

Final Closure Decision Document
Skeet Range, K11
Hawthorne Army Depot

DECISION DOCUMENT
Skeet Range – K11
Hawthorne Army Depot
Hawthorne, Nevada
January 2003

1. PURPOSE OF DECISION DOCUMENT

1.1 Introduction

This decision document describes the rationale for the closure of Skeet Range – K11 at the Hawthorne Army depot (HWAD), Hawthorne, Nevada. This decision document was prepared by the U.S. Army Corps of Engineers (USACE), Sacramento District and HWAD, with support from the Nevada Division of Environmental Protection (NDEP), Conservation and Natural Resources Department.

1.2 Site Description and Background

The Skeet Range – K11 site is located in the main cantonment area and is approximately 10 acres in size. A skeet range operated on the site during the 1960s for several years. All buildings and structures associated with the skeet range operations have since been removed. The firing line is still evident. Clay pigeons fragments were observed extending out, in a fan-like pattern, 200 feet from the firing line. The shot characteristics (type and size) are unknown. Lead shot was not evident on close inspection of the soil. Post housing is located adjacent to the site and access to the site is not restricted in any way.

1.3 Chemicals of Concern

The chemicals of concern at Skeet Range – K11 are total metals associated with munitions at firing ranges (arsenic, chromium, copper, and lead).

2. SUMMARY OF SITE RISK

The site was evaluated using the Relative Risk Site Evaluation (RRSE) criteria and the score was low. The results of laboratory analyses show that no cadmium or chromium were detected in any of the soil samples collected at this site. Arsenic and lead were detected at levels below the background levels and far below the soil remediation criteria. The maximum lead concentration detected was 9.8 mg/kg. The remediation criterion for lead in soil is 400 mg/kg.

3. SUMMARY OF INVESTIGATION

3.1 Relative Risk Site Evaluation (RRSE)

A Hazardous and Medical Waste Study and Relative Risk Site Evaluation were conducted at HWAD in July 2000. The purpose of the relative risk evaluation was to provide sufficient data to score five HWAD sites, including the Skeet Range – K11 site. The current Defense Environmental Restoration Program (DERP) management guidance requires that all sites eligible for cleanup must be scored and ranked to determine the degree of potential risk. The process combines information about the level of contamination, the possibility of contamination migration, and the probability that the contamination will be contacted by people and by ecologically sensitive receptors, to qualitatively address the risk each site potentially presents.

The U.S. Army Environmental Center maintains the Defense Site Environmental Restoration Tracking System (DSERTS) to track the Army's environmental sites and their status. Sites must be scored under the RRSE prior to being entered into the DSERTS database.

3.2 Actual Investigation

Twelve four-point composite surface soil samples were collected and used to evaluate the soil pathway. Samples were collected from the expected shot fall zone located between 300 feet to 600 feet from the firing line. All samples were analyzed for total metals: arsenic, chromium, copper, and lead. The results are tabulated in Appendix B - Analytical Data and show that all results are lower than proposed closure goals.

4. CONCLUSIONS AND RECOMMENDATIONS

The HWAD proposed closure goals for all analytes are listed in Appendix A. These closure goals were used in evaluating the detected chemicals. All analytical results for the total metals were either non-detects or at background levels. Based upon the data analysis, the concentrations of metals within the former Skeet Range indicate that the site was not adversely impacted. It is recommended that the site be closed with respect to the chemicals of concern and without land use restrictions.

5. PUBLIC INVOLVEMENT

It is 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 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.

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.

US Army

26 Mar 03

Date

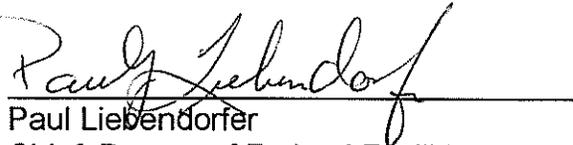


David W. Dornblaser
Lieutenant Colonel, US Army
Commanding

State of Nevada

6 May 03

Date



Paul Liebendorfer
Chief, Bureau of Federal Facilities

REFERENCES

EPA, 2001, U.S. Environmental Protection Agency, Region IX, Region 9 Preliminary Remediation Goals (PRGs).

