Ingestion	9E+00	E	3E+00	E	0E+00	B
Produce	Leafy Vegetable Ingestion	5E-01	B	2E-01	B	0E+00	B
Subsurface Soil (>0.5 to 15 ft BLS)	Tuberous Vegetable Ingestion	6E-01	B	2E-01	B	0E+00	B
	Fruit Ingestion	9E-02	B	3E-02	B	0E+00	B
Beef	Ingestion	1E-01	B	5E-02	B	0E+00	B
Produce (Surface Soil) and Beef							
Combined Hazard Index (HI):		5E+02	E	2E+02	E		
Combined Cancer Risk:						0E+00	B
Produce (Subsurface Soil) and Beef							
Combined Hazard Index (HI):		1E+00	B	4E-01	B		
Combined Cancer Risk:						0E+00	B

NA - pathway not evaluated
0E+00 - pathway evaluated but no risks could be calculated due to lack of EPA-approved toxicity values
B - HI ≤ 1 or ELCR ≤ 10^{-6} for the residential scenario; HI ≤ 1 or ELCR ≤ 10^{-4} for the worker scenarios
E - HI > 1 or ELCR > 10^{-6} for the residential scenario; HI > 1 or ELCR > 10^{-4} for the worker scenarios
Integrated receptor combines both child and adult exposures

Table 9-15. Chemicals of Concern for Produce and Beef RME Risks at SWMU 33A - Inside Building 536 Group 3 Phase II RFI, DCD, Tooele, Utah

Medium	Exposure Route	COC[a]	% of Total HI	% of Total Cancer Risk	Future Land Use		
					Noncancer HI		Cancer Risk
					Resident Child	Resident Adult	Resident Integrated
Produce (Surface Soil)	Leafy Vegetable Ingestion	Cadmium	0%		9E-01	3E-01	
		Isopropyl methylphosphonate	78%		2E+02	6E+01	
		Methylphosphonic acid	22%		5E+01	2E+01	
	Tuberous Vegetable Ingestion	Cadmium	0%		3E-01	8E-02	
		Isopropyl methylphosphonate	45%		1E+02	3E+01	
		Methylphosphonic acid	55%		1E+02	4E+01	
	Fruit Ingestion	Cadmium	4%		3E-01	1E-01	
		Isopropyl methylphosphonate	76%		7E+00	2E+00	
		Methylphosphonic acid	20%		2E+00	6E-01	
Produce (Subsurface Soil)	Leafy Vegetable Ingestion Tuberous Vegetable Ingestion Fruit Ingestion						
Beef	Ingestion						

[a] COCs are chemicals which contribute to a pathway with HI > 1 and ELCR > 10^{-6} for the residential scenario and HI > 1 and ELCR > 10^{-4} for the worker scenarios
A blank space indicates a pathway not analyzed or an analyte which is not a COC for that pathway
Integrated receptor combines both child and adult exposures

Table 9-16. RME Risk Characterization Summary: SWMU 33B - Outside Building 536
Group 3 Phase II RFI, DCD, Tooele, Utah

Medium	Exposure Route	Current/Future Land Use		Future Land Use					
		Noncancer HI	Cancer Risk	Noncancer HI			Cancer Risk		
		Depot Worker	Depot Worker	Resident Child	Resident Adult	Construction Worker	Resident Integrated	Construction Worker	
Surface Soil (0 to 0.5 ft BLS)	Ingestion	3E-01 B	0E+00 B	4E+00 E	4E-01 B	1E-01 B	0E+00 B	0E+00 B	
	Dermal Contact	2E-02 B	0E+00 B	3E-02 B	2E-02 B	3E-03 B	0E+00 B	0E+00 B	
	Inhalation (Dust)	1E-04 B	4E-09 B	3E-04 B	1E-04 B	3E-05 B	9E-09 B	2E-10 B	
	Inhalation (Volatiles)	0E+00 B	0E+00 B	0E+00 B	0E+00 B	0E+00 B	0E+00 B	0E+00 B	
Subsurface Soil (>0.5 to 15 ft BLS)	Ingestion	NA	NA	4E-01 B	5E-02 B	3E-02 B	0E+00 B	0E+00 B	
	Dermal Contact	NA	NA	0E+00 B	0E+00 B	0E+00 B	0E+00 B	0E+00 B	
	Inhalation (Dust)	NA	NA	4E-02 B	2E-02 B	3E-03 B	2E-09 B	4E-11 B	
	Inhalation (Volatiles)	NA	NA	0E+00 B	0E+00 B	0E+00 B	0E+00 B	0E+00 B	
Surface Soil									
Combined Hazard Index (HI):		3E-01 B		4E+00 E	4E-01 B	1E-01 B			
Combined Cancer Risk:			4E-09 B				9E-09 B	2E-10 B	
Subsurface Soil									
Combined Hazard Index (HI):		NA		5E-01 B	7E-02 B	4E-02 B			
Combined Cancer Risk:			NA				2E-09 B	4E-11 B	

NA - pathway not evaluated

0E+00 - pathway evaluated but no risks could be calculated due to lack of EPA-approved toxicity values

