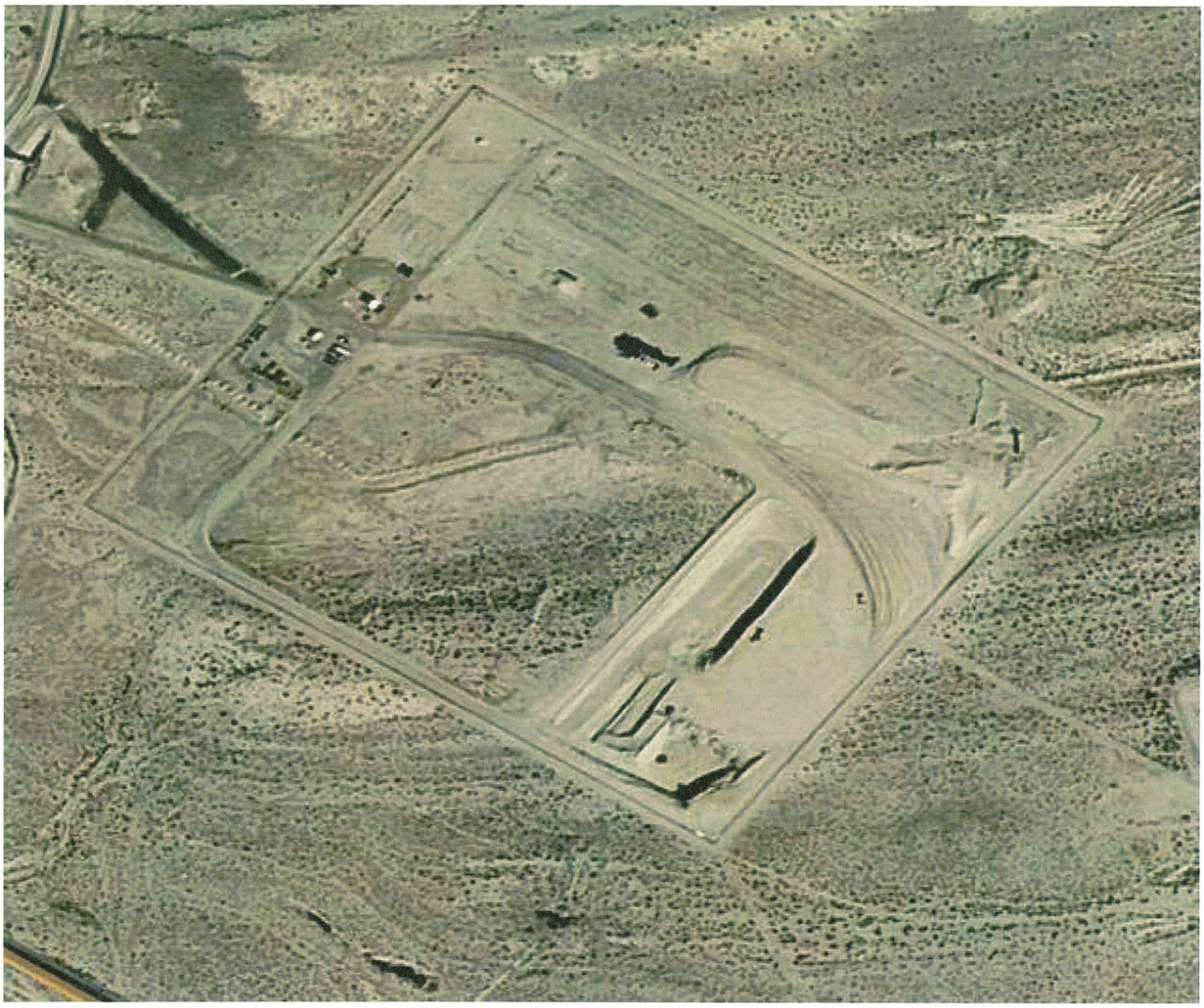
FINAL SWMU K10 DECISION DOCUMENT

SWMU K10: Buried Paint Remediation

December 2011
Version 00

Hawthorne Army Depot
Hawthorne, Nevada

U.S. Army Corps of Engineers - Sacramento District
Contract W91238-06-D-0019
Task Order 0004



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FINAL

DECISION DOCUMENT
SWMU K10: Buried Paint Remediation

Hawthorne Army Depot, Nevada

Contract No. W91238-06-D-0019

December 2011

Prepared for:

