Decision Document

Solid Waste Management Units B-05
Building 101-15 Impoundment
Hawthorne Army Depot
Hawthorne, Nevada

October 1999

Hawthorne Army Depot

US Army Corps of Engineers

Decision Document SWMU B-05

September 1999

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ENVIRONMENTAL PROTECTION

The selected remedy is protective of human health and the environment. It has been shown that a complete pathway to human health and the environment does not exist, and there is no potential for an exposure pathway to be completed in the future.

U. S. Army

21 Nov 99

James A. Piner
Lieutenant Colonel, U.S. Army

State of Nevada

22 Nov 99

Paul Liebendorfer
Chief, Bureau of Federal Facilities

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Hawthorne Army Depot
Hawthorne, Nevada

1.0 Introduction:

This decision document describes the rationale for the proposed closure of SWMU B05, Building 101-15impoundment, at the Hawthorne Army Depot (HWAD), Hawthorne, Nevada. The U.S. Army Corps of Engineers, Sacramento District, HWAD and the Nevada Department of Environmental Protection (NDEP) prepared this document.

Tetra Tech, Inc. (Tt), was tasked by the US Army Corps of Engineers, Sacramento District (USACE), to perform remedial investigations and ground water monitoring at the Hawthorne Army Depot (HWAD), Hawthorne, Nevada. These tasks were conducted from 1993 through 1997, primarily at solid waste management units (SWMUs) designated by the Army and the Nevada Division of Environmental Protection (NDEP). The NDEP is the lead regulatory agency for environmental issues at HWAD. The purpose of the monitoring was to determine the extent and degree of environmental impacts, if any associated with activities performed at each SWMU. The primary goal of the investigation was to assess the environmental impacts and to report the findings, present conclusions, and recommend any remediation, if necessary.

With guidance from the NDEP, basewide proposed closure goals (PCGs) for soil were established as acceptable levels so that SWMU closure could be recommended and to assist in directing the investigative efforts toward those SWMUs where the target analytes were of greatest concern (Appendix B). These PCGs were used as action levels throughout this investigation and are used for comparison with the detected analytes in this report.

2.0 Site History

SWMU B05 is in HWAD's central magazine area, on the northeast side of the 101-production area (Figure 1-1). SWMU B05 is an impoundment north of Building 101-15 inside the 101 Production Area. It is one of three double-lined surface impoundments in the 101 Production Area that were designed to collect explosives-contaminated wastewater.

The USACE, HWAD, and the NDEP agreed to define the boundaries of each SWMU using annotated monuments and survey pins. As part of Tt's 1997 field investigations, a survey monument was constructed and surveyed at SWMU B05. A brass survey pin on the monument designates the monument as number HWAAP-58-1996 and the SWMU as number B05. Three corner pins were set and surveyed to define a SWMU boundary with the monument as the southwest corner. The location of these corner markers and the SWMU boundary are shown on Figure 1-2, survey data is presented in Appendix A.

3.0 Site Conditions

The soils encountered during the investigation of SWMU B05 consisted of brown and tan sandy silts. Two CPT soundings found clayey to gravelly sand to a maximum depth of 34 feet. The impoundment had a design capacity of 156,000 gallons and was constructed with a double polyvinyl chloride (PVC) liner and a leachate collection system. The impoundment is approximately 80 feet on each side and 8 feet deep, with side walls sloping at a ratio of about 1:3

The US Army Environmental Hygiene Agency (USAEHA) estimated the depth to ground water in the vicinity of SWMU B05 at approximately 120 feet below ground surface (bgs) (USAEHA 1988). During Tt's first and second 1997 quarter ground water monitoring, the depth to ground water was measured at approximately 100 feet bgs at well DZB101-15MW7, located within the boundary of this SWMU (Figure 3-1). Based on the analytical results from the previous investigations and past uses of the impoundment, the target analytes at SWMU B05 were metals, explosives, petroleum hydrocarbons, and semivolatile organics generally associated with petroleum hydrocarbons. After the investigations the chemicals of concern for the SWMU were explosives.

4.0 INVESTIGATIONS

Site inspections of SWMU B05 were conducted by the USAEHA (1988), Jacobs Engineering (1988), and Resource Applications Incorporated (RAI 1992). During these inspections, evidence of red stained soil was noted in the impoundment. No investigation activities were conducted during these inspections, and no samples were collected from the SWMU; however, based on visual evidence it was assumed that the red stained soil was evidence of high levels of TNT contamination. From April to June 1989, WaterWork Corporation conducted investigations at HWAD, including the impoundment at SWMU B05. Additional soil sampling was completed by Tetra Tech Inc. in 1997 to better characterize the potential health risk of the near-surface soils and to assess potential remedial actions for the remedial investigation. Tetra Tech's investigation was confined to developing the extents of the contamination and not to further characterizing the obvious contaminated areas. In late 1998 questions began to arise that the red stained soil may not be explosives contaminated soil; and as in other SWMU's, the high levels of explosives contamination detected by field test methods were not being confirmed by laboratory analysis. The Corps of Engineers took samples of the stained soil in January 1999 from several sites in the 101 area including SWMU B05. When the samples taken from B05 did not indicate any explosive contamination, it was determined to sample the SWMU for closure. In March of 1999 The Corps of Engineers took soil samples from SWMU B05 as a confirmation-sampling event. The sample locations from the March 1999 sampling event are shown on figure 4.

5.0 Investigation Results

Tetra Tech determined in its 1997 sampling that the contamination at SWMU B05 was confined to the upper 2 feet of the surface and extended over the entire SWMU boundary.

However, because it was previously determined that the stained soil was explosives contamination no sampling of this material was made at that time. Results of the analysis is presented in appendix C. A sludge sample in a sump inside of building 101-15 had a detection above PCG's (1,200 mg/kg), but nothing inside the SWMU boundary had any detections above PCG's. The sump was cleaned, plugged and removed sludge bioremendated. The Corps of Engineers sampling event of January 1999, indicated that the stained soil in B05 did not indicate any explosive contamination above PCG's. The red staining was determined to be either bacterium, a photodegradation product of TNT, a dye used in production or natural soil coloration.

The sampling event of March 1999 collected 33 samples from the SWMU area (fig 4). Results of the samples analysis is presented in appendix D. Table 1-1 provides a summary of the sampling results. The samples were analyzed for TNT and RDX; all test results were below PCG's. The largest detection of explosives was a hit of TNT at 24.9 mg/kg. The laboratory analysis of these samples is presented in appendix D. As part of the SOW the (PVC) liners were removed and soil samples taken. These results are provided in Appendix E and reflect similar results from the sampling performed by the COE during March 1999.

Table 1-1

SWMU B-05

CONFIRMATION SAMPLING RESULTS

SAMPLE NUNBER	TNT (ppm)	RDX (ppm)		SAMPLE NUMBER	TNT (ppm)	RDX (ppm)
CS05-BB-01	1.1	0.69		CS05-SA-05	0.2J	<0.26
CS05-BB-02	0.9	2.6		CS05-SA-06	<0.26	<0.26
CS05-BB-03	7.25	1.5		CS05-SA-07	<0.26	<0.26
CS05-BB-04	97	<2.6		CS05-SA-08	0.1J	<0.26
				CS05-SA-09	3.2	0.2J
CS05-SW-01	0.82	0.6		CS05-SA-10	1.7	<0.26
CS05-SW-02	1.4	2.3		CS05-SA-11	<0.26	<0.26
CS05-SW-03	0.66	0.2J		CS05-SA-12	0.1	<0.26
CS05-SW-04	1.9	<0.26		CS05-SA-14	<0.26	<0.26
CS05-SW-05	12.4	1.4		CS05-SA-15	0.2	<0.26
CS05-SW-06	24.9	0.43		CS05-SA-16	<0.26	<0.26
CS05-SW-07	18.5	0.78		CS05-SA-17	<0.26	<0.26
CS05-SW-08	0.3J	0.1J		CS05-SA-18	0.74	<0.26
				CS05-SA-19	<0.26	<0.26
CS05-SA-01	<0.26	1.8		CS05-SA-20	<0.26	<0.26
CS05-SA-02	<0.26	<0.26		CS05-SA-21	<0.26	0.09J
CS05-SA-03	0.83	<0.26		CS05-SA-22	<0.26	0.1J
CS05-SA-04	0.58	<0.26				

6.0 Remediation

No remediation at this SWMU

7.0 Remediation Results

Not Applicable

8.0 Public Involvement:

It is the U.S. Department of Defense and Army policy to involve the local community throughout the investigation process at an installation. To initiate this involvement, HWAD has established and maintains a repository library at the local public library. This repository includes final copies of all past studies and other documents regarding environmental issues at HWAD. As future environmental documents are made available to HWAD the repository shall be updated.

HWAD has solicited community participation in establishment of a restoration and advisory board (RAB). To date there has been insufficient response and HWAD has not formed a RAB. HWAD has held open houses to inform the public of on going environmental issues. HWAD continues to solicit community involvement, and will establish a RAB should sufficient community interest be obtained.

9.0 Conclusions and Recommendations

Based on investigation results, the basin at SWMU B05 was backfilled with completed compost material, with a 3 " cover of clean soil on top. It is recommended that SWMU B05 be closed with the restriction that no structure be constructed over the area where the basin was backfilled.

10.0 REFERENCES

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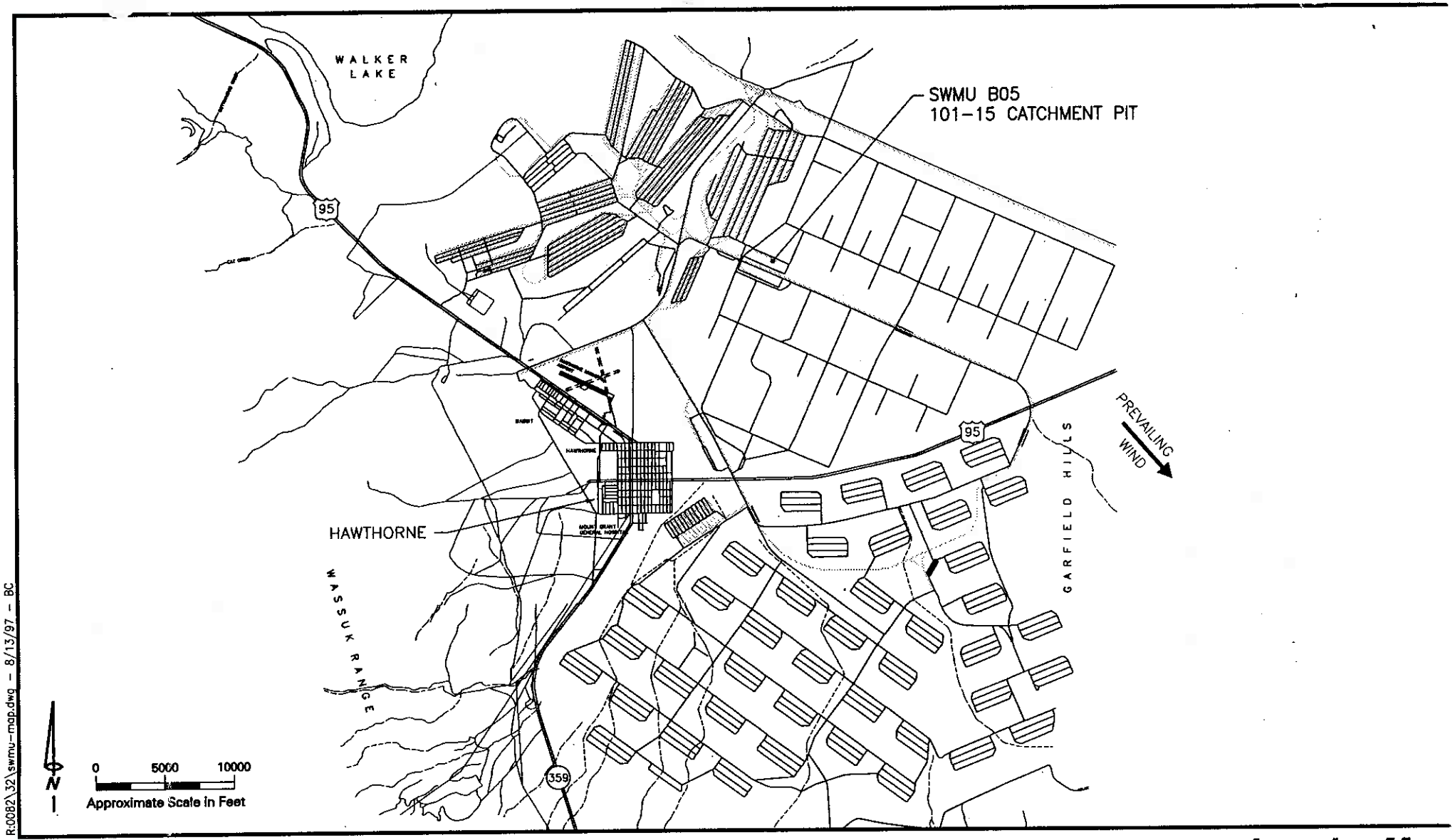