B - HI ≤ 1 or ELCR ≤ 10^{-6} for the residential scenario; HI ≤ 1 or ELCR ≤ 10^{-4} for the worker scenarios

E - HI > 1 or ELCR > 10^{-6} for the residential scenario; HI > 1 or ELCR > 10^{-4} for the worker scenarios

Integrated receptor combines both child and adult exposures

Table 9-17. RME Risk Characterization Summary for Produce and Beef: SWMU 33B - Outside Building 536
Group 3 Phase II RFI, DCD, Tooele, Utah

Medium	Exposure Route	Future Land Use					
		Noncancer HI				Cancer Risk	
		Resident Child		Resident Adult		Resident Integrated	
Produce Surface Soil (0 to 0.5 ft BLS)	Leafy Vegetable Ingestion	9E+00	E	3E+00	E	0E+00	B
	Tuberous Vegetable Ingestion	7E+00	E	2E+00	E	0E+00	B
	Fruit Ingestion	7E+00	E	2E+00	E	0E+00	B
Produce Subsurface Soil (>0.5 to 15 ft BLS)	Leafy Vegetable Ingestion	2E+01	E	7E+00	E	0E+00	B
	Tuberous Vegetable Ingestion	9E+00	E	3E+00	E	0E+00	B
	Fruit Ingestion	3E+00	E	1E+00	B	0E+00	B
Beef	Ingestion	3E+01	E	1E+01	E	0E+00	B
Produce (Surface Soil) and Beef							
Combined Hazard Index (HI):		6E+01	E	2E+01	E		
Combined Cancer Risk:						0E+00	B
Produce (Subsurface Soil) and Beef							
Combined Hazard Index (HI):		7E+01	E	2E+01	E		
Combined Cancer Risk:						0E+00	B

NA - pathway not evaluated
0E+00 - pathway evaluated but no risks could be calculated due to lack of EPA-approved toxicity values
B - HI ≤ 1 or ELCR ≤ 10^{-6} for the residential scenario; HI ≤ 1 or ELCR ≤ 10^{-4} for the worker scenarios
E - HI > 1 or ELCR > 10^{-6} for the residential scenario; HI > 1 or ELCR > 10^{-4} for the worker scenarios
Integrated receptor combines both child and adult exposures

Table 9-18. Chemicals of Concern for RME Risks at SWMU 33B - Outside Building 536 Group 3 Phase II RFI, DCD, Tooele, Utah

Medium	Exposure Route	COC[a]	% of Total HI	% of Total Cancer Risk	Current Land Use		Future Land Use				
					Noncancer	Cancer	Noncancer HI			Cancer Risk	
					HI: Depot Worker	Risk: Depot Worker	Resident Child	Resident Adult	Construction Worker	Resident Integrated	Construction Worker
Surface Soil (0 to 0.5 ft BLS)	Ingestion Dermal Contact Inhalation (Dust) Inhalation (Volatiles)	Thallium	56%				2E+00	2E-01			
Subsurface Soil (>0.5 to 15 ft BLS)	Ingestion Dermal Contact Inhalation (Dust) Inhalation (Volatiles)										

[a] COCs are chemicals which contribute to a pathway with HI > 1 and ELCR > 10^{-6} for the residential scenario and HI > 1 and ELCR > 10^{-4} for the worker scenarios
A blank space indicates a pathway not analyzed or an analyte which is not a COC for that pathway
Integrated receptor combines both child and adult exposures

Table 9-19. Chemicals of Concern for Produce and Beef RME Risks at SWMU 33B - Outside Building 536 Group 3 Phase II RFI, DCD, Tooele, Utah

Medium	Exposure Route	COC[a]	% of Total HI	% of Total Cancer Risk	Future Land Use		
					Noncancer HI		Cancer Risk
					Resident Child	Resident Adult	Resident Integrated
Produce (Surface Soil)	Leafy Vegetable Ingestion	Cadmium	37%		3E+00	1E+00	
		Copper	41%		4E+00	1E+00	
		Mercury	10%		9E-01	3E-01	
	Tuberous Vegetable Ingestion	Cadmium	13%		1E+00	3E-01	
		Copper	50%		4E+00	1E+00	
		Mercury	33%		2E+00	8E-01	
	Fruit Ingestion	Cadmium	19%		1E+00	4E-01	
		Copper	53%		4E+00	1E+00	
		Mercury	25%		2E+00	5E-01	
Produce (Subsurface Soil)	Leafy Vegetable Ingestion	Manganese	98%		2E+01	7E+00	
	Tuberous Vegetable Ingestion	Manganese	99%		9E+00	3E+00	
	Fruit Ingestion	Manganese	96%		3E+00	9E-01	
Beef	Ingestion	Mercury	76%		3E+01	1E+01	
		Thallium	21%		7E+00	3E+00	

[a] COCs are chemicals which contribute to a pathway with HI > 1 and ELCR > 10^{-6} for the residential scenario and HI > 1 and ELCR > 10^{-4} for the worker scenarios
A blank space indicates a pathway not analyzed or an analyte which is not a COC for that pathway
Integrated receptor combines both child and adult exposures