HWAD, 2000, Hawthorne Army Depot, Memorandum, Subject: Request for Relative Risk Assessment on Sites at Hawthorne Army Depot, Hawthorne, Nevada.

ODUSD, 1994, Office of the Deputy Under Secretary of Defense (Environmental Security), Management Guidance for Execution of the FY 94/95 and Development of the FY96 Defense Environmental Restoration Program.

ODUSD, 1995, Office of the Deputy Under Secretary of Defense (Environmental Security), Revised Draft Relative Risk Site Evaluation Primer.

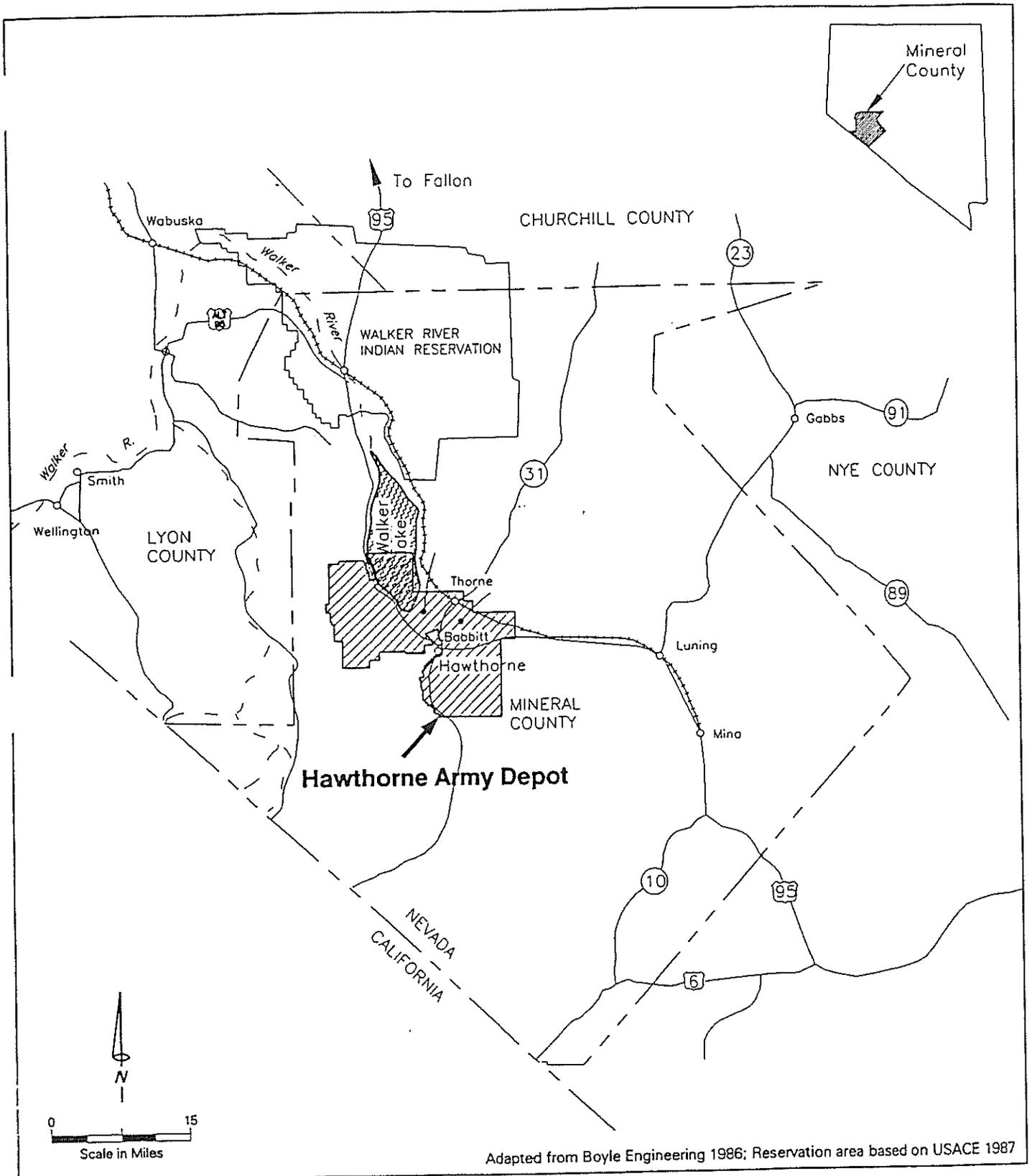
U.S. Army Center for Health Promotion and Prevention Medicine, 2000, Hazardous and Medical Waste Study No. 37-EF-5917-00, Relative Risk Site Evaluation, Hawthorne Army Depot, Nevada, 25-27 July 2000.