R:0082\32\swmu-map.dwg - 8/13/97 - BC

SOURCE: TETRA TECH FINAL DATA PACKAGE, 1996 (REV. 1997)

Location Map
SWMU B05
101-15 Catchment Pit

Hawthorne Army Depot
Hawthorne, Nevada

Tetra Tech, Inc.

Figure 1-1

Legend:

- Boundary Corner Pin
- Drain Line
- Explosion Barrier
- Railroad
- SWMU Monument

N

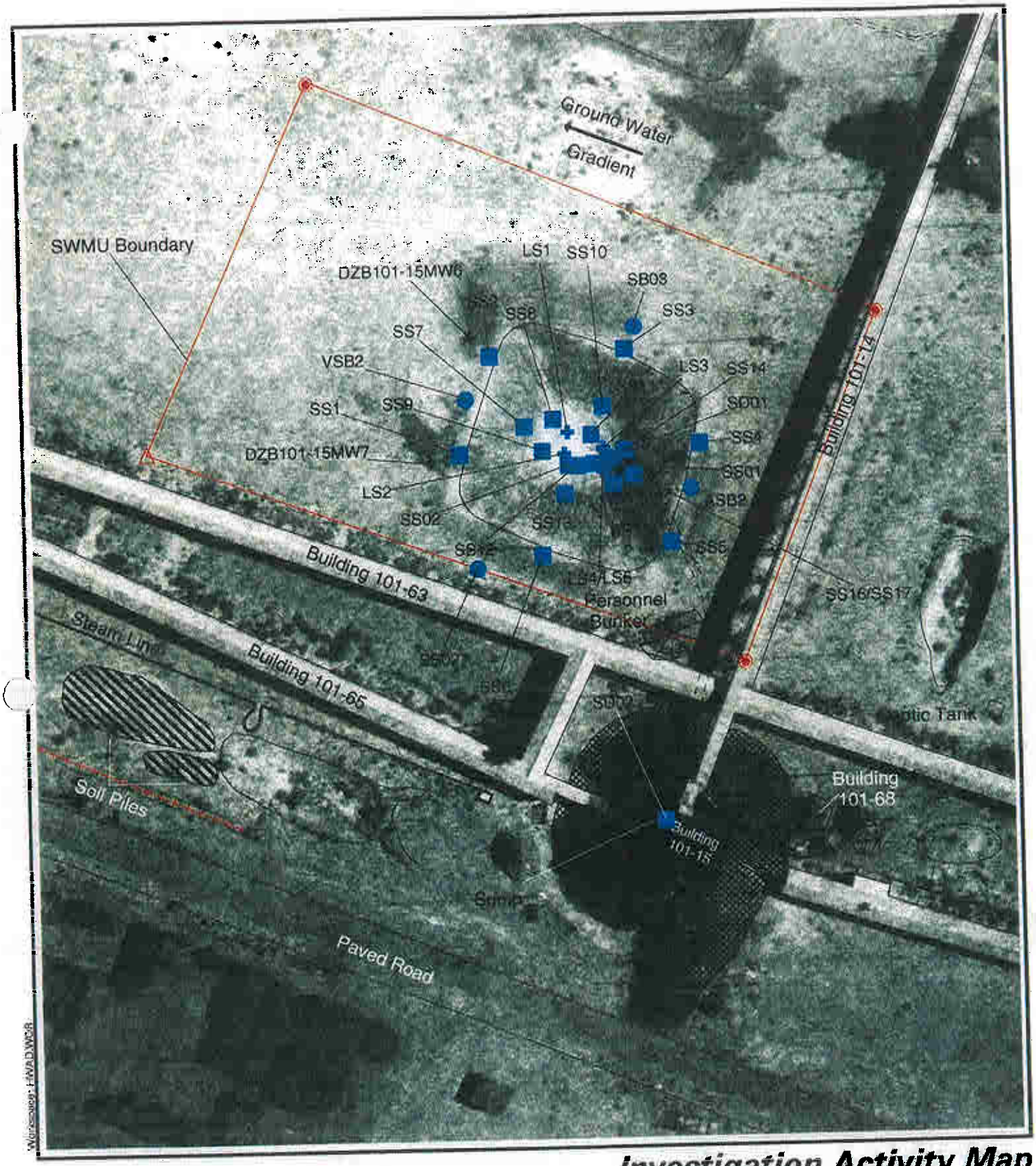
0 35 70
Approximate Scale in Feet

Tetra Tech, Inc.

Site Map
SWMU B05
101-15 Catchment Pit

Hawthorne Army Depot
Hawthorne, Nevada

Figure 1-2



Legend:

- Boundary Corner Pin
- Drain Line
- Soil Boring Location
- Railroad
- Surface Soil/Sediment Sample
- Explosion Barrier
- Liner Sample
- Monitoring Well
- SWMU Monument

N

0 35 70
Approximate Scale in Feet

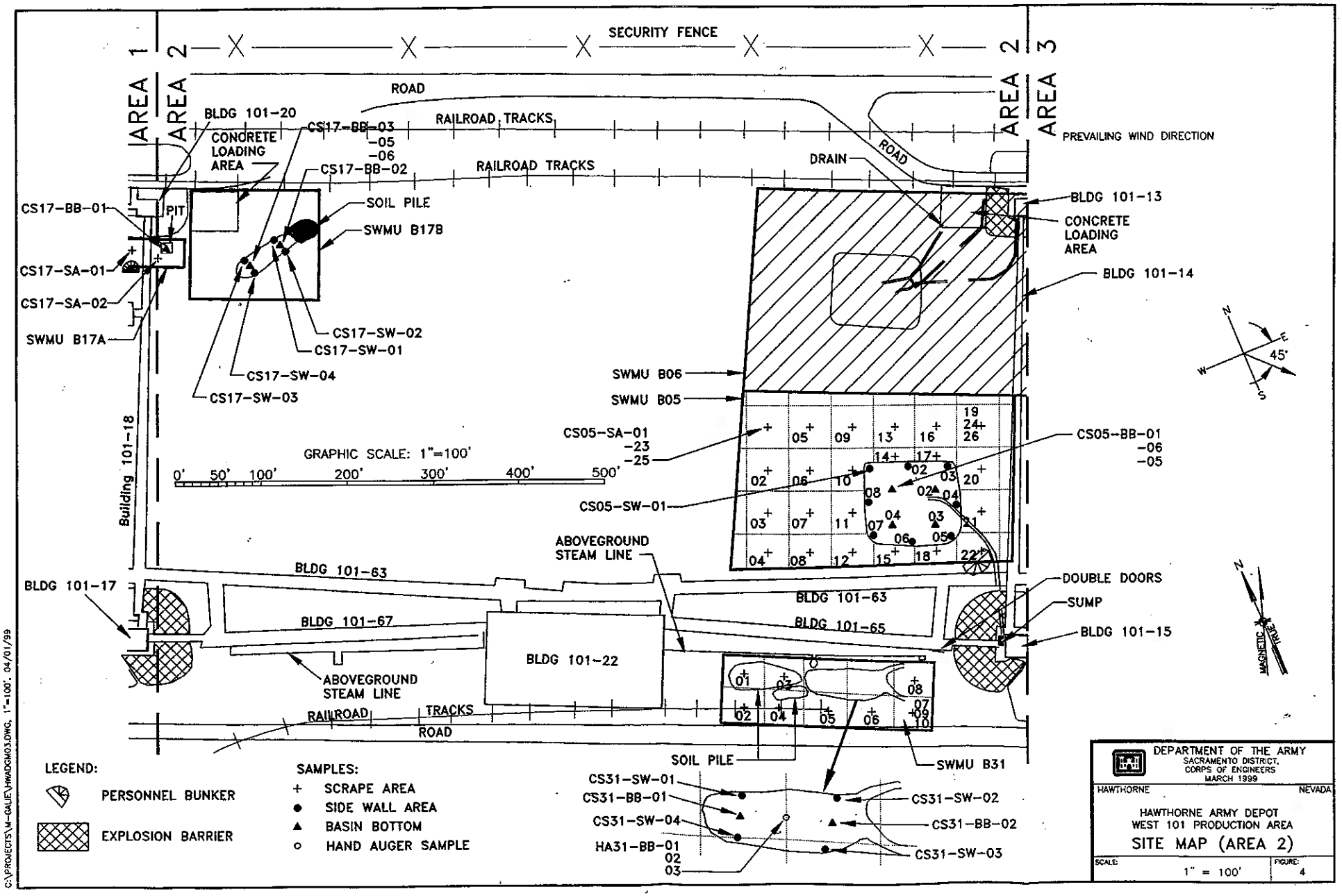
Tetra Tech, Inc.