Table 9-20. RME Risk Characterization Summary: SWMU 33C - Drainage Swale
Group 3 Phase II RFI, DCD, Tooele, Utah

Medium	Exposure Route	Current/Future Land Use		Future Land Use					
		Noncancer HI	Cancer Risk	Noncancer HI			Cancer Risk		
		Depot Worker	Depot Worker	Resident Child	Resident Adult	Construction Worker	Resident Integrated	Construction Worker	
Surface Soil (0 to 0.5 ft BLS)	Ingestion	5E-03 B	0E+00 B	7E-02 B	8E-03 B	5E-03 B	0E+00 B	0E+00 B	
	Dermal Contact	7E-03 B	0E+00 B	1E-02 B	9E-03 B	1E-03 B	0E+00 B	0E+00 B	
	Inhalation (Dust)	1E-05 B	2E-09 B	4E-05 B	2E-05 B	3E-06 B	4E-09 B	8E-11 B	
	Inhalation (Volatiles)	3E-05 B	0E+00 B	1E-04 B	4E-05 B	7E-06 B	0E+00 B	0E+00 B	
Subsurface Soil (>0.5 to 15 ft BLS)	Ingestion	NA	NA	1E-01 B	1E-02 B	8E-03 B	8E-11 B	4E-12 B	
	Dermal Contact	NA	NA	2E-02 B	1E-02 B	2E-03 B	0E+00 B	0E+00 B	
	Inhalation (Dust)	NA	NA	7E-05 B	3E-05 B	5E-06 B	5E-09 B	1E-10 B	
	Inhalation (Volatiles)	NA	NA	4E-04 B	2E-04 B	3E-05 B	4E-10 B	9E-12 B	
Surface Soil									
Combined Hazard Index (HI):		1E-02 B		9E-02 B	2E-02 B	7E-03 B			
Combined Cancer Risk:			2E-09 B				4E-09 B	8E-11 B	
Subsurface Soil									
Combined Hazard Index (HI):		NA		1E-01 B	2E-02 B	1E-02 B			
Combined Cancer Risk:			NA				6E-09 B	1E-10 B	

NA - pathway not evaluated

0E+00 - pathway evaluated but no risks could be calculated due to lack of EPA-approved toxicity values

B - HI ≤ 1 or ELCR ≤ 10^{-6} for the residential scenario; HI ≤ 1 or ELCR ≤ 10^{-4} for the worker scenarios

E - HI > 1 or ELCR > 10^{-6} for the residential scenario; HI > 1 or ELCR > 10^{-4} for the worker scenarios

Integrated receptor combines both child and adult exposures

Table 9-21. RME Risk Characterization Summary for Produce and Beef: SWMU 33C - Drainage Swale
Group 3 Phase II RFI, DCD, Tooele, Utah

Medium	Exposure Route	Future Land Use					
		Noncancer HI				Cancer Risk	
		Resident Child		Resident Adult		Resident Integrated	
Produce Surface Soil (0 to 0.5 ft BLS)	Leafy Vegetable Ingestion	2E+00	E	7E-01	B	0E+00	B
	Tuberous Vegetable Ingestion	1E+00	B	4E-01	B	0E+00	B
	Fruit Ingestion	1E+00	B	4E-01	B	0E+00	B
Produce Subsurface Soil (>0.5 to 15 ft BLS)	Leafy Vegetable Ingestion	3E+00	E	1E+00	B	7E-13	B
	Tuberous Vegetable Ingestion	2E+00	E	5E-01	B	1E-08	B
	Fruit Ingestion	2E+00	E	6E-01	B	2E-08	B
Beef	Ingestion	3E-01	B	1E-01	B	0E+00	B
Produce (Surface Soil) and Beef							
Combined Hazard Index (HI):		5E+00	E	2E+00	E		
Combined Cancer Risk:						0E+00	B
Produce (Subsurface Soil) and Beef							
Combined Hazard Index (HI):		7E+00	E	2E+00	E		
Combined Cancer Risk:						4E-08	B

NA - pathway not evaluated
0E+00 - pathway evaluated but no risks could be calculated due to lack of EPA-approved toxicity values
B - HI ≤ 1 or ELCR ≤ 10^{-6} for the residential scenario; HI ≤ 1 or ELCR ≤ 10^{-4} for the worker scenarios
E - HI > 1 or ELCR > 10^{-6} for the residential scenario; HI > 1 or ELCR > 10^{-4} for the worker scenarios
Integrated receptor combines both child and adult exposures

Table 9-22. Chemicals of Concern for Produce and Beef RME Risks at SWMU 33C - Drainage Swale Group 3 Phase II RFI, DCD, Tooele, Utah