SEE SUMMARY FOR COPY

USACHPPM, 1996, United States Army Center for Health Promotion and Preventive Medicine, Information Paper: Estimation of Ground water Contamination Levels from Soil Data.

USACOE, 1998, U.S. Army Corps of Engineers, Final Remedial Investigation Report, Solid Waste Management Unit H04, Navyside Landfill, Hawthorne Army Depot, Hawthorne, NV, December.

FIGURES

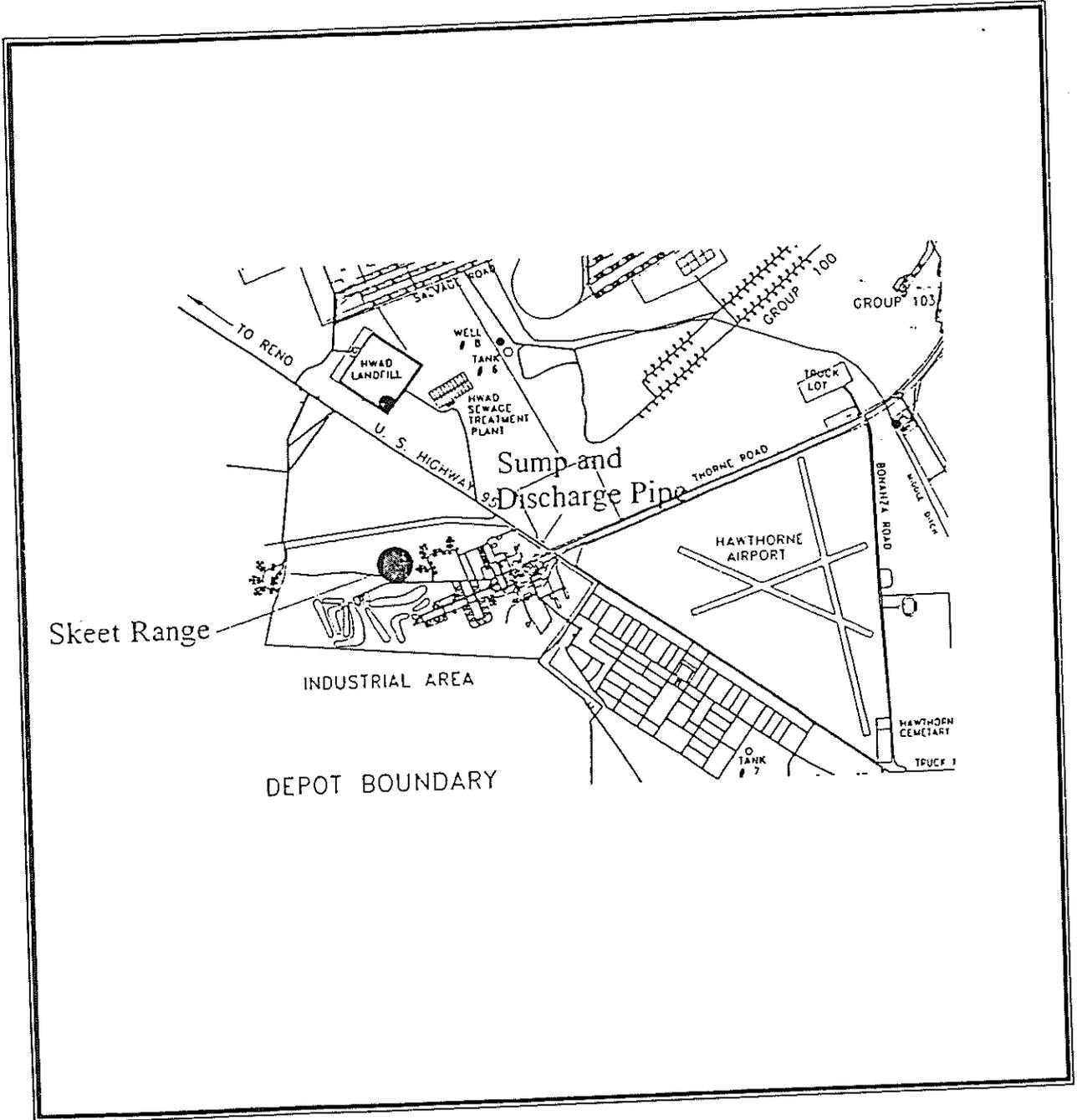


Location Map

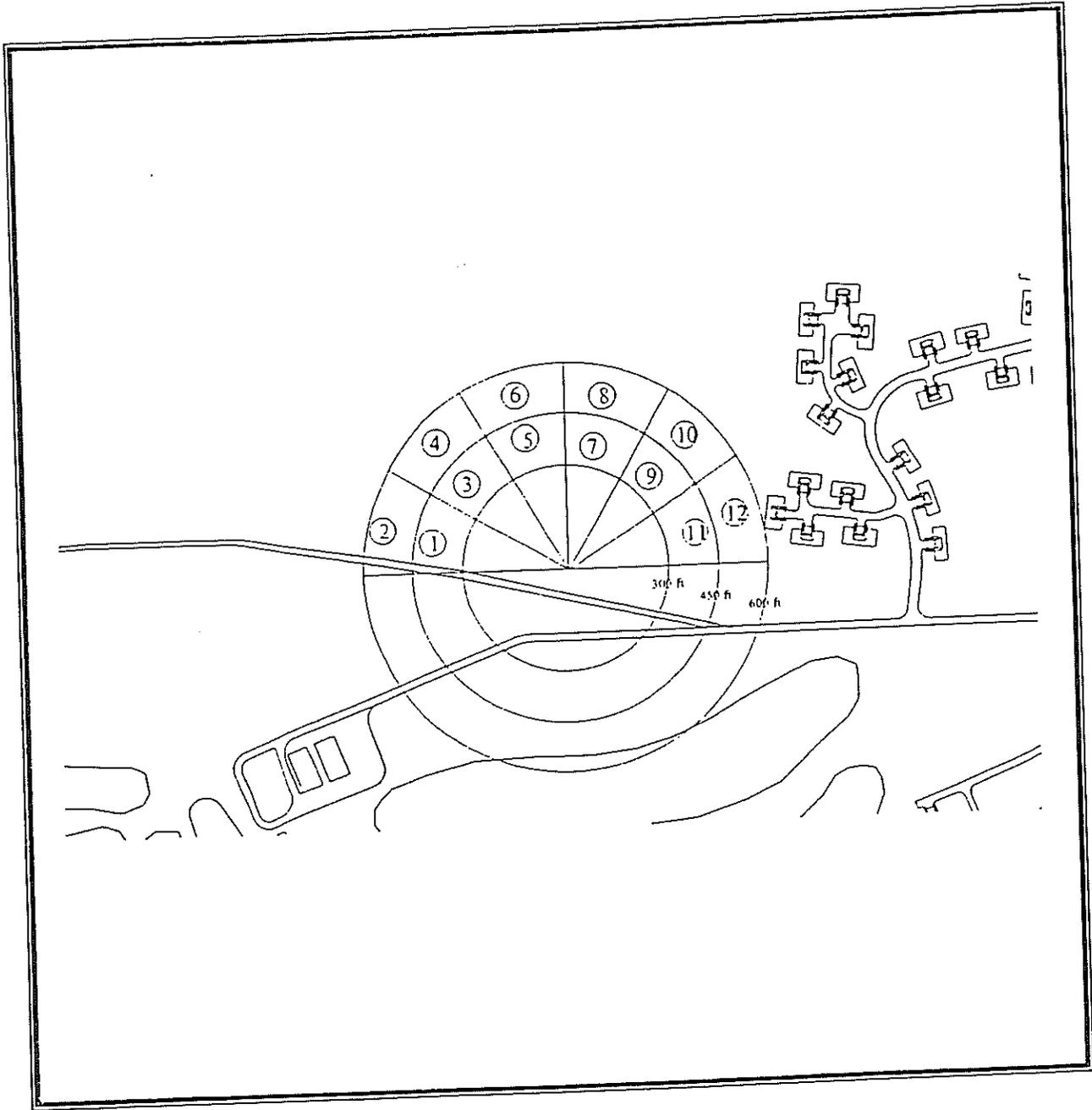
Legend

 Hawthorne Army Depot

Hawthorne Army Depot
Hawthorne, Nevada



Locations of Skeet Range, Sump and Discharge Pipe



Former Skeet Range with Sample Grid. The Numbered grids represent sample points.