Investigation Activity Map
SWMU B05
101-15 Catchment Pit

Hawthorne Army Depot
Hawthorne, Nevada

Figure 3-1

Appendix A


SECURITY FENCE
AREA 1
AREA 2
AREA 2
AREA 3
ROAD
RAILROAD TRACKS
RAILROAD TRACKS
ROAD
DRAIN
PREVAILING WIND DIRECTION
BLDG 101-20
CONCRETE LOADING AREA
CS17-BB-03
-05
-06
CS17-BB-02
CS17-BB-01
PIT
CS17-SA-01
CS17-SA-02
SWMU B17A
SOIL PILE
SWMU B17B
CS17-SW-02
CS17-SW-01
CS17-SW-04
CS17-SW-03
BLDG 101-13
CONCRETE LOADING AREA
BLDG 101-14
SWMU B06
SWMU B05
CS05-SA-01
-23
-25
CS05-BB-01
-06
-05
CS05-SW-01
GRAPHIC SCALE: 1"=100'
0' 50' 100' 200' 300' 400' 500'
Building 101-18
ABOVEGROUND STEAM LINE
BLDG 101-63
BLDG 101-17
BLDG 101-67
BLDG 101-22
BLDG 101-63
BLDG 101-65
DOUBLE DOORS
SUMP
BLDG 101-15
ABOVEGROUND STEAM LINE
RAILROAD TRACKS
ROAD
SOIL PILE
SWMU B31
CS31-SW-01
CS31-BB-01
CS31-SW-04
HA31-BB-01
02
03
CS31-SW-02
CS31-BB-02
CS31-SW-03
45°
MAGNETIC
TRUE
LEGEND:
PERSONNEL BUNKER
EXPLOSION BARRIER
SAMPLES:
+ SCRAPE AREA
● SIDE WALL AREA
▲ BASIN BOTTOM
○ HAND AUGER SAMPLE
DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
MARCH 1999
HAWTHORNE
NEVADA
HAWTHORNE ARMY DEPOT
WEST 101 PRODUCTION AREA
SITE MAP (AREA 2)
SCALE: 1" = 100'
FIGURE: 4
C:\PROJECTS\M-GALIE\HWADGN03.DWG, 1"=100', 04/01/99

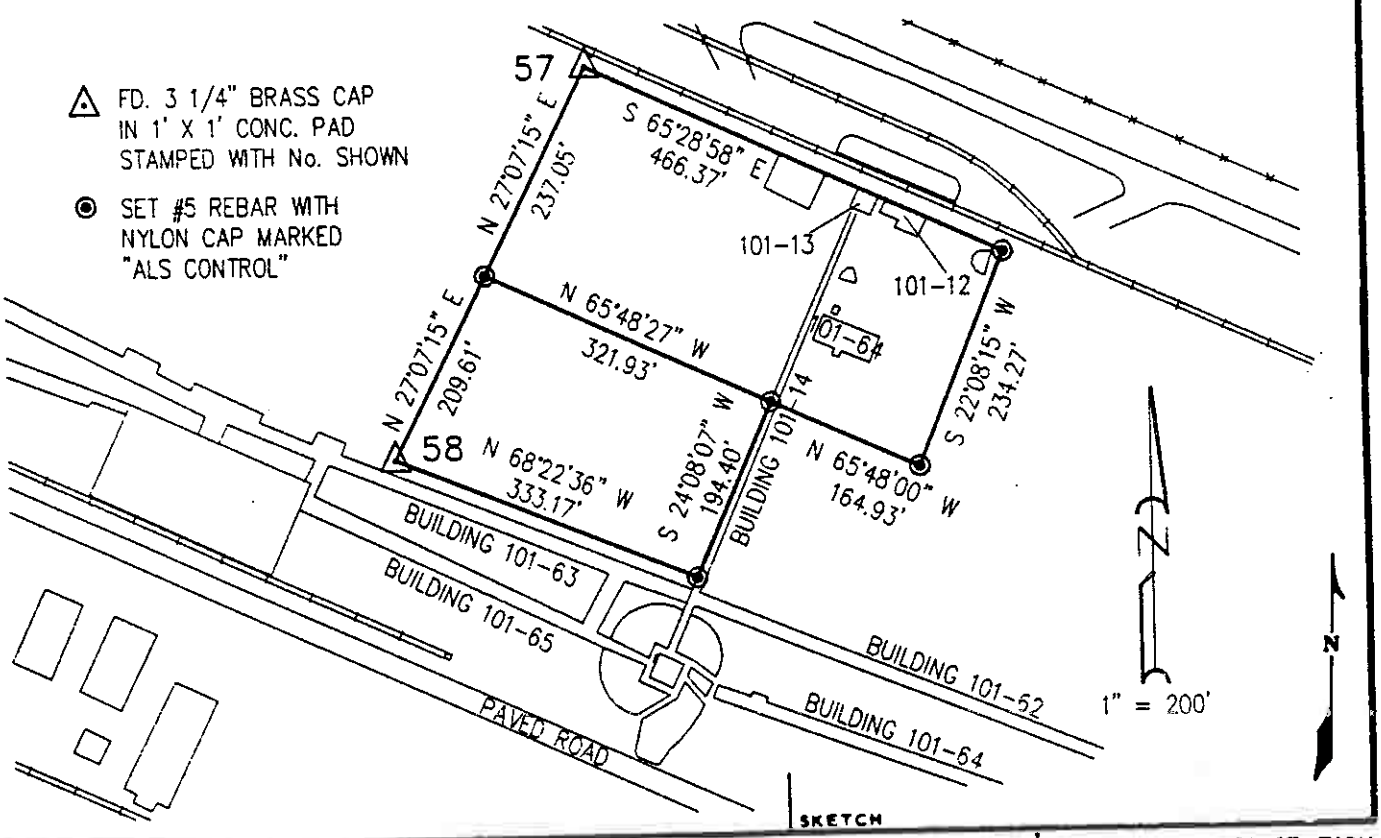
COUNTRY	TYPE OF MARK	STATION	
USA	BRASS CAP	58	
LOCALITY	STAMPING ON MARK	AGENCY (CAST IN MARKS)	ELEVATION (FT) (M)
HAWTHORNE NEV	58 B-5	COE HWAAP	4195.07
LATITUDE	LONGITUDE	DATUM	DATUM
38°34'05.40380" N	118°35'20.29892" W	NAD '27	NGVD '29
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE	ESTABLISHED BY (AGENCY)
1389940.82	498387.90	NEVADA SP WEST	A.L.S.
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE	DATE / ORDER

TO OBTAIN GRID AZIMUTH, ADD ° ' " TO THE GEODETIC AZIMUTH

TO OBTAIN GRID AZ. (ADD)(SUB.) ° ' " TO THE GEODETIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)
	° ' "	° ' "		

MONUMENTS 57 AND 58 – SWMU'S B-6 AND B-5
FROM HIGHWAY 95 TAKE THORNE ROAD NORTHEAST 3 MILES TO 3RD AVENUE NORTH, THEN GO SOUTHEAST ON 3RD 1.6 MILES, THEN NORTHEAST 1200 FEET, THEN NORTHWEST 1200 FEET TO BUILDING 101-12. SEE MAP BELOW. MONUMENTS ARE 3 1/4" BRASS CAPS SET IN 1' X 1' CONCRETE PADS AND ARE MARKED WITH 4" X 4" X 6' WOOD POSTS, PAINTED WHITE.



SKETCH

DA FORM 1 OCT 64 1959 REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
For use of this form, see TM 5-237; the proponent agency is TRADOC.

SWMU B05 Survey Data
Hawthorne Army Depot
Hawthorne, Nevada

SWMU	Point ID	Northing (feet)	Easting (feet)	Elevation
B05	ASB2	1389909.20	498674.20	NE
B05	DZBMW06	1389990.08	498564.83	4195.00
B05	DZBMW07	1389928.12	498537.54	4194.78
B05	HWAAP-58-1996	1389940.82	498387.90	4194.98
B05	LS1	1389940.82	498610.99	NE
B05	LS2	1389929.63	498608.67	NE
B05	LS3	1389931.73	498629.37	NE
B05	LS4/LS5	1390632.03	496936.20	NE
B05	Pin 1	1390127.38	498483.46	4191.46
B05	Pin 2	1389995.45	498777.12	4195.09
B05	Pin 3	1389818.04	498697.63	4197.56
B05	SD01	1389926.63	498633.45	NE
B05	SD02	1389737.87	498650.75	NE
B05	SS01	1389924.09	498624.06	NE
B05	SS02	1389924.09	498610.48	NE
B05	SS1	1389932.45	498553.14	NE
B05	SS10	1389953.51	498630.03	NE
B05	SS11	1389939.21	498623.28	NE
B05	SS12	1389923.51	498615.53	NE
B05	SS13	1389909.81	498607.98	NE
B05	SS14	1389930.27	498640.76	NE
B05	SS15	1389913.19	498633.61	NE
B05	SS16/SS17	1389917.36	498644.34	NE
B05	SS2	1389982.31	498572.02	NE
B05	SS3	1389982.31	498643.34	NE
B05	SS4	1389931.79	498680.14	NE
B05	SS5	1389881.64	498662.47	NE
B05	SS6	1389878.23	498594.27	NE
B05	SS7	1389944.97	498588.31	NE
B05	SS8	1389948.14	498603.80	NE
B05	SS9	1389932.06	498597.05	NE
B05	VSB2	1389960.90	498558.10	NE

Notes:
NE = Not establised
Coordinate datum is NAD 1927
Elevation datum is NGVD 1929

Appendix B

Proposed Closure Goals
Hawthorne Army Depot
Hawthorne, Nevada

Constituent of Concern	Chemical Classification	Carcinogenic (C) or Non-carcinogenic (NC)	HWAD Proposed Closure Goals for Soil (mg/kg)	HWAD Proposed Closure Goal Source
Nitrate	Anion	NC	128,000	Calculated Subpart S[a]
2-Amino-dinitrotoluene	Explosive	NC	-	NA[b]
4-Amino-dinitrotoluene	Explosive	NC	-	NA
1,3-Dinitrobenzene	Explosive	NC	8	Calculated Subpart S
2,4-Dinitrotoluene	Explosive	NC	160	Calculated Subpart S
2,6-Dinitrotoluene	Explosive	NC	80	Calculated Subpart S
HMX	Explosive	NC	4,000	Calculated Subpart S
Nitrobenzene	Explosive	NC	40	Calculated Subpart S
Nitrotoluene (2-, 3-, 4-)	Explosive	NC	800	Calculated Subpart S
RDX	Explosive	NC	64	Calculated Subpart S
Tetryl	Explosive	NC	800	Calculated Subpart S
1,3,5-Trinitrobenzene	Explosive	NC	4	Calculated Subpart S
2,4,6-Trinitrotoluene	Explosive	C	233	Calculated Subpart S
Aluminum	Metal	NC	80,000	Calculated Subpart S
Arsenic (cancer endpoint)	Metal	C & NC	30	Background[c]
Barium and compounds	Metal	NC	5,600	Calculated Subpart S
Beryllium and compounds	Metal	C	1	Background
Cadmium and compounds	Metal	NC	40	Calculated Subpart S
Chromium III and compounds	Metal	NC	80,000	Calculated Subpart S
Lead	Metal	NC	1000	PRG[d]
Mercury and compounds (inorganic)	Metal	NC	24	Calculated Subpart S
Selenium	Metal	NC	400	Calculated Subpart S
Silver and compounds	Metal	NC	400	Calculated Subpart S
Acenaphthene	PAH	NC	4,800	Calculated Subpart S
Benzo[a]anthracene	PAH	C	0.96	Calculated Subpart S
Benzo[a]pyrene	PAH	C	0.10	Detection Limit[e]
Benzo[b]fluoranthene	PAH	C	0.96	Calculated Subpart S
Benzo[k]fluoranthene	PAH	C	10	Calculated Subpart S
Chrysene	PAH	C	96	Calculated Subpart S
Dibenz[ah]anthracene	PAH	C	0.96	Calculated Subpart S
Fluoranthene	PAH	NC	3,200	Calculated Subpart S
Fluorene	PAH	NC	3,200	Calculated Subpart S
Indeno[1,2,3-cd]pyrene	PAH	C	-	NA
Naphthalene	PAH	NC	3,200	Calculated Subpart S
Pyrene	PAH	NC	2,400	Calculated Subpart S
Total Petroleum Hydrocarbons as Diesel (TPH-d)	PAH	C	100	NDEP Level Clean-up[f]
Polychlorinated biphenyls (PCBs)	PCBs	C	25	TSCA[g]
Bis(2-ethylhexyl)phthalate (DEHP)	SVOC	C	1,600	Calculated Subpart S
Bromoform (tribromomethane)	SVOC	C	89	Calculated Subpart S