US Army Environmental Command

Hawthorne Army Depot
Hawthorne, Nevada

Prepared by:

US Army Corps of Engineers
Sacramento District

and

Bay West, Inc.
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St. Paul, Minnesota
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TABLE OF CONTENTS

1.0 INTRODUCTION 1-1
1.1 Site Name and Location 1-1
1.2 Statement of Basis and Purpose 1-1
1.3 Description of Selected Remedy 1-1
1.4 Regulatory Setting 1-1
1.5 Authorizing Signatures 1-2

2.0 DECISION SUMMARY 2-1
2.1 Site Name, Location, and Description 2-1
2.2 Physical Setting 2-1
2.3 Investigation History 2-1
2.4 Nature and Extent of Contamination 2-4
2.5 Decommissioning Activities 2-5

3.0 CONCLUSIONS 3-1

4.0 REFERENCES 4-1

List of Tables

Table 2-1 Summary of Actions at SWMU K10 2-2
Table 3-1 Site Evaluation for SWMU K10 3-1

List of Figures

Figure 1 Regional Location Map
Figure 2 Site Location Map

List of Attachments

Attachment 1 - Initial Excavation Dimensions and Surface Conditions
Attachment 2 - 2000 U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) Evaluation Analytical Data
Attachment 3 - NDEP SWMU K10 Buried Paint Remediation Approval Letter
Attachment 4 - Confirmation Sampling Details and Locations
Attachment 5 - Stockpile Footprint Confirmation Sample Locations and Results
Attachment 6 - 2005 Secor Buried Paint Remediation Analytical Data
Attachment 7 - 2005 Buried Paint Remediation Analytical Data vs. Industrial RSLs

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ACRONYMS

µg/L ..... micrograms per Liter
Army ..... United States Army Environmental Command
bgs ..... below ground surface
COPC ..... Chemicals of Potential Concern
CS ..... Clean Stockpile
DS ..... Dirty Stockpile
HWAAP ..... Hawthorne Army Ammunition Plant
HWAD ..... Hawthorne Army Depot
IDW ..... Investigation-Derived Waste
mg/kg ..... milligrams per kilogram
NDEP ..... Nevada Division of Environmental Protection
NFA ..... No Further Action
PCBs ..... Polychlorinated Biphenyl
ppm ..... parts per million
PRGs ..... Preliminary Remediation Goals
RCRA ..... Resource Conservation and Recovery Act
RSL ..... Regional Screening Level
Secor ..... Secor International, Inc.
SVOC ..... Semi-volatile Organic Compound
SWMU ..... Solid Waste Management Unit
TC ..... Tar Casings
TCLP ..... Toxicity Characteristic Leaching Procedure
USACE ..... United States Army Corps of Engineers
USACHPPM ..... United States Army Center for Health Promotion and Preventive Medicine
USEPA ..... United States Environmental Protection Agency
VOC ..... Volatile Organic Compound

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1.0 INTRODUCTION

1.1 Site Name and Location

Facility Name: Hawthorne Army Depot

Site Location: Hawthorne, Nevada

Operable Unit/Site: Solid Waste Management Unit (SWMU) K10

1.2 Statement of Basis and Purpose

This Decision Document describes the rationale for the selected remedy of No Further Action (NFA) at SWMU K10 at Hawthorne Army Ammunition Plant (HWAAP), hereafter referred to as SWMU K10 (**Figure 1**).

This document is issued by the United States Army Environmental Command (Army) as the lead agency. The Army is managing remediation of contamination at SWMU K10 in accordance with Nevada Division of Environmental Protection (NDEP) guidance.

As the lead agency, the Army has selected the remedy. NDEP concurs with the selected remedy. The United States Environmental Protection Agency (USEPA) defers to NDEP for regulatory oversight of the Environmental Restoration Program at Hawthorne Army Depot (HWAD).

1.3 Description of Selected Remedy

It has been determined that no further action is necessary at SWMU K10. Based on investigative and remedial action results, the Army, with concurrence from NDEP, has determined that no significant risks or threats to human health or the environment exist at this time.

1.4 Regulatory Setting

Remedial investigations of hazardous substances, pollutants, or contaminants at SWMU K10 have been demonstrated to meet the following regulatory criteria:

- Chemicals of Potential Concern (COPCs) are below USEPA industrial soil screening levels (formerly Preliminary Remediation Goals [PRGs]);
- Detected metals concentrations are statistically within HWAD-established background screening levels.