APPENDIX A

PROPOSED CLOSURE GOALS



PLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY

Hawthorne Army Depot
1 South Maine Avenue
Hawthorne, NV 89415-9404

Operations Review Division

16 JUL 2001

Mr. Ken Scarbrough
Division of Environmental Protection
Bureau of Federal Facilities
333 West Nye Lane
Carson City, Nevada 89706-0851

Dear Mr. Scarbrough

Proposed PRG (preliminary remediation goal) values for use at Hawthorne Army Depot.

The US Army Corps of Engineers has reviewed remediation goals for explosives contaminated soil at the Hawthorne Army Depot. We understand that these values were established by NDEP in January 1996 using the best available data from various sources. However, a recent review of these levels indicates that they may no longer be appropriate in lieu of changes to the Nevada Administrative Code. NAC 445A.2272 addresses soil action levels for contaminated sites. The Army believes that the EPA Region IX PRG values are applicable to the HWAD. Residential and industrial values should be appropriately applied depending on current and future land use.

The Army therefore requests your approval for adopting the EPA Region IX PRG values as shown in the enclosed table.

If you have any questions or need additional information, please feel free to contact Mr. Jim Lukasko or Ms. Sophie Ngu at 916-557-5392/7153, respectively.

Point of contact is Mr. Herman Millsap, SMAHW-OR, (775) 945-7317.

Sincerely,

SIGNED

Vernon L. Shankle, P.E.
Chief, Operations Review Division

Enclosure

Copies Furnished:

Sacramento District, Corps of Engineers, 1325 J St, CESP-K-PM-H/(Ms. Sophie Ngu), CESP-K-ED-
EF/(Mr. Jim Lukasko), Sacramento, California 95814-2922

ORIGINATOR Millsap DATE 16 July 2001

Hawthorne Army Depot				
Contaminant	CASNo.	NDEP established	Proposed	
		Soil Action Level,	EPA PRG table dated 11/01/00	
		January 1996	R-PRG's	I-PRG's
		PCG	mg/kg	mg/kg
		mg/kg	mg/kg	mg/kg
1,1,1-Trichloroethane	71-55-6	7200	630	1400
1,1,2,2-Tetrachloroethane	79-34-5	35	0.38	0.9
1,2,3-Trichloropropane	96-18-4	480	0.0014	0.0031
1,2-Dibromoethane (EDB)	106-93-4	0.008	0.0069	0.048
1,2-Dichlorobenzene	95-50-1	7200	370	370
1,3,5-Trinitrobenzene	99-35-4	4	1800	26000
1,3-Dinitrobenzene	99-65-0	8	6.1	88
1,4-Dichlorobenzene	106-46-7	150	3.4	8.1
2,3,7,8-TCDD	1746-01-6	0.000005	0.0000039	0.000027
2,4,6-Trinitrotoluene	1180-96-7	233	16	82
2,4-Dinitrotoluene	121-14-2	2.6	120	1800
2,6-Dinitrotoluene	606-20-2	80	61	880
m-Nitrotoluene	88-72-2	800	370	1000
o-Nitrotoluene	99-08-1	800	370	1000
p-Nitrotoluene	99-99-0	800	370	1000
Acenaphthene	83-32-9	4800	N/A	N/A
Acetone	67-64-1	800	1600	6200
Aluminum	7429-90-5	80000	76000	100000
Anthracene	120-12-7	24000	N/A	N/A
Aroclor-1016	12674-11-2	25	3.9	29
Aroclor-1221	11104-28-2	25	0.22	1
Aroclor-1232	11141-16-5	25	0.22	1
Aroclor-1242	53469-21-9	25	0.22	1
Aroclor-1248	12672-29-6	25	0.22	1
Aroclor-1254	11097-96-1	25	0.22	1
Aroclor-1260	11096-82-5	25	0.22	1
Arsenic	7440-38-2	100	22	440
Barium	7440-39-3	2000	5400	100000
Benzene	71-43-2	10	0.65	1.5
Benzo(a)anthracene	56-55-3	0.96	N/A	N/A
Benzo(a)pyrene	50-32-8	0.1	N/A	N/A
Benzo(b)fluoranthene	205-99-2	0.96	N/A	N/A
Benzo(k)fluoranthene	207-08-9	10	N/A	N/A
Beryllium	7440-41-7	1	150	2200
bis(2-Chloroisopropyl)-ether	108-60-1	3200	2.9	8.1
bis(2-Ethylhexyl)-phthalate	117-81-7	1600	35	180
Bromoform	75-25-2	89	62	310
Bromomethane	74-83-9	112	3.9	13
Butyl benzyl phthalate	85-68-7	16000	12000	100000
C11-C22 (Diesel)	68834-30-5	100	N/A	N/A
Cadmium	7440-43-9	20	37	810
Carbon tetrachloride	56-23-5	10	0.24	0.53
Chlorobenzene	108-90-7	2000	150	540
Chloroform	67-66-3	120	0.24	0.52
Chloromethane	74-87-3	538	1.2	2.7
Chromium	7440-47-3	20	210	450
Chrysene	218-01-9	96	N/A	N/A
Dibenz(a,h)anthracene	53-70-3	0.96	N/A	N/A
Dibromochloromethane	124-48-1	83	1.1	2.7
Dibromomethane	74-95-3	800		
Dibutyl-phthalate	84-74-2	8000	6100	88000