Proposed Closure Goals
Hawthorne Army Depot
Hawthorne, Nevada

Constituent of Concern	Chemical Classification	Carcinogenic (C) or Non-carcinogenic (NC)	HWAD Proposed Closure Goals for Soil (mg/kg)	HWAD Proposed Closure Goal Source
Butyl benzyl phthalate	SVOC	NC	16,000	Calculated Subpart S
Dibromochloromethane	SVOC	C	83	Calculated Subpart S
Dibutyl-phthalate	SVOC	NC	8,000	Calculated Subpart S
Diethyl phthalate	SVOC	NC	64,000	Calculated Subpart S
Phenanthrene	SVOC		-	NA
Phenol	SVOC	NC	48,000	Calculated Subpart S
Acetone	VOC	NC	800	Calculated Subpart S
Anthracene	VOC	NC	24,000	Calculated Subpart S
Benzene	VOC	C	24	Calculated Subpart S
Bis(2-chloroisopropyl)ether	VOC	C	3,200	Calculated Subpart S
Bromomethane	VOC	NC	112	Calculated Subpart S
Carbon tetrachloride	VOC	C	5	Calculated Subpart S
Chlorobenzene	VOC	NC	1,600	Calculated Subpart S
Chloroform	VOC	C	115	Calculated Subpart S
Chloromethane	VOC	C	538	Calculated Subpart S
Dibromomethane	VOC	C	0.008	Calculated Subpart S
1,2-Dichlorobenzene	VOC	NC	7,200	Calculated Subpart S
1,4-Dichlorobenzene	VOC	C	18,300	Calculated Subpart S
Dichlorodifluoromethane	VOC	C	16,000	Calculated Subpart S
Ethylbenzene	VOC	NC	8,000	Calculated Subpart S
Methylene bromide	VOC	NC	800	Calculated Subpart S
Methylene chloride	VOC	C	4,800	Calculated Subpart S
2-Methylnaphthalene	VOC		-	NA
1,1,2,2-Tetrachloroethane	VOC	C	35	Calculated Subpart S
Tetrachloroethylene (PCE)	VOC	C & NC	800	Calculated Subpart S
Toluene	VOC	NC	16,000	Calculated Subpart S
1,1,1-Trichloroethane	VOC	NC	7,200	Calculated Subpart S
Trichloroethylene (TCE)	VOC	C & NC	480	Calculated Subpart S
Trichlorofluoromethane	VOC	NC	24,000	Calculated Subpart S
1,2,3-Trichloropropane	VOC	C	480	Calculated Subpart S
Vinyl chloride	VOC	C	0.37	Calculated Subpart S
Xylene Total (m-, o-, p-)	VOC	NC	160,000	Calculated Subpart S
2,3,7,8-TCDD	Dioxin	C	0.000005	Calculated Subpart S

[a] RCRA 55 FR 30870

[b] Not available

[c] Highest background concentration detected in 50 background soil samples

[d] Smucker, Stanford J. USEPA Rgion IX, Preliminary Remedial Goals, Second Half, Sep. 1995

[e] Method detection limit for Volatile Organic Compounds by EPA Method 8260 or Semi-Volatile Organic Compounds analyzed by EPA Method 8270

[f] Nevada Division of Environmental Protection

[g] Cleanup level for PCB spills in accordance with Toxic Substance and Control Act Spill Policy Guidelines 40 CFR 761

Appendix C

Nitrogen
Method 353.2 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Nitrate	Nitrite	Nitrogen Nitrate	Nitrogen Nitrite
				mg/kg	mg/kg	mg/kg	mg/kg
DZB-101-15-LS1	LS1	4/24/89	0	62	<0.7	14	<0.2
DZB-101-15-LS2	LS2	4/24/89	0	71	<0.7	16	<0.2
DZB-101-15-LS3	LS3	4/24/89	0	57	<0.7	13	<0.2
DZB-101-15-LS4	LS4	4/24/89	0	80	<0.7	18	<0.2
DZB-101-15-LS5	LS4	4/24/89	0	93	<0.7	21	<0.2
DZB-101-15-SS1	SS1	4/24/89	0	NA	NA	NA	NA
DZB-101-15-SS16	SS16	4/24/89	0	13	<0.7	3	<0.2
DZB-101-15-SS17	SS16	4/24/89	0	10	<0.7	2	<0.2
DZB-ASB2A	ASB2	5/15/89	3	<9	<0.7	<2	<0.2
DZB-ASB2B	ASB2	5/15/89	6	<9	<0.7	<2	<0.2
DZB-ASB2C	ASB2	5/15/89	9	<9	<0.7	<2	<0.2
DZB-ASB2D	ASB2	5/15/89	12	<9	<0.7	<2	<0.2
DZB-ASB2E	ASB2	5/15/89	15	<9	<0.7	<2	<0.2
DZB-ASB2F	ASB2	5/15/89	18	<9	<0.7	<2	<0.2
DZB-ASB2G	ASB2	5/15/89	21	<9	<0.7	<2	<0.2
DZB-ASB2GG	ASB2	5/15/89	21	<9	<0.7	<2	<0.2
DZB-ASB2H	ASB2	5/15/89	25	<9	<0.7	<2	<0.2
DZB-ASB2I	ASB2	5/15/89	30	<9	<0.7	<2	<0.2
DZB-ASB2J	ASB2	5/15/89	35	<9	<0.7	<2	<0.2
DZB-ASB2K	ASB2	5/15/89	40	<9	<0.7	<2	<0.2
DZB-ASB2L	ASB2	5/15/89	45	<9	<0.7	<2	<0.2
DZB-ASB2M	ASB2	5/15/89	50	<9	<0.7	<2	<0.2
DZB-VSB2A	VSB2	5/15/89	3	17	2.1	3.9	0.65
DZB-VSB2B	VSB2	5/15/89	6	<9	1.3	<2	0.41
DZB-VSB2C	VSB2	5/15/89	9	<9	<0.7	<2	<0.2
DZB-VSB2D	VSB2	5/15/89	12	<9	<0.7	<2	<0.2
DZB-VSB2E	VSB2	5/15/89	15	<9	<0.7	<2	<0.2
DZB-VSB2F	VSB2	5/15/89	18	<9	<0.7	<2	<0.2
DZB-VSB2G	VSB2	5/15/89	21	11	3.5	2	1.1
DZB-VSB2H	VSB2	5/15/89	25	<9	<0.7	<2	<0.2
DZB-VSB2I	VSB2	5/15/89	30	<9	<0.7	<2	<0.2
DZB-VSB2II	VSB2	5/15/89	30	<9	<0.7	<2	<0.2
DZB-VSB2J	VSB2	5/15/89	35	<9	0.9	<2	0.3
DZB-VSB2K	VSB2	5/15/89	40	<9	<0.7	<2	<0.2
DZB-VSB2L	VSB2	5/15/89	45	<9	<0.7	<2	<0.2
DZB-VSB2M	VSB2	5/15/89	50	<9	<0.7	<2	<0.2
DZB-VSB2N	VSB2	5/15/89	60	<9	1.1	<2	<0.2
DZB-VSB2O	VSB2	5/15/89	70	<9	<0.7	<2	<0.2
DZB-VSB2P	VSB2	5/15/89	80	<9	8.1	<2	2.5
DZB-VSB2Q	VSB2	5/15/89	90	<9	<0.7	<2	<0.2

Nitrogen
Method 353.2 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Nitrate	Nitrite	Nitrogen Nitrate	Nitrogen Nitrite
				mg/kg	mg/kg	mg/kg	mg/kg
DZB-VSB2R	VSB2	5/15/89	100	<9	<0.7	<2	<0.2
Analyses				40	40	40	40
Detections				9	6	9	5
Minimum Concentration				10	0.9	2	0.3
Maximum Concentration				93	8.1	21	2.5
HWAD - PCG						128000	
HWAD - PCG Hits						0	

Notes:
NA = Not analyzed

Total Organic Carbon
Method 410.1 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Total Organic Carbon
				mg/kg
DZB-ASB2A	ASB2	5/15/89	3	20
DZB-ASB2B	ASB2	5/15/89	6	<20
DZB-ASB2C	ASB2	5/15/89	9	60
DZB-ASB2D	ASB2	5/15/89	12	<20
DZB-ASB2E	ASB2	5/15/89	15	20
DZB-ASB2F	ASB2	5/15/89	18	410
DZB-ASB2G	ASB2	5/15/89	21	230
DZB-ASB2GG	ASB2	5/15/89	21	40
DZB-ASB2H	ASB2	5/15/89	25	210
DZB-ASB2I	ASB2	5/15/89	30	70
DZB-ASB2J	ASB2	5/15/89	35	30
DZB-ASB2K	ASB2	5/15/89	40	90
DZB-ASB2L	ASB2	5/15/89	45	410
DZB-ASB2M	ASB2	5/15/89	50	210
DZB-VSB2A	VSB2	5/15/89	3	410
DZB-VSB2B	VSB2	5/15/89	6	30
DZB-VSB2C	VSB2	5/15/89	9	2600
DZB-VSB2D	VSB2	5/15/89	12	40
DZB-VSB2E	VSB2	5/15/89	15	40
DZB-VSB2F	VSB2	5/15/89	18	<20
DZB-VSB2G	VSB2	5/15/89	21	40
DZB-VSB2H	VSB2	5/15/89	25	<20
DZB-VSB2I	VSB2	5/15/89	30	<20
DZB-VSB2II	VSB2	5/15/89	30	<20
DZB-VSB2J	VSB2	5/15/89	35	80
DZB-VSB2K	VSB2	5/15/89	40	740
DZB-VSB2L	VSB2	5/15/89	45	40
DZB-VSB2M	VSB2	5/15/89	50	50
DZB-VSB2N	VSB2	5/15/89	60	<20
DZB-VSB2O	VSB2	5/15/89	70	<20
DZB-VSB2P	VSB2	5/15/89	80	60
DZB-VSB2Q	VSB2	5/15/89	90	510
DZB-VSB2R	VSB2	5/15/89	100	1100
Analyses				33

Total Organic Carbon
Method 410.1 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Total Organic Carbon
				mg/kg
Detections				25
Minimum Concentration				20
Maximum Concentration				2600
HWAD - PCG				
HWAD - PCG Hits				

Total Organic Carbon
Method 410.4 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Total Organic Carbon
				mg/kg
DZB-101-15-LS1	LS1	4/24/89	0	70
DZB-101-15-LS2	LS2	4/24/89	0	50
DZB-101-15-LS3	LS3	4/24/89	0	140
DZB-101-15-LS4	LS4	4/24/89	0	70
DZB-101-15-LS5	LS4	4/24/89	0	70
DZB-101-15-SS1	SS1	4/24/89	0	NA
DZB-101-15-SS16	SS16	4/24/89	0	620
DZB-101-15-SS17	SS16	4/24/89	0	<30

Analyses	7
Detections	6
Minimum Concentration	50
Maximum Concentration	620
HWAD - PCG	
HWAD - PCG Hits	