1.5 Authorizing Signatures

This signature sheet documents the Army approval and NDEP concurrence of the remedy selected in the Decision Document for SWMU K10 in HWAD.

This remedy decision may be reviewed and modified in the future if information becomes available that indicates the presence of contamination may cause unacceptable risk to human health or the environment.

20120125

Kirk L. Bausman
Deputy to the Commander
Hawthorne Army Depot

Date

2/28/2012

~~Jim Najima~~ Greg Lovato
Chief, Bureau of Corrective Actions
Nevada Division of Environmental Protection

Date

2.0 DECISION SUMMARY

The Decision Summary identifies the selected remedy, explains how the remedy fulfills statutory and regulatory requirements, and provides a substantive summary of the Administrative Record file that supports the remedy selection decision.

2.1 Site Name, Location, and Description

SWMU K10 is located on the southwest corner of the HWAD Construction Debris Landfill. A map of SWMU K10 at HWAD is shown in **Figure 2**. Several five-gallon containers of paint were unearthed during an expansion of the landfill. The unearthed items are believed to have been buried there sometime during the 1960s or earlier. During the subsequent excavation, excavators encountered a wide range of containers containing Bore Cleaner, oil-based paint, sodium hydroxide, printing inks, laboratory neutralizers, bug repellents, prescription medication droppers, and tar castings.

The final dimensions of the excavation at SWMU K10 were approximately 20 feet by 30 feet by 8 feet deep (Secor, 2006).

2.2 Physical Setting

HWAD is located on the southern shore of Walker Lake, 140 miles southeast of Reno, Nevada. It occupies approximately 150,000 acres of semi-arid land surrounding the Hawthorne community. The town has a resident population of about 5,000. The regional site location is shown in **Figure 1**. The excavation dimensions and surface conditions are shown in **Attachment 1** (Secor, 2006).

Soil in the vicinity of SWMU K10 is silty sand. Groundwater was not encountered during the investigations performed at SWMU K10. Groundwater in the vicinity of SWMU K10 is approximately 100 feet below ground surface (bgs) (Secor, 2006).

2.3 Investigation History

A total of three site investigations and one groundwater monitoring event have been completed at SWMU K10. **Table 2-1** provides a brief summary of these investigations. In 2000, the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) performed a study which involved the collection and analysis of three surface and three subsurface soil samples. Surface soil samples were collected in areas where paint staining was evident. Subsurface soil samples were collected directly below the surface soil sample points. Samples were analyzed for Polychlorinated Biphenyls (PCBs), Semi-volatile Organic Compounds (SVOCs), Volatile Organic Compounds (VOCs), and metals. SVOCs and PCBs were reported below laboratory reporting limits. VOCs were detected below USEPA Region IX PRGs in areas immediately adjacent to the liquid paint residue. A summary of VOC analytical detections is included in **Attachment 2**. Metal concentrations, with the exception of cadmium, were below the highest observed background concentrations. The concentration of cadmium was below the laboratory reporting limit, but the reporting limit was higher than the background concentration. The following summarizes the metals detected during the 2000 USACHPPM study:

- Arsenic, maximum value of 6.25 milligrams per kilogram (mg/kg) (background value 18.1 mg/kg);
- Barium, maximum value of 41 mg/kg (background value of 447 mg/kg);