Hawthorne Army Depot		NDEP established Soil Action Level, January 1996	Proposed	
Contaminant	Casno		EPA PRG table dated 11/01/00	
		PCG mg/kg	R-PRG's mg/kg	I-PRG's mg/kg
Dichlorodifluoromethane	75-71-8	16000	94	310
Diesel Fuel	11-84-7	100	N/A	N/A
Diethyl phthalate	84-66-2	64000	49000	100000
Ethylbenzene	100-41-4	8000	230	230
Fluoranthene	206-44-0	3200	N/A	N/A
Fluorene	86-73-7	3200	N/A	N/A
HMX	2691-41-0	4000	3100	44000
Lead	7439-92-1	100	400	750
m- & p-Xylene(s)	TT015	160000	N/A	N/A
Mercury	7439-97-6	24	23	610
Methylene Chloride	75-09-2	4800	8.9	21
Naphthalene	91-20-3	3200	N/A	N/A
Nitrate as N	14797-55-8	128000	N/A	N/A
Nitrobenzene	98-95-3	40	20	110
o-Xylene	95-47-6	160000	N/A	N/A
Phenol	108-95-2	48000	37000	100000
Picric Acid	88-89-1	7	N/A	N/A
Pyrene	129-00-0	2400	N/A	N/A
RDX	121-82-4	64	4.4	22
Selenium	7782-49-2	20	390	10000
Silver	7440-22-4	100	390	10000
Tetrachloroethene	127-18-4	15	5.7	19
Tetryl	479-45-8	800	N/A	N/A
Toluene	108-88-3	16000	520	520
Total xylenes	1330-20-7	160000	N/A	N/A
Xylenes	79-01-6	10	210	210
Trichlorofluoromethane	75-69-4	24000	390	2000
Vinyl chloride	75-01-4	24000	0.15	0.83

- ✓ Nitrobenzene
- ✓ 4-Amino-2,6-dinitrotoluene (4-Amino-DNT)
- ✓ 2-Amino-4,6-dinitrotoluene (2-Amino-DNT)

APPENDIX B
ANALYTICAL DATA

DLS Final Analytical Report, HAWTHORNE

Program 37, SUBJONO 5917, DLS WO# 1279, Report Serial No. 55298, 8/25/00

Field ID: SK-1

DLS ID: 1279024

ANALYTE	RESULTS	REPORTING UNIT	ANALYTICAL METHOD	LAB USE	DATE ANALYZED
Arsenic	1.83 mg/Kg		EPA 7060	0028	22-Aug-00
Cadmium	<2.04 mg/Kg	2.04	SW-846/EPA 6010B	0025	16-Aug-00
Chromium	<5.08 mg/Kg	5.08	SW-846/EPA 6010B	0025	16-Aug-00
Lead	6.30 mg/Kg		SW-846/EPA 6010B	0025	16-Aug-00