Notes:
NA = Not analyzed

Oil Grease
Method 413.2 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Oil & Grease
				mg/kg
DZB-101-15-LS1	LS1	4/24/89	0	30
DZB-101-15-LS2	LS2	4/24/89	0	<30
DZB-101-15-LS3	LS3	4/24/89	0	<30
DZB-101-15-LS4	LS4	4/24/89	0	<30
DZB-101-15-LS5	LS4	4/24/89	0	50
DZB-101-15-SS1	SS1	4/24/89	0	NA
DZB-101-15-SS16	SS16	4/24/89	0	<30
DZB-101-15-SS17	SS16	4/24/89	0	<30
DZB-ASB2A	ASB2	5/15/89	3	150
DZB-ASB2B	ASB2	5/15/89	6	170
DZB-ASB2C	ASB2	5/15/89	9	40
DZB-ASB2D	ASB2	5/15/89	12	40
DZB-ASB2E	ASB2	5/15/89	15	300
DZB-ASB2F	ASB2	5/15/89	18	360
DZB-ASB2G	ASB2	5/15/89	21	270
DZB-ASB2GG	ASB2	5/15/89	21	230
DZB-ASB2H	ASB2	5/15/89	25	220
DZB-ASB2I	ASB2	5/15/89	30	40
DZB-ASB2J	ASB2	5/15/89	35	220
DZB-ASB2K	ASB2	5/15/89	40	280
DZB-ASB2L	ASB2	5/15/89	45	200
DZB-ASB2M	ASB2	5/15/89	50	290
DZB-VSB2A	VSB2	5/15/89	3	40
DZB-VSB2B	VSB2	5/15/89	6	70
DZB-VSB2C	VSB2	5/15/89	9	50
DZB-VSB2D	VSB2	5/15/89	12	50
DZB-VSB2E	VSB2	5/15/89	15	180
DZB-VSB2F	VSB2	5/15/89	18	150
DZB-VSB2G	VSB2	5/15/89	21	100
DZB-VSB2H	VSB2	5/15/89	25	140
DZB-VSB2I	VSB2	5/15/89	30	120
DZB-VSB2II	VSB2	5/15/89	30	60
DZB-VSB2J	VSB2	5/15/89	35	40
DZB-VSB2K	VSB2	5/15/89	40	60
DZB-VSB2L	VSB2	5/15/89	45	70
DZB-VSB2M	VSB2	5/15/89	50	40
DZB-VSB2N	VSB2	5/15/89	60	40
DZB-VSB2O	VSB2	5/15/89	70	60
DZB-VSB2P	VSB2	5/15/89	80	140
DZB-VSB2Q	VSB2	5/15/89	90	160
DZB-VSB2R	VSB2	5/15/89	100	140

Oil Grease
Method 413.2 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Oil & Grease
				mg/kg
Analyses				40
Detections				35
Minimum Concentration				30
Maximum Concentration				360
HWAD - PCG				
HWAD - PCG Hits				

Notes:
NA = Not analyzed

Metals
Method 6010 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Barium
				mg/kg
DZB-101-15-LS1	LS1	4/24/89	0	48
DZB-101-15-LS2	LS2	4/24/89	0	39
DZB-101-15-LS3	LS3	4/24/89	0	59
DZB-101-15-LS4	LS4	4/24/89	0	25
DZB-101-15-LS5	LS4	4/24/89	0	44
DZB-101-15-SS1	SS1	4/24/89	0	NA
DZB-101-15-SS16	SS16	4/24/89	0	63
DZB-101-15-SS17	SS16	4/24/89	0	73

Analyses	7
Detections	7
Minimum Concentration	25
Maximum Concentration	73
HWAD - PCG	2000
HWAD - PCG Hits	0
Maximum Background Concentration	447
Background Hits	0

Notes:
NA = Not analyzed

Metals
Method 7040 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Antimony
				mg/kg
DZB-101-15-LS1	LS1	4/24/89	0	<0.5
DZB-101-15-LS2	LS2	4/24/89	0	<0.5
DZB-101-15-LS3	LS3	4/24/89	0	<0.5
DZB-101-15-LS4	LS4	4/24/89	0	<0.5
DZB-101-15-LS5	LS4	4/24/89	0	<0.5
DZB-101-15-SS1	SS1	4/24/89	0	NA
DZB-101-15-SS16	SS16	4/24/89	0	<0.5
DZB-101-15-SS17	SS16	4/24/89	0	0.5
DZB-ASB2A	ASB2	5/15/89	3	0.7
DZB-ASB2B	ASB2	5/15/89	6	<0.5
DZB-ASB2C	ASB2	5/15/89	9	<0.5
DZB-ASB2D	ASB2	5/15/89	12	<0.5
DZB-ASB2E	ASB2	5/15/89	15	<0.5
DZB-ASB2F	ASB2	5/15/89	18	0.7
DZB-ASB2G	ASB2	5/15/89	21	0.9
DZB-ASB2GG	ASB2	5/15/89	21	2.5
DZB-ASB2H	ASB2	5/15/89	25	0.9
DZB-ASB2I	ASB2	5/15/89	30	1.2
DZB-ASB2J	ASB2	5/15/89	35	1
DZB-ASB2K	ASB2	5/15/89	40	0.8
DZB-ASB2L	ASB2	5/15/89	45	0.6
DZB-ASB2M	ASB2	5/15/89	50	0.9
DZB-VSB2A	VSB2	5/15/89	3	<0.5
DZB-VSB2B	VSB2	5/15/89	6	<0.5
DZB-VSB2C	VSB2	5/15/89	9	<0.5
DZB-VSB2D	VSB2	5/15/89	12	0.6
DZB-VSB2E	VSB2	5/15/89	15	<0.5
DZB-VSB2F	VSB2	5/15/89	18	<0.5
DZB-VSB2G	VSB2	5/15/89	21	1.4
DZB-VSB2H	VSB2	5/15/89	25	3.3
DZB-VSB2I	VSB2	5/15/89	30	1.4
DZB-VSB2II	VSB2	5/15/89	30	1.8
DZB-VSB2J	VSB2	5/15/89	35	0.9
DZB-VSB2K	VSB2	5/15/89	40	0.6
DZB-VSB2L	VSB2	5/15/89	45	1.5
DZB-VSB2M	VSB2	5/15/89	50	1
DZB-VSB2N	VSB2	5/15/89	60	1.9
DZB-VSB2O	VSB2	5/15/89	70	1.5
DZB-VSB2P	VSB2	5/15/89	80	<0.5
DZB-VSB2Q	VSB2	5/15/89	90	<0.5
DZB-VSB2R	VSB2	5/15/89	100	<0.5

Metals
Method 7040 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Antimony
				mg/kg
Analyses				40
Detections				22
Minimum Concentration				0.5
Maximum Concentration				3.3
HWAD - PCG				
HWAD - PCG Hits				

Notes:
NA = Not analyzed

Metals
Method 7080 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Barium
				mg/kg
DZB-ASB2A	ASB2	5/15/89	3	15
DZB-ASB2B	ASB2	5/15/89	6	81
DZB-ASB2C	ASB2	5/15/89	9	72
DZB-ASB2D	ASB2	5/15/89	12	38
DZB-ASB2E	ASB2	5/15/89	15	37
DZB-ASB2F	ASB2	5/15/89	18	130
DZB-ASB2G	ASB2	5/15/89	21	410
DZB-ASB2GG	ASB2	5/15/89	21	260
DZB-ASB2H	ASB2	5/15/89	25	310
DZB-ASB2I	ASB2	5/15/89	30	170
DZB-ASB2J	ASB2	5/15/89	35	220
DZB-ASB2K	ASB2	5/15/89	40	120
DZB-ASB2L	ASB2	5/15/89	45	75
DZB-ASB2M	ASB2	5/15/89	50	130
DZB-VSB2A	VSB2	5/15/89	3	87
DZB-VSB2B	VSB2	5/15/89	6	120
DZB-VSB2C	VSB2	5/15/89	9	92
DZB-VSB2D	VSB2	5/15/89	12	98
DZB-VSB2E	VSB2	5/15/89	15	61
DZB-VSB2F	VSB2	5/15/89	18	62
DZB-VSB2G	VSB2	5/15/89	21	230
DZB-VSB2H	VSB2	5/15/89	25	210
DZB-VSB2I	VSB2	5/15/89	30	500
DZB-VSB2II	VSB2	5/15/89	30	240
DZB-VSB2J	VSB2	5/15/89	35	100
DZB-VSB2K	VSB2	5/15/89	40	120
DZB-VSB2L	VSB2	5/15/89	45	280
DZB-VSB2M	VSB2	5/15/89	50	160
DZB-VSB2N	VSB2	5/15/89	60	210
DZB-VSB2O	VSB2	5/15/89	70	93
DZB-VSB2P	VSB2	5/15/89	80	98
DZB-VSB2Q	VSB2	5/15/89	90	55
DZB-VSB2R	VSB2	5/15/89	100	23

Analyses	33
Detections	33
Minimum Concentration	15
Maximum Concentration	500
HWAD - PCG	2000
HWAD - PCG Hits	0

Metals
Method 7080 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Barium
				mg/kg
Maximum Background Concentration				447
Background Hits				1

Metals
Method 7420 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Lead
				mg/kg
DZB-101-15-LS1	LS1	4/24/89	0	<1
DZB-101-15-LS2	LS2	4/24/89	0	<1
DZB-101-15-LS3	LS3	4/24/89	0	<1
DZB-101-15-LS4	LS4	4/24/89	0	<1
DZB-101-15-LS5	LS4	4/24/89	0	<1
DZB-101-15-SS1	SS1	4/24/89	0	NA
DZB-101-15-SS16	SS16	4/24/89	0	2
DZB-101-15-SS17	SS16	4/24/89	0	3

Analyses	7
Detections	2
Minimum Concentration	2
Maximum Concentration	3
HWAD - PCG	100
HWAD - PCG Hits	0
Maximum Background Concentration	16.7
Background Hits	0

Notes:
NA = Not analyzed

Metals
Method 7421 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Lead
				mg/kg
DZB-ASB2A	ASB2	5/15/89	3	2
DZB-ASB2B	ASB2	5/15/89	6	2
DZB-ASB2C	ASB2	5/15/89	9	2
DZB-ASB2D	ASB2	5/15/89	12	<1
DZB-ASB2E	ASB2	5/15/89	15	4
DZB-ASB2F	ASB2	5/15/89	18	5
DZB-ASB2G	ASB2	5/15/89	21	2
DZB-ASB2GG	ASB2	5/15/89	21	3
DZB-ASB2H	ASB2	5/15/89	25	12
DZB-ASB2I	ASB2	5/15/89	30	3
DZB-ASB2J	ASB2	5/15/89	35	5
DZB-ASB2K	ASB2	5/15/89	40	2
DZB-ASB2L	ASB2	5/15/89	45	3
DZB-ASB2M	ASB2	5/15/89	50	3
DZB-VSB2A	VSB2	5/15/89	3	2
DZB-VSB2B	VSB2	5/15/89	6	2
DZB-VSB2C	VSB2	5/15/89	9	3
DZB-VSB2D	VSB2	5/15/89	12	2
DZB-VSB2E	VSB2	5/15/89	15	2
DZB-VSB2F	VSB2	5/15/89	18	1
DZB-VSB2G	VSB2	5/15/89	21	7
DZB-VSB2H	VSB2	5/15/89	25	3
DZB-VSB2I	VSB2	5/15/89	30	14
DZB-VSB2II	VSB2	5/15/89	30	15
DZB-VSB2J	VSB2	5/15/89	35	3
DZB-VSB2K	VSB2	5/15/89	40	2
DZB-VSB2L	VSB2	5/15/89	45	8
DZB-VSB2M	VSB2	5/15/89	50	3
DZB-VSB2N	VSB2	5/15/89	60	16
DZB-VSB2O	VSB2	5/15/89	70	2
DZB-VSB2P	VSB2	5/15/89	80	2
DZB-VSB2Q	VSB2	5/15/89	90	2
DZB-VSB2R	VSB2	5/15/89	100	4