Table 2-1 Summary of Actions at SWMU K10

Date	Area and Purpose of Investigation	Company	Summary of Actions	Major Findings	Recommendations
2000	SWMU K10, evaluate soil in areas where paint staining was evident.	USACHPPM	Collected three surface soil samples in areas where paint staining was evident. Collected three subsurface soil samples directly below the surface soil sample points. Samples were analyzed for PCBs, SVOCs, VOCs, and metals.	Paint residues do not appear to be migrating and are localized at their immediate burial site.	Additional Assessment
1997-2002	Groundwater monitoring in the vicinity of SWMU K10.	Tetra Tech	Downgradient monitoring wells IRPMW-20 and IRPMW-21.	Dissolved arsenic in IRPMW-21 at concentrations ranging from 112 to 130 micrograms per Liter (µg/L) between 1997 and 2000. Arsenic is not generally associated with paint contamination. No indications that common markers for paint, such as ethylbenzene or xylenes, reached downgradient wells.	
2003	SWMU K10, further define the extent of buried paint.	HWAD and United States Army Corps of Engineers (USACE)	Six pits were dug to further define the extent of buried paint.	Some leaking paint cans found. Site size appeared to be smaller than previously reported (20 feet by 30 feet by 6 feet deep). Leaking paint had not migrated beyond soils immediately adjacent to container. Paint odor noticed when containers were unearthed.	
2005	SWMU K10, investigate the vertical and horizontal extent of impacted soil. Remove visibly impacted soils, existing paint containers, and material that failed to pass through a two-inch square screen.	Secor	Field screened and segregated excavated material. Collected composite samples from stockpiles and soil beneath the dirty stockpile containing material less than two inches in diameter, and confirmation samples from the bottom and sidewalls of the excavation.	Excavation of impacted soil was approximately 20 feet by 30 feet by 8 feet deep.	No additional soil or container removal work.

- Cadmium, maximum value of <2.03 mg/kg (background value 1.08 mg/kg);
- Chromium, maximum value of <5.09 mg/kg (background value 13.76 mg/kg); and
- Lead, maximum value of 8.14 mg/kg (background value of 16.7 mg/kg).

Based on the analytical results reported by the USACHPPM in 2000, the paint residues do not appear to be migrating, and are localized at their immediate burial site (Secor, 2006).

From 1997 to 2002, groundwater sampling was performed in downgradient wells (IRPMW-20 and IRPMW-21). Dissolved arsenic was identified in samples from IRPMW-21. Arsenic is not generally associated with paint contamination, and is most likely the result of background conditions. No other exceedances of action levels were detected in wells IRPMW-20 or IRPMW-21 between 1997 and 2002 (Secor, 2006).

In 2003, HWAD and the United States Army Corps of Engineers (USACE) performed an additional site investigation utilizing a backhoe to dig six pits to further define the extent of buried paint. As identified during the investigation there were some leaking paint cans present, the site appeared to be much smaller than previously reported (perhaps 20 feet by 30 feet to a depth of 6 feet), leaking paint had not migrated beyond soils immediately adjacent to the container, and an odor of paint was noticed when the containers were unearthed (Secor, 2006).

In 2005, SECOR International Inc. (Secor) performed site removal of paint containers and impacted soils. As the excavated material was removed from the pit, it was visually inspected for physical properties and the presence of paint containers. Secor field screened the headspace of selected soil samples to determine the presence or absence of VOCs. Based upon these field observations, the material was placed in the Clean Stockpile (CS) or the Dirty Stockpile (DS) for further processing. Stockpile locations during excavation are shown in **Attachment 1**. After the excavation and separation activities were complete, each stockpile was sampled and analyzed to confirm the appropriate disposal method.

Upon arrival at the site, prior to excavation, the following items were visible at the ground surface:

- Tar castings at the ground surface in the southwest corner of the landfill; and
- Two locations with free liquid (aqueous) paint pooling.

During the field activities, excavators encountered a wide range of potential contaminants previously unanticipated. Some of these containers contained free liquids that were leaking at the time of excavation and some were dry and empty. The following items were encountered below the top one foot of material during field operations:

- (3) one-gallon containers of Bore Cleaner;
- (50) one-pint cans of oil-based paint;
- (86) one-gallon cans of oil-based paint;
- (62) five-gallon cans of oil-based paint;
- (3) one-liter plastic bottles of sodium hydroxide (anhydride salt present);
- (70) one-quart containers of printing inks;
- (400+) ½-pint plastic bottles of laboratory neutralizers;
- (40) two-ounce glass jars of assorted bug repellents and prescription medication droppers;

- (3) one-quart glass bottles of unknown fluids (suspected to be acids and bases); and
- (80) tar castings of various sizes (five-gallon bucket containers, one-gallon bucket containers, and free form tar casts ranging in size).