DLS Final Analytical Report, HAWTHORNE

Program 37, SUBJONO 5917, DLS WO# 1279, Report Serial No. 55298, 8/25/00

Field ID: SK-10

DLS ID: 1279033

PARAMETER	RESULTS	REPORTING UNIT	ANALYTICAL METHOD	ANALYST	DATE ANALYZED
Arsenic	1.81 mg/Kg		EPA 7060	0028	22-Aug-00
Cadmium	<1.99 mg/Kg	1.99	SW-846/EPA 6010B	0025	16-Aug-00
Chromium	<4.97 mg/Kg	4.97	SW-846/EPA 6010B	0025	16-Aug-00
Lead	7.35 mg/Kg		SW-846/EPA 6010B	0025	16-Aug-00

DLS Final Analytical Report, HAWTHORNE

Program 37, SUBJONO 5917, DLS WO# 1279, Report Serial No. 55298, 8/25/00

Field ID: SK-2

DLS ID: 1279025

ANALYTE	RESIDUAL IN	METAL/ METALLOID REPORTING UNIT	ANALYTICAL METHOD	LAB NO.	DATE ANALYZED
Arsenic	1.80 mg/Kg		EPA 7060	0028	22-Aug-00
Cadmium	<1.99 mg/Kg	1.99	SW-846/EPA 6010B	0025	16-Aug-00
Chromium	<4.99 mg/Kg	4.99	SW-846/EPA 6010B	0025	16-Aug-00
Lead	6.80 mg/Kg		SW-846/EPA 6010B	0025	16-Aug-00

DLS Final Analytical Report, HAWTHORNE
 Program 37, SUBJONO 5917, DLS WO# 1279, Report Serial No. 55298, 8/25/00

Field ID: SK-3

DLS ID: 1279026

CONCENTRATION	REPORTING UNIT	METHOD	ANALYST	DATE ANALYZED	
Arsenic	2.00 mg/Kg		EPA 7060	0028	22-Aug-00
Cadmium	<2.00 mg/Kg	2.00	SW-846/EPA 6010B	0025	16-Aug-00
Chromium	<5.00 mg/Kg	5.00	SW-846/EPA 6010B	0025	16-Aug-00
Lead	9.71 mg/Kg		SW-846/EPA 6010B	0025	16-Aug-00

DLS Final Analytical Report, HAWTHORNE

Program 37, SUBJONO 5917, DLS WO# 1279, Report Serial No. 55298, 8/25/00

Field ID: SK-4

DLS ID: 1279027

ANALYTE	RESULTS	METHOD	ANALYSIS	LAB	DATE ANALYZED
Arsenic	1.40 mg/Kg		EPA 7060	0028	22-Aug-00
Cadmium	<2.00 mg/Kg	2.00	SW-846/EPA 6010B	0025	16-Aug-00
Chromium	<4.99 mg/Kg	4.99	SW-846/EPA 6010B	0025	16-Aug-00
Lead	7.00 mg/Kg		SW-846/EPA 6010B	0025	16-Aug-00

DLS Final Analytical Report, HAWTHORNE
 Program 37, SUBJONO 5917, DLS WO# 1279, Report Serial No. 55298, 8/25/00

Field ID: SK-5

DLS ID: 1279028

ANALYTE	RESULTS (MG/KG)	RECOVERY (%)	ANALYTICAL METHOD	ANALYST	DATE ANALYZED
Arsenic	1.90 mg/Kg		EPA 7060	0028	22-Aug-00
Cadmium	<2.00 mg/Kg	2.00	SW-846/EPA 6010B	0025	16-Aug-00
Chromium	<4.99 mg/Kg	4.99	SW-846/EPA 6010B	0025	16-Aug-00
Lead	7.11 mg/Kg		SW-846/EPA 6010B	0025	16-Aug-00