Medium	Exposure Route	COC[a]	% of Total HI	% of Total Cancer Risk	Future Land Use		
					Noncancer HI		Cancer Risk
					Resident Child	Resident Adult	Resident Integrated
Produce (Surface Soil)	Leafy Vegetable Ingestion	Cadmium	64%		1E+00	5E-01	
		Copper	28%		6E-01	2E-01	
	Tuberous Vegetable Ingestion	Cadmium	37%		4E-01	1E-01	
		Copper	58%		7E-01	2E-01	
	Fruit Ingestion	Cadmium	45%		6E-01	2E-01	
		Copper	51%		6E-01	2E-01	
Produce (Subsurface Soil)	Leafy Vegetable Ingestion	Cadmium	66%		2E+00	7E-01	
		Copper	28%		9E-01	3E-01	
	Tuberous Vegetable Ingestion	Cadmium	38%		6E-01	2E-01	
		Copper	57%		9E-01	3E-01	
	Fruit Ingestion	Cadmium	47%		8E-01	3E-01	
		Copper	50%		9E-01	3E-01	
Beef	Ingestion						

[a] COCs are chemicals which contribute to a pathway with HI > 1 and ELCR > 10^{-6} for the residential scenario and HI > 1 and ELCR > 10^{-4} for the worker scenarios
A blank space indicates a pathway not analyzed or an analyte which is not a COC for that pathway
Integrated receptor combines both child and adult exposures

Table 9-23. Occurrence, Distribution, and Selection of Ecological Chemicals of Potential Concern (ecoCOPCs) for Surface Soils (0-0.5 ft BLS) at SWMU 33B - Outside Building Deseret Chemical Depot, Tooele, Utah

Run Time: 12:15:41 PM
Run Date: 12/1/00
Exposure Unit: 33B_SS1

Chemical	Frequency of Detection [a]	Number of Samples in Mean [b]	Range of Detection Limits	Range of Detected Concentrations	Units	Location of Maximum Concentration	Arithmetic Mean [b]	Site EPC [b,c]	Concentration Used for Screening [d]	Ecological Toxicity Screening Value [e]	Exceeds Ecological Screening Value Y/N [f]	Background Screening Status [g]	ecoCOPC Y/N [h]
Aluminum	10 / 10	10	-- - --	4,640 - 19,000	ug/g	SS-33-001	9,936	13,120	19,000	NA	--	[<bk]	N
Antimony	2 / 10	10	7.1 - 7.1	12 - 12	ug/g	SS-33-004	5.2	7.5	12	0.14	Y	Above	Y
Arsenic	10 / 10	10	-- - --	6.6 - 64	ug/g	SS-33-003	19	34	64	5.7	Y	[<bk]	N
Barium	10 / 10	10	-- - --	59 - 173	ug/g	SS-33-001	123	146	173	1.0	Y	[<bk]	N
Beryllium	7 / 10	10	0.50 - 0.50	0.59 - 1.1	ug/g	SB-33-002B	0.63	0.81	1.1	1.1	N	[<bk]	N
Cadmium	10 / 10	10	-- - --	1.8 - 12	ug/g	SS-33-003	4.7	8.0	12	0.0022	Y	Above	Y
Calcium	10 / 10	10	-- - --	75,000 - 160,000	ug/g	SB-33-001A	113,300	130,293	160,000	NA	--	[<bk]	N
Chromium	10 / 10	10	-- - --	8.4 - 32	ug/g	SS-33-002	21	25	32	0.40	Y	[<bk]	N
Cobalt	10 / 10	10	-- - --	3.1 - 7.4	ug/g	SS-33-001	4.9	5.9	7.4	0.14	Y	[<bk]	N
Copper	10 / 10	10	-- - --	30 - 427	ug/g	SS-33-002	135	320	427	0.31	Y	Above	Y
Iron	10 / 10	10	-- - --	7,020 - 19,500	ug/g	SS-33-001	11,978	14,839	19,500	NA	--	[<bk]	N
Lead	10 / 10	10	-- - --	91 - 958	ug/g	SS-33-003	347	622	958	0.054	Y	Above	Y
Magnesium	10 / 10	10	-- - --	8,990 - 16,600	ug/g	SB-33-001A	12,672	14,178	16,600	NA	--	[<bk]	N
Manganese	10 / 10	10	-- - --	237 - 689	ug/g	SS-33-001	466	563	689	NA	--	[<bk]	N
Mercury	48 / 50	50	0.20 - 0.20	0.067 - 236	ug/g	SS-33-022	17	28	236	0.100	Y	Above	Y
Nickel	10 / 10	10	-- - --	11 - 29	ug/g	SS-33-001	18	24	29	14	Y	[<bk]	N
Potassium	10 / 10	10	-- - --	1,790 - 6,400	ug/g	SS-33-001	3,346	4,239	6,400	NA	--	[<bk]	N
Selenium	1 / 10	10	0.25 - 0.25	0.68 - 0.68	ug/g	SB-33-003B	0.18	0.26	0.68	0.028	Y	[<bk]	N
Silver	7 / 10	10	0.59 - 0.59	0.84 - 6.6	ug/g	SS-33-003	2.1	6.6 #	6.6	4.0	Y	Above	Y
Sodium	10 / 10	10	-- - --	394 - 697	ug/g	SS-33-001	549	609	697	NA	--	[<bk]	N
Thallium	8 / 10	10	6.6 - 6.6	8.6 - 19	ug/g	SS-33-001	11	14	19	0.057	Y	Above	Y
Vanadium	10 / 10	10	-- - --	12 - 33	ug/g	SS-33-001	20	25	33	1.6	Y	[<bk]	N
Zinc	10 / 10	10	-- - --	110 - 655	ug/g	SS-33-003	296	397	655	6.6	Y	Above	Y

-- Not applicable (e.g., background comparison not conducted for organic compounds, or screening values not available)

[a] For the Frequency of Detection, counts were based on the unaveraged data set.