All excavated material was separated and screened. The *SWMU K10 Buried Paint Remediation After Action Report*, September 2006, prepared by Secor included the following list of Investigation-Derived Waste (IDW) generated during the project:

- Approximately 5 cubic yards of tar castings (TC) stockpile of various shapes and sizes temporarily containerized in (7) 55-gallon DOT drums prior to inspection and subsequent disposal in the adjacent landfill;
- Approximately 70 cubic yards of material less than 2 inches in diameter confirmed clean via laboratory analysis and used on site for excavation backfill and daily cover in the adjacent landfill;
- Approximately 90 cubic yards of soil determined to be hazardous with respect to lead, characterized and subsequently disposed of in the US Ecology hazardous waste cell;
- (33) 55-gallon drums containing paint-impacted soil, paint debris and paint containers transported under the previous characterization and disposed of at the US Ecology hazardous waste cell;
- (2) 70-gallon laboratory overpack drums containing aqueous paint and interbedded soil, also transported and disposed of at the US Ecology hazardous waste cell; and
- (5) 55-gallon drums containing miscellaneous unknown fluids, later characterized individually and subsequently disposed of based on the focused profile sampling results at the US Ecology hazardous waste cell.

The following recommendation was ~~writing~~ written in the *SWMU K10 Buried Paint Remediation After Action Report*: Based on the material removed from the excavation at SWMU K10 and the five confirmation sample results reported in the sidewalls and floor of the excavation, additional soil or container removal work in this area of the site is not recommended. (Secor, 2006). The recommendation was approved by NDEP and a copy of the NDEP approval letter is included in **Attachment 3**.

2.4 Nature and Extent of Contamination

The extent of paint contamination identified in 2003 was removed in 2005. Excavation proceeded until visual impacts were no longer evident and field screening results, as determined by a photo-ionization detector, were below the predetermined screening criteria of 100 parts per million (ppm). A 100 ppm screening level was used for VOC presence as part of the removal action. The 100 ppm level was based on previous investigations and professional experience with field screening ppm levels that produced acceptable confirmation sample results (Secor, 2006). The final footprint of the excavation was 20 feet by 30 feet by approximately 8 feet deep.

After the excavation was complete, five confirmation samples were collected from the excavation, one from each sidewall of the excavation and one from the center of the floor of the excavation. Confirmation sample locations are shown in **Attachment 4**. Analytical samples were also collected from the stockpiles and from the footprint of the

DS. DS footprint sample locations are shown in **Attachment 5**. The entire DS was screened to remove material greater than 2 inches which was immediately placed into 55-gallon drums. The material passing through the 2-inch screen was placed into a separate DS prior to containerizing into four 20-yard hazardous waste roll-off containers for transport to US Ecology. The CS samples K10-CS-1 and K10-CS-2 were taken from the soil evaluated to be clean overburden which was used as backfill for the excavation. The K10-CS-3 was from the TC stockpile.

A summary of analytical results versus toxicity characteristic leaching procedure (TCLP) regulatory levels are included in **Attachment 6**. A summary of analytical results versus USEPA Regional Screening Levels (RSLs) are included in **Attachment 7**. Analytical results for the DS are not included in **Attachment 7** because the stockpile was disposed of off-site. Arsenic concentrations in all five confirmation samples exceeded the USEPA 2010 Residential RSLs, but were below the HWAD Background Screening Levels. Concentrations of VOCs and Resource Conservation and Recovery Act (RCRA) metals, excluding arsenic, in the confirmation samples were below the USEPA Residential RSLs (Secor, 2006).

2.5 Decommissioning Activities

IDW generated during the investigations at SWMU K10 was properly disposed of based on analytical results. The excavation was backfilled with analytical confirmed "clean" soil removed during the excavation. No structures exist at SWMU K10 (Secor, 2006).

3.0 CONCLUSIONS

Confirmation sampling analysis indicates that no present or future industrial receptors are likely to be adversely impacted by site contamination at SWMU K10. NFA is requested following NAC 445A.227 guidelines, under which the following issues were addressed (**Table 3-1**):

Table 3-1 Site Evaluation for SWMU K10

Assessment Criteria		Response
A	Depth of any groundwater	Approximately 100 feet below ground surface.
B	Distance to irrigation or drinking water wells	The nearest water supply wells, #1 and #8, are each located approximately 4,200 feet from SWMU K10.
C	The type of soil that is contaminated	Silty sand.
D	The annual precipitation	Annual precipitation for Hawthorne, Nevada is 4.6 inches.
E	The type of waste or substance released	Buried paint containers.
F	The extent of the contamination	Observed sources and contaminated soil have been removed. Groundwater impacts have not been observed in downgradient wells.
G	The present and potential use for the land	The site is presently used for industrial purposes. Future land use is also expected to be industrial.
H	The preferred routes of migration	Vertically through unsaturated materials.
I	The location of structures and impediments	SWMU K10 is located in the southwest corner of the HWAD Construction Debris Landfill.
J	The potential for a hazard related to fire, vapor, or explosion	There are no such identified hazards at SWMU K10.
K	Other site-specific factors	No other site-specific factors have been noted.

