

DECISION DOCUMENT  
102-51 Catchment Pit, SWMU B-33  
Hawthorne Army Depot  
Hawthorne, Nevada  
February 2000

102-51  
172-23-00

**1. PURPOSE of DECISION DOCUMENT**

**1.1 Introduction**

This decision document describes the rationale for the remedial action at, and closure of, Solid Waste Management Unit (SWMU) B33, 102-51 Catchment Pit, at the Hawthorne Army Depot (HWAD), Hawthorne, Nevada. This decision document was developed by the U.S. Army Corps of Engineers, Sacramento District (USACE), and the HWAD, and Day & Zimmermann Hawthorne Corporation, with support from the Nevada Department of Conservation and Natural Resources, Division of Environmental Protection (NDEP).

**1.2 Site Description and Background**

SWMU B-33 is a rainwater collection pit located south of Building 102-51. It is designed to prevent rainwater from entering this building. The impoundment measures 25 by 25 by 12 feet deep. The pit looks new and shows no sign of use or erosion.

The use and operating practices for the impoundment are unknown. No visible evidence of stained soils or of a contaminant release exists as noted by the US Army Environmental Hygiene Agency (USAEHA) survey team (USAEHA 1987 and 1988). SWMU B-33 has never been permitted and has not gone through a formal RCRA closure. USAEHA estimated the depth to groundwater in the vicinity of SWMU B-33 at 100 feet bgs (USAEHA 1987). No monitoring wells have been completed in the SWMU vicinity to confirm the depth to groundwater or the water quality.

**2. SUMMARY of SITE RISK**

The detected metals concentrations are below the soil remediation criteria and are within background ranges. Nitroaromatics were not detected in any of the samples. Based on these analytical results and visual observations, it appears that this impoundment has not been used for waste water discharges containing metals or explosives.

**3. SUMMARY of REMEDIAL INVESTIGATIONS and REMEDIAL ACTIONS**

**3.1.1 Remedial Investigations**

The investigative approach at SWMU B-33 included collection and analysis of surface and subsurface soil and groundwater samples. However, due to the limitations of cone penetrometer (CPT) sampling, no groundwater samples were collected. Table 1 summarizes the sampling strategy and Figure 3-9 illustrates the sample locations.

**Table 1**

<b>Sample Methodology</b>	<b>Number of Locations</b>	<b>Number of Samples</b>
Surface soil	1	1
Hand Auger	1	1
CPT Soil Samples	1	1

The CPT investigation of SWMU B-33 was performed adjacent to the impoundment and on its downgradient side. One CPT sounding hole and one CPT sampling hole were advanced adjacent to the impoundment. One CPT soil sample was collected at this SWMU at a depth of 11 feet bgs. The CPT soil sample location was selected from the top 18 inches of a fine-grained horizon based on review of CPT Log 3-20 shown on the next page. Additional fine-grained units were identified, however, a review of the CPT sounding log revealed that excessive skin friction and tip resistance would prohibit their sampling. Groundwater was not encountered during CPT sounding. The total depth of the sounding was 65 feet.

One surface soil sample from the bottom of the impoundment and one hand auger sample from 5 feet beneath the bottom of the impoundment were collected at SWMU B-33. These surface and near-surface samples were collected from the lowest elevation in the impoundment where liquids would tend to accumulate. The specific sampling location was selected so that the effect of windblown sands that have accumulated in the impoundment would be minimized.

All soil samples were analyzed for nitrate, ammonium picrate, metals, explosives, and pH.