[b] Results of duplicate analyses were averaged and nondetects were treated as one-half the detection limit in the calculation of the arithmetic mean, standard deviation, and 95% UCL.

[c] The exposure point concentration (EPC) is the 95% upper confidence (UCL) of the arithmetic mean, unless the 95% UCL exceeds the maximum detected value. If the latter is true, the maximum detected value is substituted as the EPC (denoted by a "#" next to the EPC).

[d] The maximum detected concentration at the site was used for the screen.

[e] Ecological toxicity screening value is the EPA Region V RCRA ecological data quality level (EDQL). See Section 4.2.3.3 for further discussion.

[f] Maximum detected concentration compared to the screening value.

[g] For inorganics, if the analysis of variance determines that the site data are from the same population as the background data, [<bk] appears in the column. If not, "Above" appears in the column.

[h] If the maximum concentration was above the screening value and the site concentration was determined to be above background by ANOVA, the chemical was identified as an ecoCOPC. If only one value was available (screening or background) and the site maximum exceeded that value or if the site concentration was determined to be above background by ANOVA, the chemical was retained as an ecoCOPC. If neither a screening value nor background concentration was available, the chemical was selected as an ecoCOPC.

NA = Not Available.

Table 9-24. Occurrence, Distribution, and Selection of Ecological Chemicals of Potential Concern (ecoCOPCs) for Subsurface Soils (>0.5-15 ft BLS) at SWMU 33B - Outside Building Deseret Chemical Depot, Tooele, Utah

Run Time: 12:15:41 PM
Run Date: 12/1/00
Exposure Unit: 33B_SS1

Chemical	Frequency of Detection [a]	Number of Samples in Mean [b]	Range of Detection Limits			Range of Detected Concentrations			Units	Location of Maximum Concentration	Arithmetic Mean [b]	Site EPC [b,c]		Concentration Used for Screening [d]	Ecological Toxicity Screening Value [e]	Exceeds Ecological Screening Value Y/N [f]	Background Screening Status [g]	ecoCOPC Y/N [h]
Aluminum	3 / 3	3	--	-	--	13,000	-	19,200	ug/g	SB-33-002C	15,767	19,200	#	19,200	NA	--	[<bk]	N
Arsenic	3 / 3	3	--	-	--	6.8	-	22	ug/g	SB-33-001C	12	22	#	22	5.7	Y	[<bk]	N
Barium	3 / 3	3	--	-	--	125	-	178	ug/g	SB-33-002C	160	178	#	178	1.0	Y	[<bk]	N
Beryllium	3 / 3	3	--	-	--	0.95	-	1.4	ug/g	SB-33-001C	1.2	1.4	#	1.4	1.1	Y	Above	Y
Cadmium	3 / 3	3	--	-	--	1.3	-	6.7	ug/g	SB-33-001C	3.5	6.7	#	6.7	0.0022	Y	[<bk]	N
Calcium	3 / 3	3	--	-	--	95,000	-	100,000	ug/g	SB-33-001C	97,000	100,000	#	100,000	NA	--	[<bk]	N
Chromium	3 / 3	3	--	-	--	20	-	26	ug/g	SB-33-002C	22	26	#	26	0.40	Y	[<bk]	N
Cobalt	3 / 3	3	--	-	--	6.3	-	7.6	ug/g	SB-33-002C	7.2	7.6	#	7.6	0.14	Y	[<bk]	N
Copper	3 / 3	3	--	-	--	23	-	140	ug/g	SB-33-001C	69	140	#	140	0.31	Y	[<bk]	N
Iron	3 / 3	3	--	-	--	15,700	-	18,800	ug/g	SB-33-002C	17,167	18,800	#	18,800	NA	--	[<bk]	N
Lead	3 / 3	3	--	-	--	36	-	530	ug/g	SB-33-001C	233	530	#	530	0.054	Y	Above	Y
Magnesium	3 / 3	3	--	-	--	12,900	-	15,000	ug/g	SB-33-002C	13,700	15,000	#	15,000	NA	--	[<bk]	N
Manganese	3 / 3	3	--	-	--	550	-	765	ug/g	SB-33-002C	651	765	#	765	NA	--	Above	Y
Mercury	23 / 74	74	0.050	-	0.100	0.043	-	1.1	ug/g	SB-33B-46	0.12	0.12		1.1	0.100	Y	Above	Y
Nickel	3 / 3	3	--	-	--	24	-	28	ug/g	SB-33-002C	26	28	#	28	14	Y	[<bk]	N
Potassium	3 / 3	3	--	-	--	3,780	-	5,710	ug/g	SB-33-002C	4,837	5,710	#	5,710	NA	--	[<bk]	N
Silver	2 / 3	3	0.59	-	0.59	1.00	-	4.1	ug/g	SB-33-001C	1.8	4.1	#	4.1	4.0	Y	Above	Y
Sodium	3 / 3	3	--	-	--	570	-	709	ug/g	SB-33-002C	660	709	#	709	NA	--	[<bk]	N
Thallium	2 / 3	3	6.6	-	6.6	17	-	20	ug/g	SB-33-001C	13	20	#	20	0.057	Y	[<bk]	N
Vanadium	3 / 3	3	--	-	--	24	-	32	ug/g	SB-33-002C	27	32	#	32	1.6	Y	[<bk]	N
Zinc	3 / 3	3	--	-	--	115	-	424	ug/g	SB-33-001C	242	424	#	424	6.6	Y	Above	Y

-- Not applicable (e.g., background comparison not conducted for organic compounds, or screening values not available)

[a] For the Frequency of Detection, counts were based on the unaveraged data set.