4.0 REFERENCES

CESPK, 2003. U.S. Army Corps of Engineers Environmental Chemistry Section, Sacramento District, 2003. *Draft Final Closure Report, Additional RCRA Facility Investigation, Solid Waste Management Unit (SWMU) H-01, Hawthorne Army Depot, Hawthorne, Nevada*, April 2003

SECOR, 2006. Final Report, SWMU K10 Buried Paint Remediation After Action Report, Hawthorne Army Depot, Hawthorne, Nevada, September 2006.

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Figures

Figures

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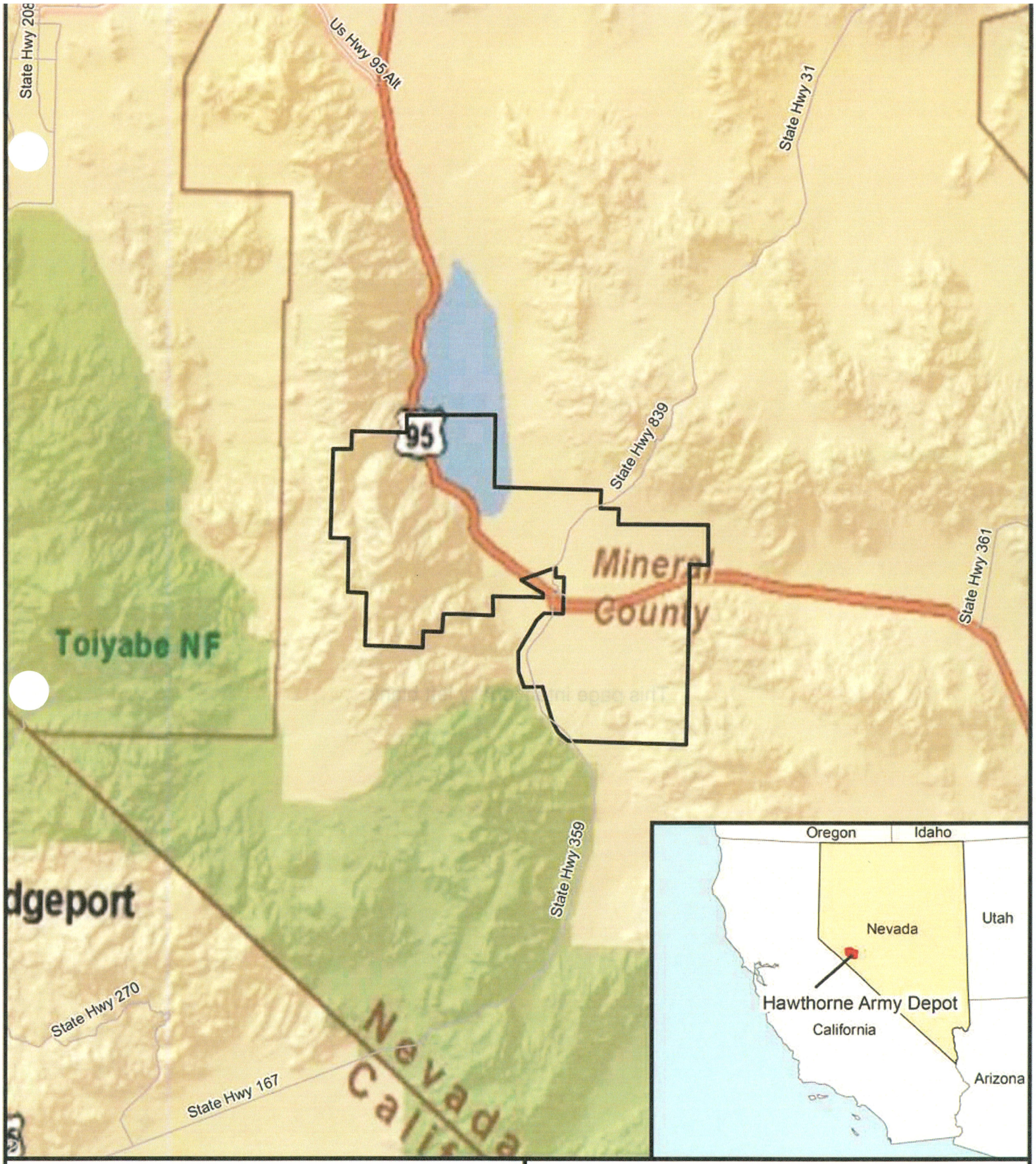