Analyses	33
Detections	32
Minimum Concentration	1
Maximum Concentration	16
HWAD - PCG	100
HWAD - PCG Hits	0

Metals
Method 7421 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Lead
				mg/kg
Maximum Background Concentration				16.7
Background Hits				0

Metals
Method 7471 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Mercury
				mg/kg
DZB-101-15-LS1	LS1	4/24/89	0	<0.01
DZB-101-15-LS2	LS2	4/24/89	0	<0.01
DZB-101-15-LS3	LS3	4/24/89	0	<0.01
DZB-101-15-LS4	LS4	4/24/89	0	<0.01
DZB-101-15-LS5	LS4	4/24/89	0	<0.01
DZB-101-15-SS1	SS1	4/24/89	0	NA
DZB-101-15-SS16	SS16	4/24/89	0	<0.01
DZB-101-15-SS17	SS16	4/24/89	0	0.01
DZB-ASB2A	ASB2	5/15/89	3	<0.01
DZB-ASB2B	ASB2	5/15/89	6	<0.01
DZB-ASB2C	ASB2	5/15/89	9	<0.01
DZB-ASB2D	ASB2	5/15/89	12	<0.01
DZB-ASB2E	ASB2	5/15/89	15	<0.01
DZB-ASB2F	ASB2	5/15/89	18	0.02
DZB-ASB2G	ASB2	5/15/89	21	0.064
DZB-ASB2GG	ASB2	5/15/89	21	0.05
DZB-ASB2H	ASB2	5/15/89	25	0.03
DZB-ASB2I	ASB2	5/15/89	30	0.03
DZB-ASB2J	ASB2	5/15/89	35	0.05
DZB-ASB2K	ASB2	5/15/89	40	0.025
DZB-ASB2L	ASB2	5/15/89	45	0.05
DZB-ASB2M	ASB2	5/15/89	50	<0.01
DZB-VSB2A	VSB2	5/15/89	3	0.05
DZB-VSB2B	VSB2	5/15/89	6	0.03
DZB-VSB2C	VSB2	5/15/89	9	<0.01
DZB-VSB2D	VSB2	5/15/89	12	<0.01
DZB-VSB2E	VSB2	5/15/89	15	0.02
DZB-VSB2F	VSB2	5/15/89	18	0.03
DZB-VSB2G	VSB2	5/15/89	21	0.03
DZB-VSB2H	VSB2	5/15/89	25	0.09
DZB-VSB2I	VSB2	5/15/89	30	0.06
DZB-VSB2II	VSB2	5/15/89	30	0.05
DZB-VSB2J	VSB2	5/15/89	35	0.04
DZB-VSB2K	VSB2	5/15/89	40	0.04
DZB-VSB2L	VSB2	5/15/89	45	0.04
DZB-VSB2M	VSB2	5/15/89	50	0.02
DZB-VSB2N	VSB2	5/15/89	60	NA
DZB-VSB2O	VSB2	5/15/89	70	0.02
DZB-VSB2P	VSB2	5/15/89	80	0.07
DZB-VSB2Q	VSB2	5/15/89	90	<0.01
DZB-VSB2R	VSB2	5/15/89	100	<0.01

Metals
Method 7471 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Mercury
				mg/kg
Analyses				39
Detections				23
Minimum Concentration				0.01
Maximum Concentration				0.09
HWAD - PCG				24
HWAD - PCG Hits				0
Maximum Background Concentration				0.108
Background Hits				0

Notes:
NA = Not analyzed

E. ..osives
Method 8090M (BCA Field)

Sample ID	Location ID	Sample Date	Depth	1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,3-Dinitrotoluene	2,4,6-Trinitrotoluene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Nitrotoluene	3-Nitrotoluene	4-Nitrotoluene	Nitrobenzene
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
B05-SD01-1-S	SD01	7/19/94	0	<0.5	<0.25	NA	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
B05-SD02-1-S	SD02	7/19/94	0	<1250	<625	NA	1200	<625	<625	<625	<625	<625	<625
B05-SS01-0-S	SS01	7/19/94	0	<0.5	<0.25	NA	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
B05-SS02-0-S	SS02	7/19/94	0	<0.5	<0.25	NA	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Analyses				4	4	0	4	4	4	4	4	4	4
Detections				0	0	0	1	0	0	0	0	0	0
Minimum Concentration				0	0	0	1200	0	0	0	0	0	0
Maximum Concentration				0	0	0	1200	0	0	0	0	0	0
HWAD - PCG				4	8		233	2.6	80	800	800	800	40
HWAD - PCG Hits				0	0		1	0	0	0	0	0	0

Notes:
NA = Not analyzed

Explosives
Method 8090M (BCA Field)

Sample ID	Location ID	Sample Date	Depth	RDX	Tetryl
				mg/kg	mg/kg
B05-SD01-1-S	SD01	7/19/94	0	<50	<0.25
B05-SD02-1-S	SD02	7/19/94	0	<125000	<625
B05-SS01-0-S	SS01	7/19/94	0	<50	<0.25
B05-SS02-0-S	SS02	7/19/94	0	<50	<0.25
Analyses				4	4
Detections				0	0
Minimum Concentration				0	0
Maximum Concentration				0	0
HWAD - PCG				64	800
HWAD - PCG Hits				0	0

Notes:
NA = Not analyzed

Semiv le Organics
Method 8270 (CCAS)

Sample ID	Location ID	Sample Date	Depth	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chlorophenol
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
B05-SD01-1-S	SD01	7/19/94	0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<0.2
B05-SD02-1-S	SD02	7/19/94	0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	0.35	<0.2	<0.2
B05-SS01-0-S	SS01	7/19/94	0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<0.2
B05-SS02-0-S	SS02	7/19/94	0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<0.2
Analyses				4	4	4	4	4	4	4	4	4	4	4	4
Detections				0	0	0	0	0	0	0	0	0	1	0	0
Minimum Concentration				0	0	0	0	0	0	0	0	0	0.35	0	0
Maximum Concentration				0	0	0	0	0	0	0	0	0	0.35	0	0
HWAD - PCG					7200		150						2.6	80	
HWAD - PCG Hits					0		0						0	0	

Semivolatile Organics
Method 8270 (CCAS)

Sample ID	Location ID	Sample Date	Depth	2-Methyl-4,6-dinitrophenol	2-Methylnaphthalene	2-Methylphenol (o-Cresol)	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4-Bromophenylphenylether	4-Chloro-3-methylphenol	4-Chloroaniline	4-Chlorophenylphenylether
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
B05-SD01-1-S	SD01	7/19/94	0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.1	<0.2	<0.2	<0.1
B05-SD02-1-S	SD02	7/19/94	0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.1	<0.2	<0.2	<0.1
B05-SS01-0-S	SS01	7/19/94	0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.1	<0.2	<0.2	<0.1
B05-SS02-0-S	SS02	7/19/94	0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.1	<0.2	<0.2	<0.1
Analyses				4	4	4	4	4	4	4	4	4	4	4
Detections				0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration				0	0	0	0	0	0	0	0	0	0	0
Maximum Concentration				0	0	0	0	0	0	0	0	0	0	0
HWAD - PCG														
HWAD - PCG Hits														

Semivolatile Organics
Method 8270 (CCAS)

Sample ID	Location ID	Sample Date	Depth	4-Methylphenol (p-Cresol)	4-Nitroaniline	4-Nitrophenol	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic acid
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
B05-SD01-1-S	SD01	7/19/94	0	<0.3	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1
B05-SD02-1-S	SD02	7/19/94	0	<0.3	<0.2	<0.1	<0.1	<0.2	<0.1	0.15	<0.1	<0.1	<0.1	<0.1	<1
B05-SS01-0-S	SS01	7/19/94	0	<0.3	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1
B05-SS02-0-S	SS02	7/19/94	0	<0.3	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1
Analyses				4	4	4	4	4	4	4	4	4	4	4	4
Detections				0	0	0	0	0	0	1	0	0	0	0	0
Minimum Concentration				0	0	0	0	0	0	0.15	0	0	0	0	0
Maximum Concentration				0	0	0	0	0	0	0.15	0	0	0	0	0
HWAD - PCG							4800		24000	0.96	0.1	0.96		10	
HWAD - PCG Hits							0		0	0	0	0		0	

Semivolatile Organics
Method 8270 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Chrysene	Dibenzo(a,h)anthracene	Dibenzofuran	Dibutylphthalate	Diethylphthalate
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
B05-SD01-1-S	SD01	7/19/94	0	<0.2	<0.2	<0.2	<0.2	0.12	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2
B05-SD02-1-S	SD02	7/19/94	0	<0.2	<0.2	<0.2	<0.2	0.59	<0.1	0.2	<0.1	<0.1	<0.1	<0.2
B05-SS01-0-S	SS01	7/19/94	0	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2
B05-SS02-0-S	SS02	7/19/94	0	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2
Analyses				4	4	4	4	4	4	4	4	4	4	4
Detections				0	0	0	0	2	0	1	0	0	0	0
Minimum Concentration				0	0	0	0	0.12	0	0.2	0	0	0	0
Maximum Concentration				0	0	0	0	0.59	0	0.2	0	0	0	0
HWAD - PCG								1600	16000	96	0.96		8000	64000
HWAD - PCG Hits								0	0	0	0		0	0

Semiv le Organics
Method 8270 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Dimethylphthalate	Di-n-octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-c,d)pyrene	Isophorone	Naphthalene	Nitrobenzene
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
B05-SD01-1-S	SD01	7/19/94	0	<0.2	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2
B05-SD02-1-S	SD02	7/19/94	0	<0.2	<0.1	0.11	<0.1	<0.1	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2
B05-SS01-0-S	SS01	7/19/94	0	<0.2	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2
B05-SS02-0-S	SS02	7/19/94	0	<0.2	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2
Analyses				4	4	4	4	4	4	4	4	4	4	4	4
Detections				0	0	1	0	0	0	0	0	0	0	0	0
Minimum Concentration				0	0	0.11	0	0	0	0	0	0	0	0	0
Maximum Concentration				0	0	0.11	0	0	0	0	0	0	0	0	0
HWAD - PCG						3200	3200							3200	40
HWAD - PCG Hits						0	0							0	0

Semivolatile Organics
Method 8270 (CCAS)

Sample ID	Location ID	Sample Date	Depth	N-Nitrosodimethylamine	N-Nitrosodi-n-propylamine	N-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
B05-SD01-1-S	SD01	7/19/94	0	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1
B05-SD02-1-S	SD02	7/19/94	0	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	0.25
B05-SS01-0-S	SS01	7/19/94	0	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1
B05-SS02-0-S	SS02	7/19/94	0	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1
Analyses				4	4	4	4	4	4	4
Detections				0	0	0	0	0	0	1
Minimum Concentration				0	0	0	0	0	0	0.25
Maximum Concentration				0	0	0	0	0	0	0.25
HWAD - PCG									48000	2400
HWAD - PCG Hits									0	0