[b] Results of duplicate analyses were averaged and nondetects were treated as one-half the detection limit in the calculation of the arithmetic mean, standard deviation, and 95% UCL.

[c] The exposure point concentration (EPC) is the 95% upper confidence (UCL) of the arithmetic mean, unless the 95% UCL exceeds the maximum detected value. If the latter is true, the maximum detected value is substituted as the EPC (denoted by a "#" next to the EPC).

[d] The maximum detected concentration at the site was used for the screen.

[e] Ecological toxicity screening value is the EPA Region V RCRA ecological data quality level (EDQL). See Section 4.2.3.3 for further discussion.

[f] Maximum detected concentration compared to the screening value.

[g] For inorganics, if the analysis of variance determines that the site data are from the same population as the background data, [<bk] appears in the column. If not, "Above" appears in the column.

[h] If the maximum concentration was above the screening value and the site concentration was determined to be above background by ANOVA, the chemical was identified as an ecoCOPC. If only one value was available (screening or background) and the site maximum exceeded that value or if the site concentration was determined to be above background by ANOVA, the chemical was retained as an ecoCOPC. If neither a screening value nor background concentration was available, the chemical was selected as an ecoCOPC.

NA = Not Available.

Table 9-25. Occurrence, Distribution, and Selection of Ecological Chemicals of Potential Concern (ecoCOPCs) for Surface Soils (0-0.5 ft BLS) at SWMU 33C - Drainage Swale
Deseret Chemical Depot, Tooele, Utah

Run Time: 12:07:44 PM
Run Date: 12/1/00
Exposure Unit: 33_SS1

Chemical	Frequency of Detection [a]	Number of Samples in Mean [b]	Range of Detection Limits	Range of Detected Concentrations	Units	Location of Maximum Concentration	Arithmetic Mean [b]	Site EPC [b,c]	Concentration Used for Screening [d]	Ecological Toxicity Screening Value [e]	Exceeds Ecological Screening Value Y/N [f]	Background Screening Status [g]	ecoCOPC Y/N [h]
Aluminum	8 / 8	8	-- - --	4,150 - 15,400	ug/g	TP-33-006A	10,629	13,215	15,400	NA	--	[<bk]	N
Arsenic	8 / 8	8	-- - --	6.4 - 22	ug/g	TP-33-008A	13	18	22	5.7	Y	[<bk]	N
Barium	8 / 8	8	-- - --	101 - 172	ug/g	TP-33-002A	144	162	172	1.0	Y	[<bk]	N
Beryllium	6 / 8	8	0.50 - 0.50	0.66 - 0.91	ug/g	TP-33-004A	0.64	0.81	0.91	1.1	N	[<bk]	N
Cadmium	8 / 8	8	-- - --	1.00 - 4.1	ug/g	TP-33-008A	2.8	3.4	4.1	0.0022	Y	Above	Y
Calcium	8 / 8	8	-- - --	75,000 - 150,000	ug/g	TP-33-001A	99,250	116,558	150,000	NA	--	[<bk]	N
Chromium	8 / 8	8	-- - --	16 - 27	ug/g	TP-33-002A	21	24	27	0.40	Y	[<bk]	N
Cobalt	8 / 8	8	-- - --	3.0 - 6.0	ug/g	TP-33-007A	4.8	5.6	6.0	0.14	Y	[<bk]	N
Copper	8 / 8	8	-- - --	21 - 68	ug/g	TP-33-008A	46	56	68	0.31	Y	Above	Y
Iron	8 / 8	8	-- - --	8,540 - 15,700	ug/g	TP-33-006A	12,355	14,260	15,700	NA	--	[<bk]	N
Lead	8 / 8	8	-- - --	41 - 283	ug/g	TP-33-008A	154	202	283	0.054	Y	Above	Y
Magnesium	8 / 8	8	-- - --	7,750 - 12,500	ug/g	TP-33-006A	10,553	11,566	12,500	NA	--	[<bk]	N
Manganese	8 / 8	8	-- - --	215 - 506	ug/g	TP-33-007A	393	466	506	NA	--	[<bk]	N
Nickel	8 / 8	8	-- - --	14 - 24	ug/g	TP-33-007A	19	22	24	14	Y	[<bk]	N
Potassium	8 / 8	8	-- - --	2,050 - 4,930	ug/g	TP-33-006A	3,548	4,187	4,930	NA	--	[<bk]	N
Silver	5 / 8	8	0.59 - 0.59	0.69 - 1.2	ug/g	TP-33-008A	0.73	1.2 #	1.2	4.0	N	[<bk]	N
Sodium	8 / 8	8	-- - --	496 - 725	ug/g	TP-33-001A	610	660	725	NA	--	[<bk]	N
Vanadium	8 / 8	8	-- - --	12 - 27	ug/g	TP-33-006A	20	23	27	1.6	Y	[<bk]	N
Zinc	8 / 8	8	-- - --	82 - 229	ug/g	TP-33-008A	159	192	229	6.6	Y	Above	Y
Naphthalene	1 / 8	8	0.037 - 0.70	0.052 - 0.052	ug/g	TP-33-002A	0.064	0.052 #	0.052	0.099	N	--	N
Trichlorofluoromethane	3 / 8	8	0.0059 - 0.0059	0.011 - 0.015	ug/g	TP-33-002A	0.0067	0.015 #	0.015	16	N	--	N