### **3.1.2 Results**

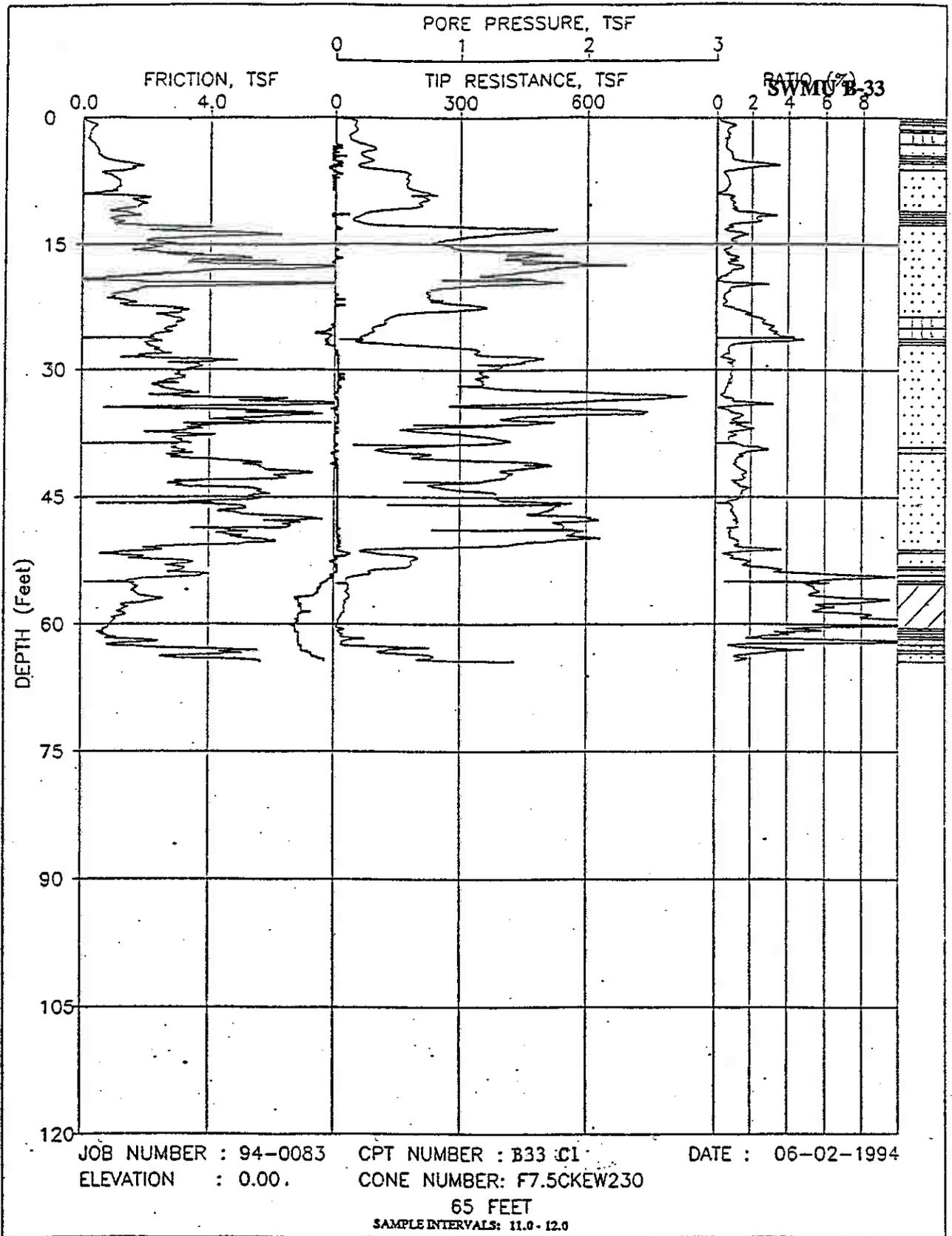
Soils encountered during the investigation of SWMU B-33 were silty sands that graded to gravelly sands in the subsurface. Stained soils were not observed at this SWMU. Surface and near surface soil samples were screened for TNT and RDX. Analytical results for detected compounds and elements are summarized in Table 3.24 at Appendix B.

Arsenic, barium, cadmium, chromium, and lead were detected in the surface soil and five foot depth soil collected from within the impoundment and in the CPT soil sample collected from 11 feet bgs. These metals were detected at low concentrations and are likely within the background range of metals concentrations. No detected concentrations exceeded the proposed closure goals shown at Appendix A.