Explosives
Method 8330 (CCAS)

Sample ID	Location ID	Sample Date	Depth	2,3-Dinitrotoluene	2,4-Dinitrotoluene	3,4- and 2,6-Dinitrotoluene	picric acid	RDX	2,4,6-Trinitrotoluene
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
DZB-101-15-LS1	LS1	4/24/89	0	<2	<1	<1	<0.5	<3	<1
DZB-101-15-LS2	LS2	4/24/89	0	<2	<1	<1	<0.5	<3	<0.5
DZB-101-15-LS3	LS3	4/24/89	0	2.1	<1	<1	<0.5	<3	<0.5
DZB-101-15-LS4	LS4	4/24/89	0	<2	<1	<1	<0.5	<3	<0.5
DZB-101-15-LS5	LS4	4/24/89	0	<2	<1	<1	2.3	<3	<0.5
DZB-101-15-SS1	SS1	4/24/89	0	NA	NA	NA	NA	NA	NA
DZB-101-15-SS16	SS16	4/24/89	0	<2	<1	<1	0.5	<3	<0.5
DZB-101-15-SS17	SS16	4/24/89	0	<2	<1	<1	<0.5	<3	<0.5
DZB-ASB2A	ASB2	5/15/89	3	<2	<1	1.1	<0.5	<3	<0.5
DZB-ASB2B	ASB2	5/15/89	6	<2	<1	<1	<0.5	<3	<0.5
DZB-ASB2C	ASB2	5/15/89	9	<2	<1	1.4	0.5	<3	<0.5
DZB-ASB2D	ASB2	5/15/89	12	2.1	<1	<1	<0.5	<3	<0.5
DZB-ASB2E	ASB2	5/15/89	15	<2	<1	<1	<0.5	<3	<0.5
DZB-ASB2F	ASB2	5/15/89	18	<2	<1	<1	2	<3	<0.5
DZB-ASB2G	ASB2	5/15/89	21	<2	<1	<1	0.6	<3	<0.5
DZB-ASB2GG	ASB2	5/15/89	21	<2	<1	<1	0.7	<3	0.7
DZB-ASB2H	ASB2	5/15/89	25	<2	<1	2.1	0.6	10.5	<0.5
DZB-ASB2I	ASB2	5/15/89	30	<2	<1	<1	<0.5	<3	0.5
DZB-ASB2J	ASB2	5/15/89	35	<2	<1	<1	0.5	<3	<0.5
DZB-ASB2K	ASB2	5/15/89	40	<2	<1	<1	<0.5	<3	<0.5
DZB-ASB2L	ASB2	5/15/89	45	<2	<1	<1	0.8	<3	<0.5
DZB-ASB2M	ASB2	5/15/89	50	<2	<1	<1	<0.5	<3	<0.5
DZB-VSB2A	VSB2	5/15/89	3	<2	<1	<1	1.3	<3	<0.5
DZB-VSB2B	VSB2	5/15/89	6	<2	<1	<1	2.6	<3	<0.5
DZB-VSB2C	VSB2	5/15/89	9	<0	<0	<0	7.1	<3	0.8
DZB-VSB2D	VSB2	5/15/89	12	<2	<1	<1	5	<3	<0.5
DZB-VSB2E	VSB2	5/15/89	15	<2	<1	<1	6.1	<3	<0.5
DZB-VSB2F	VSB2	5/15/89	18	<2	<1	<1	4.5	<3	<0.5
DZB-VSB2G	VSB2	5/15/89	21	<2	<1	<1	4.4	<3	<0.5
DZB-VSB2H	VSB2	5/15/89	25	<2	<1	<1	2.8	<3	<0.5
DZB-VSB2I	VSB2	5/15/89	30	<2	<1	<1	1	<3	<0.5
DZB-VSB2II	VSB2	5/15/89	30	<2	<1	<1	1.2	<3	<0.5
DZB-VSB2J	VSB2	5/15/89	35	<2	<1	<1	2.5	<3	<0.5
DZB-VSB2K	VSB2	5/15/89	40	<2	<1	<1	1.9	<3	<0.5
DZB-VSB2L	VSB2	5/15/89	45	<2	<1	<1	3.1	3	<0.5
DZB-VSB2M	VSB2	5/15/89	50	<2	<1	<1	4	<3	<0.5
DZB-VSB2N	VSB2	5/15/89	60	<2	<1	<1	8.2	<3	<0.5

Explosives
Method 8330 (CCAS)

Sample ID	Location ID	Sample Date	Depth	2,3-Dinitrotoluene	2,4-Dinitrotoluene	3,4- and 2,6-Dinitrotoluene	picric acid	RDX	2,4,6-Trinitrotoluene
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
DZB-VSB2O	VSB2	5/15/89	70	<2	<1	<1	5.7	<3	<0.5
DZB-VSB2P	VSB2	5/15/89	80	<2	<1	<1	6.3	<3	<0.5
DZB-VSB2Q	VSB2	5/15/89	90	<2	<1	<1	3.9	<3	0.7
DZB-VSB2R	VSB2	5/15/89	100	<2	<1	<1	1.1	<3	<0.5
Analyses				40	40	40	40	40	40
Detections				2	0	3	28	2	4
Minimum Concentration				2.1	0	1.1	0.5	3	0.5
Maximum Concentration				2.1	0	2.1	8.2	10.5	0.8
HWAD - PCG					2.6			64	233
HWAD - PCG Hits					0			0	0

Notes:
NA = Not analyzed

Appendix D

Applied P & Ch Laboratory
13780 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

APCL Analytical Report

Submitted to:
Tetra Tech, Inc. (San Francisco)
Attention: Roy Roenbeck
180 Howard St. Ste. 250
San Francisco CA 94105
Tel: (415)974-1221 Fax: (415)974-5914

Service ID #: 801-992441
Collected by: GM/FH
Collected on: 03/09/99

Received: 03/12/99
Extracted: 03/17/99
Tested: 03/16-20/99
Reported: 03/24/99

Sample Description: Soil from Hawthorne,NV
Project Description: HAWD-101

Analysis of Soil Samples

Component Analyzed	Method	Unit	PQL	Analysis Result CS05-BB-01 99-02441-1	CS05-BB-02 99-02441-2	CS05-BB-03 99-02441-3	CS05-BB-04 99-02441-4
MOISTURE	ASTM-D2216	%Moisture	0.5	2.3	2.1	3.3	2.8
NITROAROMATICS AND NITROAMINES [a]							
Dilution Factor				1	1	1	10
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	0.71	<0.20	<0.21	<2.1
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	0.57	0.41	0.4	<2.1
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.26	<0.26	<0.26	<2.6
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26	<0.26	<2.6
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26	<0.26	<2.6
HMX	8330	mg/kg	0.25	2.4	0.68	2.2	6.2
NITROBENZENE	8330	mg/kg	0.25	<0.26	<0.26	<0.26	<2.6
3-NITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26	<0.26	<2.6
RDX	8330	mg/kg	0.25	0.69	2.6	1.5	<2.6
TETRYL	8330	mg/kg	0.25	<0.26	<0.26	<0.26	<2.6
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	1.6	1.8	3.3	2.9
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	1.1	0.90	7.25	97
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26	<0.26	<2.6

Component Analyzed	Method	Unit	PQL	Analysis Result CS05-BB-06 99-02441-5	CS05-SA-01 99-02441-6	CS05-SA-02 99-02441-7	CS05-SA-04 99-02441-8
MOISTURE	ASTM-D2216	%Moisture	0.5	2.2	2.8	1.0	1.7
NITROAROMATICS AND NITROAMINES [a]							
Dilution Factor				1	1	1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	0.95	<0.21	<0.20	<0.20
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	0.72	<0.21	0.2J	0.2
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.26	<0.26	<0.25	<0.25
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26	<0.25	<0.25
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26	<0.25	<0.25
HMX	8330	mg/kg	0.25	1.2	1.3	0.2J	0.2J
NITROBENZENE	8330	mg/kg	0.25	<0.26	<0.26	<0.25	<0.25
3-NITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26	<0.25	<0.25
RDX	8330	mg/kg	0.25	1.4	1.8	<0.25	<0.25
TETRYL	8330	mg/kg	0.25	<0.26	<0.26	<0.25	<0.25
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	1.8	0.08J	<0.25	0.1J
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	1.4	<0.26	<0.25	0.58
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26	<0.25	<0.25

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Component Analyzed	Method	Unit	PQL	Analysis Result CS05-SA-05 99-02441-9	CS05-SA-06 99-02441-10	CS05 SA-07 99-02441-11	CS05-SA-08 99-02441-12
MOISTURE	ASTM-D2216	%Moisture	0.6	1.9	1.7	1.6	2.0
NITROAROMATICS AND NITROAMINES [a]							
Dilution Factor				1	1	1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.20	<0.20	<0.20
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.20	<0.20	<0.20
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.26	<0.25	<0.26
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	<0.25	<0.26
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	<0.25	<0.26
HMX	8330	mg/kg	0.25	<0.25	<0.25	<0.25	<0.26
NITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25	<0.25	<0.26
3-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	<0.25	<0.26
RDX	8330	mg/kg	0.25	<0.25	<0.25	<0.25	<0.26
TETRYL	8330	mg/kg	0.25	<0.25	<0.25	<0.25	<0.26
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.26	<0.25	<0.30
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	0.2J	<0.25	<0.25	0.1J
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	<0.25	<0.26

Component Analyzed	Method	Unit	PQL	Analysis Result CS05-SA-09 99-02441-13	CS05-SA-10 99-02441-14	CS05-SA-11 99-02441-15	CS05-SA-12 99-02441-16
MOISTURE	ASTM-D2216	%Moisture	0.5	1.7	3.3	3.0	2.0
NITROAROMATICS AND NITROAMINES [a]							
Dilution Factor				1	1	1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.21	<0.21	0.1J
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	0.2	<0.21	<0.21	0.3
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.26	<0.26	<0.26
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26	<0.26	<0.26
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.26	<0.26	<0.26
HMX	8330	mg/kg	0.25	1.3	0.1J	<0.26	2.0
NITROBENZENE	8330	mg/kg	0.25	<0.25	<0.26	<0.26	<0.26
3-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.26	<0.26	<0.26
RDX	8330	mg/kg	0.25	0.2J	<0.26	<0.26	<0.26
TETRYL	8330	mg/kg	0.25	<0.25	<0.26	<0.26	<0.26
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	3.2	1.7	<0.26	0.2J
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	5.71	0.1J	<0.26	0.1J
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.26	<0.26	<0.26

Component Analyzed	Method	Unit	PQL	Analysis Result CS05-SA-14 99-02441-17	CS05-SA-15 99-02441-18	CS05-SA-16 99-02441-19	CS05-SA-17 99-02441-20
MOISTURE	ASTM-D2216	%Moisture	0.5	1.8	1.9	2.3	1.8

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Component Analyzed	Method	Unit	PQL	Analysis Result CS05-SA-14 99-02441-17	CS05-SA-15 99-02441-18	CS05-SA-16 99-02441-19	CS05-SA-17 99-02441-20
NITROAROMATICS AND NITROAMINES [a]							
Dilution Factor				1	1	1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.20	<0.20	<0.20
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	0.2	<0.20	<0.20
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
HMX	8330	mg/kg	0.25	<0.25	1.3	0.54	<0.25
NITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
3-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
RDX	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
TETRYL	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	<0.25	0.2J	<0.26	<0.25
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25