Installation Boundary

Site Location Map

Bay West
Customer-Focused Environmental & Industrial Solutions

Figure 1

Hawthorne Army Depot, Hawthorne, Nevada

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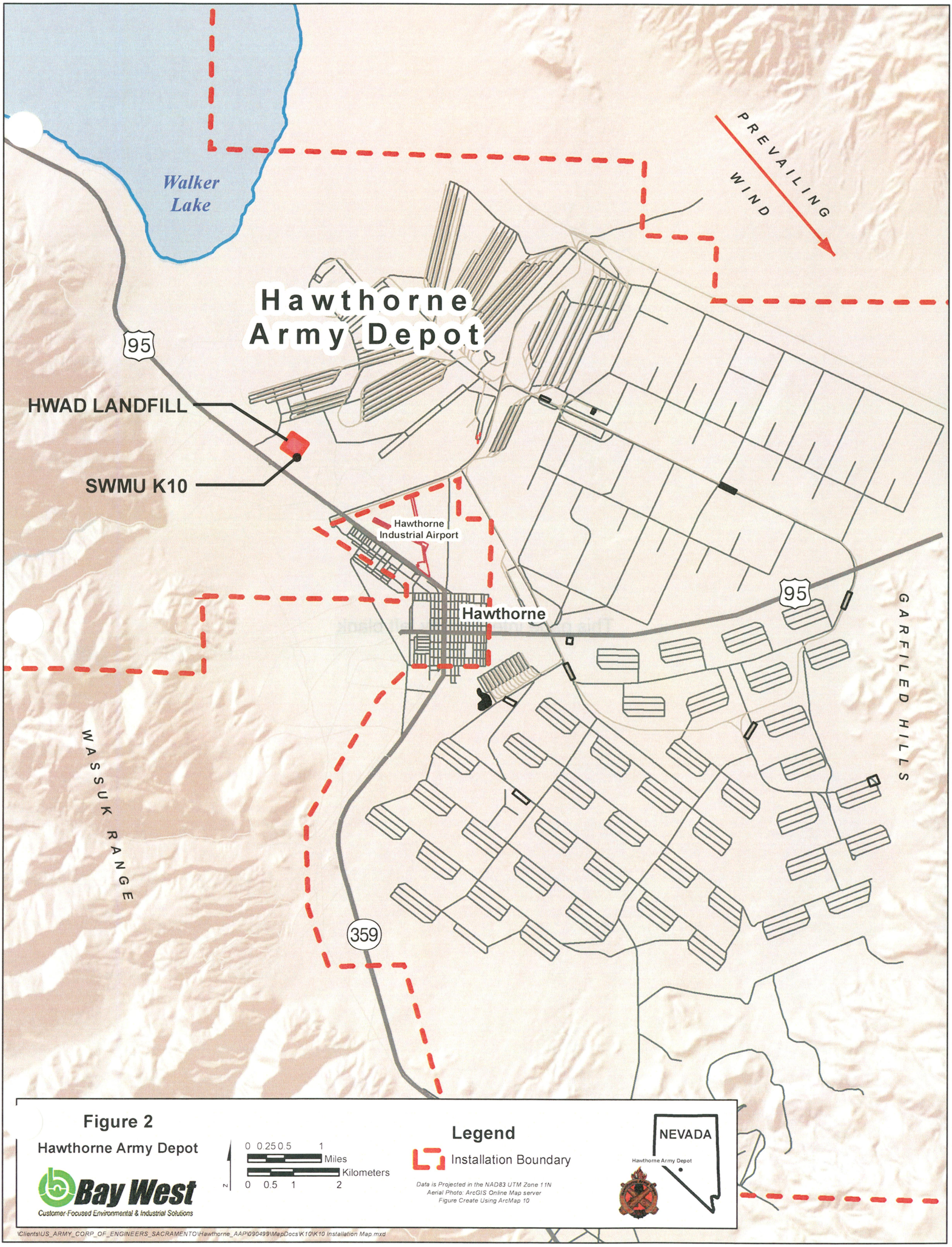