-- Not applicable (e.g., background comparison not conducted for organic compounds, or screening values not available)

[a] For the Frequency of Detection, counts were based on the unaveraged data set.

[b] Results of duplicate analyses were averaged and nondetects were treated as one-half the detection limit in the calculation of the arithmetic mean, standard deviation, and 95% UCL.

[c] The exposure point concentration (EPC) is the 95% upper confidence (UCL) of the arithmetic mean, unless the 95% UCL exceeds the maximum detected value. If the latter is true, the maximum detected value is substituted as the EPC (denoted by a "#" next to the EPC).

[d] The maximum detected concentration at the site was used for the screen.

[e] Ecological toxicity screening value is the EPA Region V RCRA ecological data quality level (EDQL). See Section 4.2.3.3 for further discussion.

[f] Maximum detected concentration compared to the screening value.

[g] For inorganics, if the analysis of variance determines that the site data are from the same population as the background data, [<bk] appears in the column. If not, "Above" appears in the column.

[h] If the maximum concentration was above the screening value and the site concentration was determined to be above background by ANOVA, the chemical was identified as an ecoCOPC. If only one value was available (screening or background) and the site maximum exceeded that value or if the site concentration was determined to be above background by ANOVA, the chemical was retained as an ecoCOPC. If neither a screening value nor background concentration was available, the chemical was selected as an ecoCOPC.

NA = Not Available.

Table 9-26. Occurrence, Distribution, and Selection of Ecological Chemicals of Potential Concern (ecoCOPCs) for Subsurface Soils (>0.5-15 ft BLS) at SWMU 33C - Drainage Swale
Deseret Chemical Depot, Tooele, Utah