DLS Final Analytical Report, HAWTHORNE

Program 37, SUBJONO 5917, DLS WO# 1279, Report Serial No. 55298, 8/25/00

Field ID: SK-6

DLS ID: 1279029

ANALYTE	CONCENTRATION	REFERENCE LIMIT	ANALYTICAL METHOD	DATE	LABORATORY
Arsenic	1.70 mg/Kg		EPA 7060	0028	22-Aug-00
Cadmium	<1.99 mg/Kg	1.99	SW-846/EPA 6010B	0025	16-Aug-00
Chromium	<4.96 mg/Kg	4.96	SW-846/EPA 6010B	0025	16-Aug-00
Lead	6.86 mg/Kg		SW-846/EPA 6010B	0025	16-Aug-00

DLS Final Analytical Report, HAWTHORNE
 Program 37, SUBJONO 5917, DLS WO# 1279, Report Serial No. 55298, 8/25/00

Field ID: SK-7

DLS ID: 1279030

ANALYTE	RESULTS	APPROX. CONC. (PPM)	ANALYTICAL METHOD	ANALYST	DATE ANALYZED
Arsenic	1.60 mg/Kg		EPA 7060	0028	22-Aug-00
Cadmium	<2.00 mg/Kg	2.00	SW-846/EPA 6010B	0025	16-Aug-00
Chromium	<5.00 mg/Kg	5.00	SW-846/EPA 6010B	0025	16-Aug-00
Lead	6.90 mg/Kg		SW-846/EPA 6010B	0025	16-Aug-00

DLS Final Analytical Report, HAWTHORNE

Program 37, SUBJONO 5917, DLS WO# 1279, Report Serial No. 55298, 8/25/00

Field ID: SK-8

DLS ID: 1279031

ANALYTE	RESULTS	REPORTING UNIT	ANALYTICAL METHOD	LAB ID	DATE ANALYZED
Arsenic	1.60 mg/Kg		EPA 7060	0028	22-Aug-00
Cadmium	<2.00 mg/Kg	2.00	SW-846/EPA 6010B	0025	16-Aug-00
Chromium	<4.99 mg/Kg	4.99	SW-846/EPA 6010B	0025	16-Aug-00
Lead	6.11 mg/Kg		SW-846/EPA 6010B	0025	16-Aug-00

DLS Final Analytical Report, HAWTHORNE
 Program 37, SUBJONO 5917, DLS WO# 1279, Report Serial No. 55298, 8/25/00

Field ID: SK-9

DLS ID: 1279032

CONCENTRATION	RESULTS	REFERENCE LIMIT	METHOD	ANALYST	DATE ANALYZED
Arsenic	1.70 mg/Kg		EPA 7060	0028	22-Aug-00
Cadmium	<1.99 mg/Kg	1.99	SW-846/EPA 6010B	0025	16-Aug-00
Chromium	<4.97 mg/Kg	4.97	SW-846/EPA 6010B	0025	16-Aug-00
Lead	5.97 mg/Kg		SW-846/EPA 6010B	0025	16-Aug-00

DLS Final Analytical Report, HAWTHORNE

Program 37, SUBJONO 5917, DLS WO# 1279, Report Serial No. 55298, 8/25/00

Field ID: SK-11

DLS ID: 1279034

ANALYTE	RESULTS	METHOD REPORTING DATE	ANALYTICAL METHOD	ANALYST	DATE
Arsenic	2.13 mg/Kg		EPA 7060	0028	22-Aug-00
Cadmium	<2.13 mg/Kg	2.13	SW-846/EPA 6010B	0025	16-Aug-00
Chromium	<5.32 mg/Kg	5.32	SW-846/EPA 6010B	0025	16-Aug-00
Lead	9.80 mg/Kg		SW-846/EPA 6010B	0025	16-Aug-00

DLS Final Analytical Report, HAWTHORNE
 Program 37, SUBJONO 5917, DLS WO# 1279, Report Serial No. 55298, 8/25/00

Field ID: SK-12

DLS ID: 1279035

ANALYTE	RESIDUALS	METHOD	ANALYTICAL METHOD	ANALYST	DATE ANALYZED
Arsenic	1.80 mg/Kg		EPA 7060	0028	22-Aug-00
Cadmium	<1.99 mg/Kg	1.99	SW-846/EPA 6010B	0025	16-Aug-00
Chromium	4.99 mg/Kg		SW-846/EPA 6010B	0025	16-Aug-00
Lead	9.58 mg/Kg		SW-846/EPA 6010B	0025	16-Aug-00