No nitroaromatic compounds were detected at concentrations above the method detection limit in any of the samples collected.

### **3.2 Remedial Actions**

The pit and associated piping will remain in its current condition as it is designed to prevent rainwater from entering Building 102-51. A photograph of the catchment pit's current condition is attached.



FUGRO GEOSCIENCES, INC

CPT Log 3-20

Cone Penetrometer Test Log B33-C1  
 SWMU B-33, 102 Production Area Impoundment  
 Hawthorne Army Depot

**4. PUBLIC/COMMUNITY INVOLVEMENT**

It is U.S. Department of Defense (DOD) and Army policy to involve the local community throughout the investigation process at an installation. To initiate this involvement, HWAD has established a repository in the local public library which includes final copies of all past studies and documents regarding environmental issues at the facility. This repository will be maintained and updated with all future final documents as they are issued to HWAD.

HWAD has solicited community participation in establishment of the restoration advisory board (RAB). However, because of insufficient public response, HWAD has not formed a RAB. HWAD will continue to solicit community involvement.

**5. CONCLUSIONS and RECOMMENDATIONS**

The detected metals concentrations are below the soil remediation criteria and are likely within background ranges. Nitroaromatics were not detected in any of the samples. Based on these analytical results and visual observations, it appears that this impoundment has not been used for wastewater discharges containing metals or explosives.

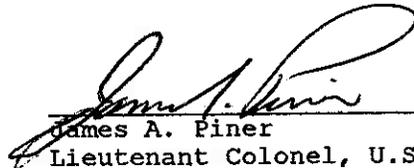
This SWMU will be closed with regard to the chemicals of concern and without land use restrictions.

**6. DECLARATION**

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

U.S. ARMY

21 MAR 2000  
Date

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

STATE OF NEVADA

29 MARCH 2000  
Date

  
Paul Liebendorfer  
Chief, Bureau of Federal Facilities

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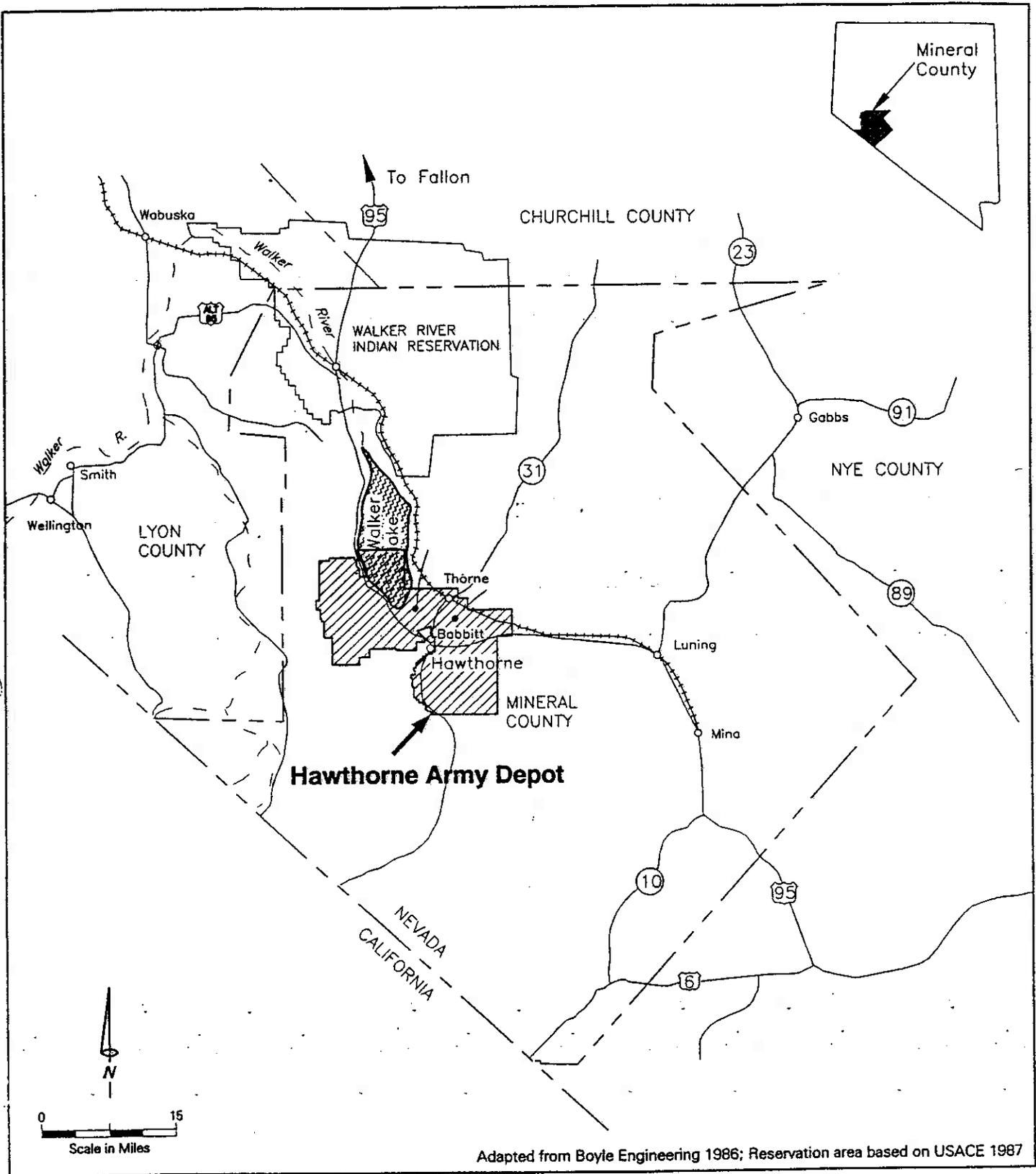
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# Figures