Run Time: 12:07:44 PM
Run Date: 12/1/00
Exposure Unit: 33__SS1

Chemical	Frequency of Detection [a]	Number of Samples in Mean [b]	Range of Detection Limits	Range of Detected Concentrations	Units	Location of Maximum Concentration	Arithmetic Mean [b]	Site EPC [b,c]		Concentration Used for Screening [d]	Ecological Toxicity Screening Value [e]	Exceeds Ecological Screening Value Y/N [f]	Background Screening Status [g]	ecoCOPC Y/N [h]
Aluminum	24 / 24	24	-- - --	2,750 - 13,500	ug/g	TP-33-008B	8,367	9,568		13,500	NA	--	[<bk]	N
Arsenic	24 / 24	24	-- - --	5.6 - 19	ug/g	TP-33-002B	10	11		19	5.7	Y	[<bk]	N
Barium	24 / 24	24	-- - --	35 - 348	ug/g	TP-33-001D	125	169		348	1.0	Y	[<bk]	N
Beryllium	10 / 24	24	0.50 - 0.50	0.58 - 0.91	ug/g	TP-33-004B	0.44	0.56		0.91	1.1	N	[<bk]	N
Cadmium	20 / 24	24	0.70 - 0.70	0.87 - 41	ug/g	TP-33-007B	3.5	5.1		41	0.0022	Y	Above	Y
Calcium	24 / 24	24	-- - --	60,000 - 140,000	ug/g	TP-33-008D	102,292	108,778		140,000	NA	--	[<bk]	N
Chromium	24 / 24	24	-- - --	8.1 - 40	ug/g	TP-33-001D	20	24		40	0.40	Y	[<bk]	N
Cobalt	24 / 24	24	-- - --	1.8 - 6.3	ug/g	TP-33-003B	4.2	4.6		6.3	0.14	Y	[<bk]	N
Copper	24 / 24	24	-- - --	7.4 - 576	ug/g	TP-33-007C	55	78		576	0.31	Y	Above	Y
Iron	24 / 24	24	-- - --	5,800 - 20,500	ug/g	TP-33-001D	11,428	12,690		20,500	NA	--	[<bk]	N
Lead	24 / 24	24	-- - --	16 - 644	ug/g	TP-33-007B	162	322		644	0.054	Y	Above	Y
Magnesium	24 / 24	24	-- - --	7,860 - 19,500	ug/g	TP-33-004B	10,984	11,773		19,500	NA	--	[<bk]	N
Manganese	24 / 24	24	-- - --	199 - 474	ug/g	TP-33-008B	340	370		474	NA	--	[<bk]	N
Mercury	4 / 24	24	0.050 - 0.40	0.055 - 0.51	ug/g	TP-33-001D	0.11	0.18		0.51	0.100	Y	Above	Y
Nickel	24 / 24	24	-- - --	11 - 28	ug/g	TP-33-007C	18	20		28	14	Y	Above	Y
Potassium	24 / 24	24	-- - --	581 - 4,650	ug/g	TP-33-008B	2,554	3,018		4,650	NA	--	[<bk]	N
Silver	9 / 24	24	0.59 - 0.59	0.65 - 1.3	ug/g	TP-33-008B	0.51	0.63		1.3	4.0	N	[<bk]	N
Sodium	24 / 24	24	-- - --	298 - 766	ug/g	TP-33-001D	505	544		766	NA	--	[<bk]	N
Thallium	3 / 24	24	6.6 - 6.6	9.0 - 13	ug/g	TP-33-004B	4.2	4.8		13	0.057	Y	[<bk]	N
Vanadium	24 / 24	24	-- - --	11 - 24	ug/g	TP-33-008B	18	20		24	1.6	Y	[<bk]	N
Zinc	24 / 24	24	-- - --	43 - 392	ug/g	TP-33-007C	145	196		392	6.6	Y	Above	Y
2-Methylnaphthalene	3 / 24	24	0.049 - 2.0	0.11 - 0.40	ug/g	TP-33-001C	0.11	0.16		0.40	3.2	N	--	N
Benzene	1 / 24	24	0.0015 - 0.0015	0.0032 - 0.0032	ug/g	TP-33-002D	0.00085	0.00093		0.0032	0.25	N	--	N
Chloroform	1 / 24	24	0.00087 - 0.00087	0.0011 - 0.0011	ug/g	TP-33-004B	0.00046	0.00049		0.0011	1.2	N	--	N
Naphthalene	2 / 24	24	0.037 - 2.0	0.093 - 0.12	ug/g	TP-33-007C	0.087	0.11		0.12	0.099	Y	--	Y
Phenanthrene	2 / 24	24	0.033 - 2.0	0.047 - 0.068	ug/g	TP-33-007C	0.082	0.068	#	0.068	46	N	--	N
Toluene	5 / 24	24	0.00078 - 0.00078	0.00082 - 0.0020	ug/g	TP-33-007C	0.00057	0.00067		0.0020	5.5	N	--	N
Trichlorofluoromethane	13 / 24	24	0.0059 - 0.0059	0.0088 - 0.039	ug/g	TP-33-006D	0.011	0.018		0.039	16	N	--	N
di-N-Butyl Phthalate	1 / 24	24	0.061 - 3.0	0.97 - 0.97	ug/g	TP-33-007C	0.16	0.22		0.97	0.15	Y	--	Y

-- Not applicable (e.g., background comparison not conducted for organic compounds, or screening values not available)

[a] For the Frequency of Detection, counts were based on the unaveraged data set.

[b] Results of duplicate analyses were averaged and nondetects were treated as one-half the detection limit in the calculation of the arithmetic mean, standard deviation, and 95% UCL.

[c] The exposure point concentration (EPC) is the 95% upper confidence (UCL) of the arithmetic mean, unless the 95% UCL exceeds the maximum detected value. If the latter is true, the maximum detected value is substituted as the EPC (denoted by a "#" next to the EPC).

[d] The maximum detected concentration at the site was used for the screen.

[e] Ecological toxicity screening value is the EPA Region V RCRA ecological data quality level (EDQL). See Section 4.2.3.3 for further discussion.

[f] Maximum detected concentration compared to the screening value.

[g] For inorganics, if the analysis of variance determines that the site data are from the same population as the background data, [<bk] appears in the column. If not, "Above" appears in the column.

[h] If the maximum concentration was above the screening value and the site concentration was determined to be above background by ANOVA, the chemical was identified as an ecoCOPC. If only one value was available (screening or background) and the site maximum exceeded that value or if the site concentration was determined to be above background by ANOVA, the chemical was retained as an ecoCOPC. If neither a screening value nor background concentration was available, the chemical was selected as an ecoCOPC.

NA = Not Available.

Table 9-27. Summary of HQs at or Above 1 for EcoCOPCs at SWMU 33B and 33C Deseret Chemical Depot, Tooele, Utah

HQ	SWMU 33B		SWMU 33C	
	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
>100	None	None	None	None
10-100	Lead 12 (plants) Mercury 94 (plants) Thallium 14 (plants)	Lead 11 (plants)	None	None
1-10	Antimony 1.5 (plants) 4.2 (rabbits) Cadmium 2.0 (plants) Copper 3.2 (plants) Silver 3.3 (plants) 2.3 (rabbits) Zinc 7.9 (plants)	Manganese 1.5 (plants) Silver 2.0 (plants) 1.4 (rabbits) Zinc 8.5 (plants)	Lead 4.0 (plants) Zinc 3.8 (plants)	Cadmium 1.3 (plants) Lead 6.5 (plants) Zinc 3.9 (plants)