Component Analyzed	Method	Unit	PQL	Analysis Result CS05-SA-18 99-02441-21	CS05-SA-19 99-02441-22	CS05-SA-20 99-02441-23	CS05-SA-21 99-02441-24
MOISTURE	ASTM-D2216	%Moisture	0.5	1.4	1.7	1.5	1.6
NITROAROMATICS AND NITROAMINES [a]							
Dilution Factor				1	1	1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	0.2J	<0.20	<0.20	<0.20
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	0.60	<0.20	<0.20	<0.20
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25	<0.25	<0.25
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	<0.25	<0.25
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	<0.25	<0.25
HMX	8330	mg/kg	0.25	3.5	<0.25	0.71	<0.25
NITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25	<0.25	<0.25
3-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	<0.25	<0.25
RDX	8330	mg/kg	0.25	<0.25	<0.25	<0.25	0.09J
TETRYL	8330	mg/kg	0.25	<0.25	<0.25	<0.25	<0.25
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	0.2J	<0.25	<0.25	<0.25
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	0.74	<0.25	<0.25	<0.25
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	<0.25	<0.25

Component Analyzed	Method	Unit	PQL	Analysis Result CS05-SA-22 99-02441-25	CS05-SA-23 99-02441-26	CS05-SA-24 99-02441-27	CS05-SA-03 99-02441-28
MOISTURE	ASTM-D2216	%Moisture	0.5	3.0	2.9	1.3	1.7

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Component Analyzed	Method	Unit	PQL	CS05-SA-22 99-02441-25	CS05-SA-23 99-02441-26	CS05-SA-24 99-02441-27	CS05-SA-03 99-02441-28
				Analysis Result			
NITROAROMATICS AND NITROAMINES [a]							
Dilution Factor				1	1	1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.21	<0.21	<0.20	<0.20
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.21	0.3	<0.20	0.4
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.26	<0.26	<0.25	<0.25
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26	<0.25	<0.25
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26	<0.25	<0.25
HMX	8330	mg/kg	0.25	0.07J	2.5	<0.35	1.1
NITROBENZENE	8330	mg/kg	0.25	<0.26	<0.26	<0.25	<0.25
3-NITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26	<0.25	<0.25
RDX	8330	mg/kg	0.25	0.1J	2.3	<0.26	<0.25
TETRYL	8330	mg/kg	0.25	<0.26	<0.26	<0.25	<0.25
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.26	0.08J	<0.25	0.09J
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26	<0.25	0.83
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26	<0.25	<0.25

Component Analyzed	Method	Unit	PQL	CS05-SW-01 99-02441-29	CS05-SW-02 99-02441-30	CS05-SW-03 99-02441-31	CS05-SW-05 99-02441-32
				Analysis Result			
MOISTURE	ASTM-D2216	%Moisture	0.5	1.0	2.0	1.5	2.3
NITROAROMATICS AND NITROAMINES [a]							
Dilution Factor				1	1	1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	1.2	<0.20	<0.20
2 AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	1.0	0.1J	<0.20
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.26	<0.26	<0.25	<0.26
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.26	<0.25	<0.26
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.26	<0.25	<0.26
HMX	8330	mg/kg	0.25	0.67	3.8	0.32	<0.26
NITROBENZENE	8330	mg/kg	0.25	<0.35	<0.26	<0.25	<0.26
3-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.26	<0.25	<0.26
RDX	8330	mg/kg	0.25	0.60	2.3	0.2J	<0.26
TETRYL	8330	mg/kg	0.25	<0.25	<0.26	<0.25	<0.26
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	2.7	2.1	3.3	5.1
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	0.82	1.4	0.66	1.9
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.26	<0.25	<0.26

Component Analyzed	Method	Unit	PQL	CS05-SW-06 99-02441-33	CS05-SW-07 99-02441-34	CS05-SW-08 99-02441-35	CS05-SW-04 99-02441-36
				Analysis Result			
MOISTURE	ASTM-D2216	%Moisture	0.5	3.0	1.5	1.7	2.3

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Component Analyzed	Method	Unit	PQL	Analysis Result CS05-SW-06 99-02441-33	CS05-SW-07 99-02441-34	CS05-SW-08 99-02441-35	CS05-SW-04 99-02441-36
NITROAROMATICS AND NITROAMINES [a]							
Dilution Factor				1	1	1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	0.2	0.1J	0.3	<0.20
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	0.49	0.3	0.42	<0.20
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.26	<0.25	<0.25	<0.26
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.25	<0.25	<0.26
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.25	<0.25	<0.26
HMX	8330	mg/kg	0.25	3.4	3.1	2.9	0.2J
NITROBENZENE	8330	mg/kg	0.25	<0.26	<0.25	<0.25	<0.26
3-NITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.25	<0.25	<0.26
RDX	8330	mg/kg	0.25	1.4	0.43	0.78	0.1J
TETRYL	8330	mg/kg	0.25	<0.26	<0.25	<0.25	<0.26
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	3.4	3.1	2.5	0.78
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	12.4	24.9	18.5	0.3J
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.25	<0.25	<0.26

PQL: Practical Quantitation Limit. MDL: Method Detection Limit. CRDL: Contract Required Detection Limit

N.D.: Not Detected or less than the practical quantitation limit. "-": Analysis is not required.

J. Reported between PQL and MDL.

† All results are reported on dry basis for soil samples.

Listed Dilution Factors (DF) are relative to the method default DF. All unlisted DFs are 1.0

[a] Positive results had been confirmed by second column.

Respectfully submitted,

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Submitted to:
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Attention: Roy Roenbeck
180 Howard St. Ste. 250
San Francisco CA 94105
Tel: (415)974-1221 Fax: (415)974-5914

Service ID #: 801-993184
Collected by:
Collected on: 04/22/99

Received: 04/23/99
Extracted: 04/27/99
Tested: 04/23-28/99
Reported: 05/03/99

Sample Description: Soil
Project Description: W.101 Bioremediation

Analysis of Soil Samples

Component Analyzed	Method	Unit	PQL	Analysis Result A2-SMB05-PILE-001-P 99-03184-1	Analysis Result A2-SMB05-PILE-002-P 99-03184-2
MOISTURE	ASTM-D2216	%Moisture	0.5	3.8	3.7
NITROAROMATICS AND NITROAMINES [a]					
Dilution Factor				1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	0.64	0.4
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	0.56	0.4
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.26	<0.26
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26
HMX	8330	mg/kg	0.25	1.4	1.1
NITROBENZENE	8330	mg/kg	0.25	<0.26	<0.26
3-NITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26
RDX	8330	mg/kg	0.25	1.0	2.9
TETRYL	8330	mg/kg	0.25	<0.26	<0.26
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	2.1	2.5
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	4.7	2.6
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26

Component Analyzed	Method	Unit	PQL	Analysis Result A2-SMB05-PILE-003-P 99-03184-3	Analysis Result A2-SMB05-PILE-004-P 99-03184-4
MOISTURE	ASTM-D2216	%Moisture	0.5	3.9	4.2

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Component Analyzed	Method	Unit	PQL	Analysis Result A2-SMB05-PILE-003-P 99-03184-3	Analysis Result A2-SMB05-PILE-004-P 99-03184-4
NITROAROMATICS AND NITROAMINES [a]					
Dilution Factor				1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	0.3	0.58
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	0.3	0.60
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.26	<0.26
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26
HMX	8330	mg/kg	0.25	0.90	1.4
NITROBENZENE	8330	mg/kg	0.25	<0.26	<0.26
3-NITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26
RDX	8330	mg/kg	0.25	0.51	0.81
TETRYL	8330	mg/kg	0.25	<0.26	<0.26
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	1.5	1.9
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	1.9	5.31
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.26	<0.26

PQL: Practical Quantitation Limit. MDL: Method Detection Limit. CRDL: Contract Required Detection Limit

N.D.: Not Detected or less than the practical quantitation limit. "-": Analysis is not required.

J: Reported between PQL and MDL.

† All results are reported on dry basis for soil samples.

Listed Dilution Factors (DF) are relative to the method default DF. All unlisted DFs are 1.0

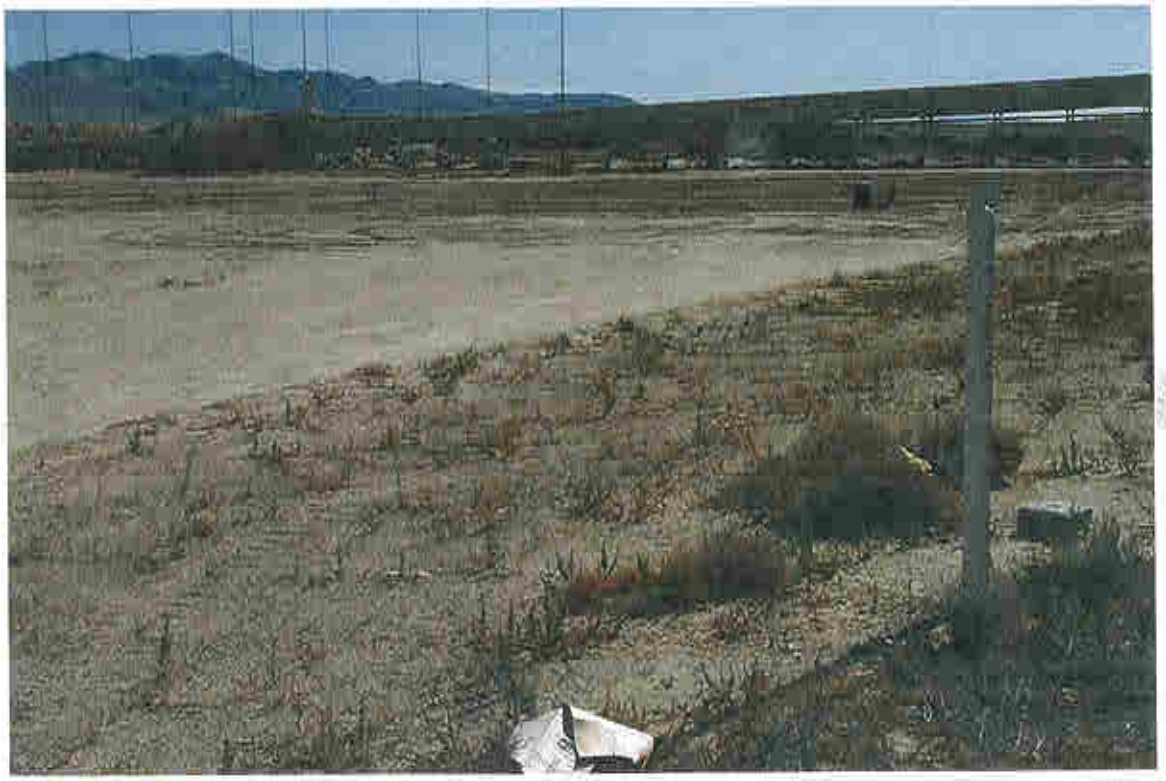
[a] Positive results had been confirmed by second column.

Respectfully submitted,

Dominic Lau
Laboratory Director
Applied P & Ch Laboratory

Appendix E

B05, View toward south. #R1-P29, 9/1/93



August 1999