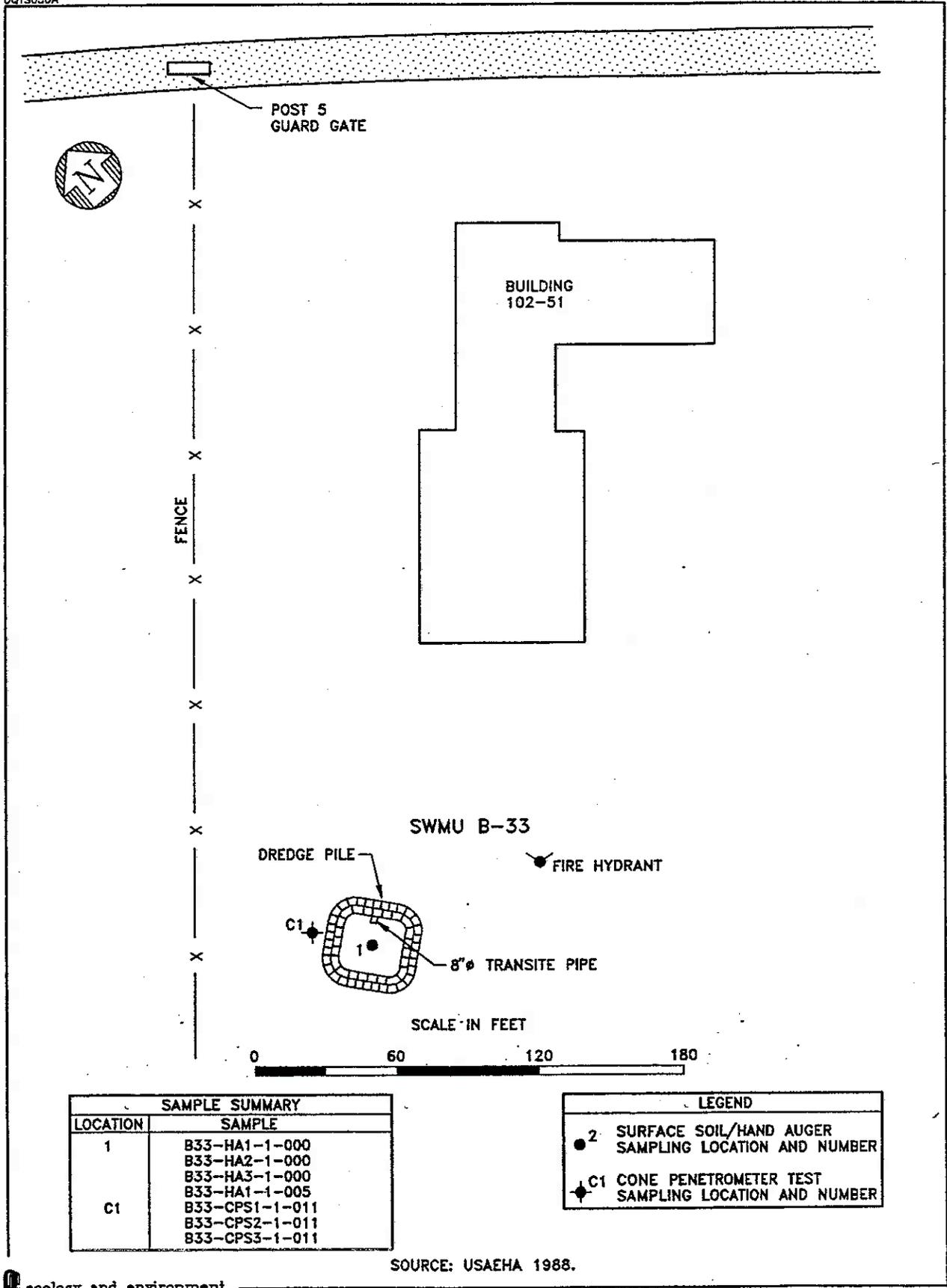
Adapted from Boyle Engineering 1986; Reservation area based on USACE 1987

## Location Map

**Legend**

 Hawthorne Army Depot

Hawthorne Army Depot  
Hawthorne, Nevada



SAMPLE SUMMARY	
LOCATION	SAMPLE
1	B33-HA1-1-000
	B33-HA2-1-000
	B33-HA3-1-000
	B33-HA1-1-005
C1	B33-CPS1-1-011
	B33-CPS2-1-011
	B33-CPS3-1-011

LEGEND	
● 2	SURFACE SOIL/HAND AUGER SAMPLING LOCATION AND NUMBER
◆ C1	CONE PENETROMETER TEST SAMPLING LOCATION AND NUMBER

SOURCE: USAEHA 1988.

Figure 3-9 SAMPLE LOCATIONS AT SWMU B-33, 102 PRODUCTION AREA IMPOUNDMENT HAWTHORNE ARMY DEPOT

# **Appendix A**

**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 <sup>a</sup>
2-Amino-dinitrotoluene	Explosive	NC	-	NA <sup>b</sup>
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 <sup>c</sup>
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 <sup>d</sup>
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 <sup>e</sup>
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 <sup>f</sup>
Polychlorinated biphenyls (PCBs)	PCBs	C	25	TSCA <sup>g</sup>
Bis(2-ethylhexyl)phthalate (DEHP)	SVOC	C	1,600	Calculated Subpart S
Bromoform (tribromomethane)	SVOC	C	89	Calculated Subpart S

## **Appendix B**

Table 3-24

PARAMETERS DETECTED IN SOIL SAMPLES AT SWMU B-33  
CONCENTRATIONS IN mg/kg (ppm)

Sample No./Parameter	B-33 HA1-1-000	B-33 HA2-1-000	B-33 HA1-1-005	B-33 CPSI-1-011	B-33 CPS2-1-011
Job Number	9400.902	9400.902	9400.902	9401.224	9401.224
Sample Depth (feet)	0.5 - 1.0	0.5 - 1.0	2.5 - 3.0	11.0 - 12.0	11.0 - 12.0 (duplicate)
Solids-Total (%)	98	98	98	92	92
pH	7.8 J	7.5 J	9.3 J	NR	7.0
Nitrate-nitrogen	16	18	3.5 J	21	4.5
Metals					
Arsenic	9.0 J	9.4 J	2.7 J	2.2	2.2
Barium	100	99	31	140	130
Cadmium	2.9	4.0	2.0	ND	ND
Chromium (total)	5.0	5.8	3.0	6.1	5.8
Lead	20	21	3.1	5.0	6.3
Mercury	0.28 J	ND	ND	ND	ND
Nitroaromatics					
1,3,5-TNB	ND	ND	ND	ND	R
Picric Acid	ND	UJ	ND	UJ	ND

Key:

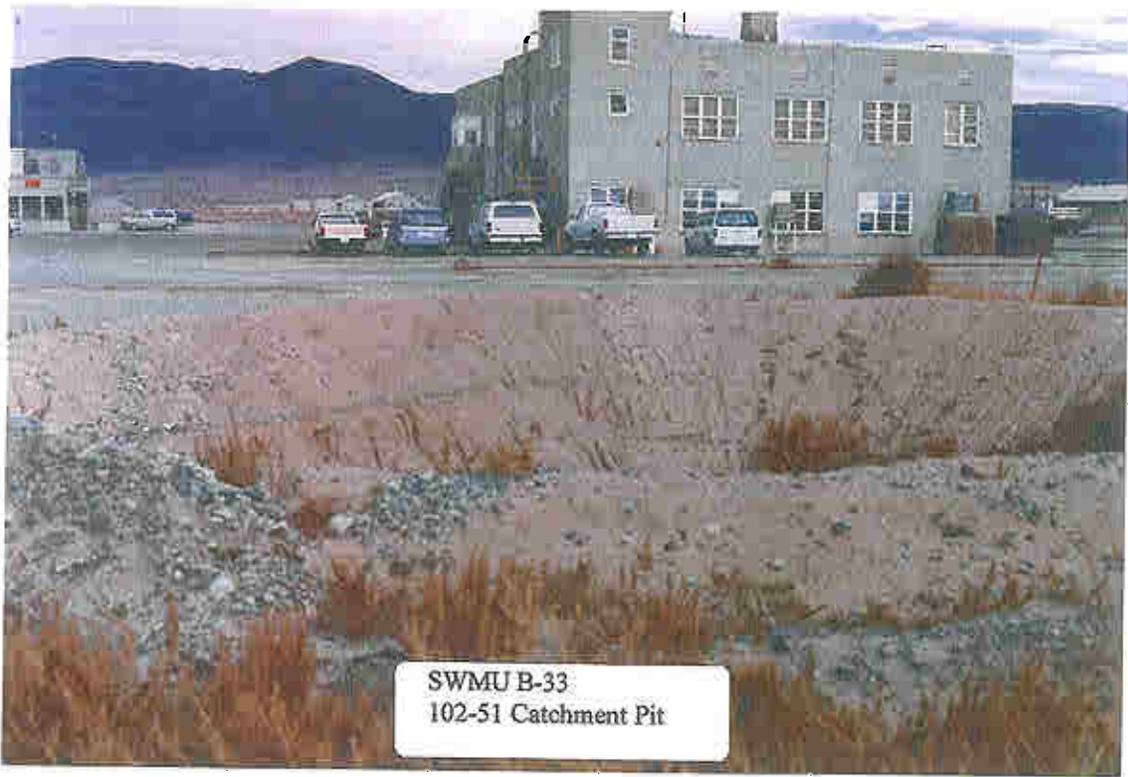
- J - Estimated value.
- JN - Estimated value, analyte not confirmed by alternate procedure.
- ND - Not detected above quantitation limit.
- NR - Not recorded.

## **Appendix C**

### Coordinates and Elevations for the B-33 Sample Locations

<b>Sample Location</b>	<b>Easting</b>	<b>Northing</b>	<b>Elevation (MSL)</b>
B33-C1	492841.371	1391349.855	4144.847
B33-H1	492853.698	1391326.453	4137.100

# **Appendix D**



SWMU B-33  
102-51 Catchment Pit