Figure 2

Hawthorne Army Depot

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Attachments

Attachment 1

Initial Excavation Dimensions and Surface Conditions

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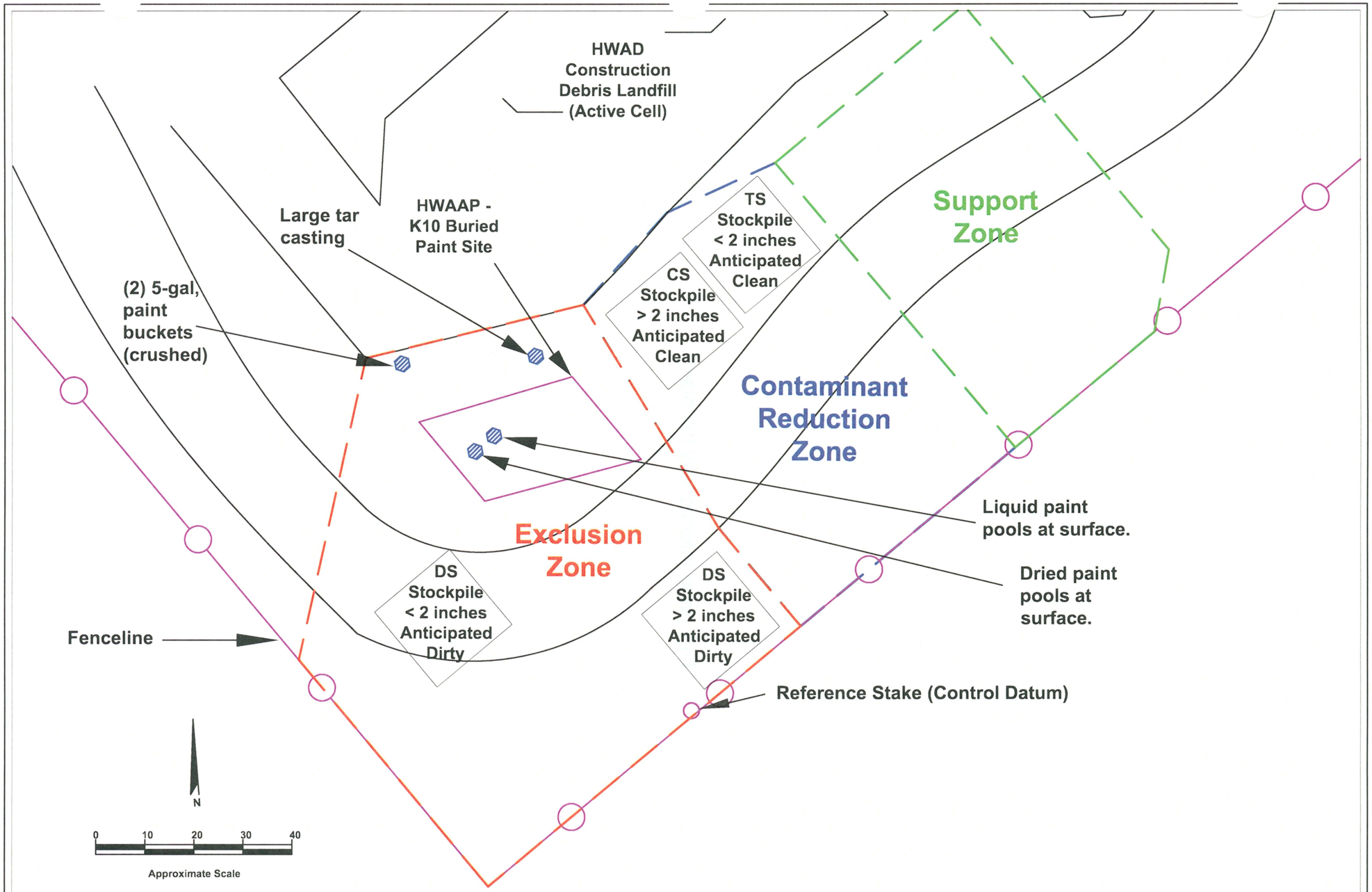

SECOR INTERNATIONAL INCORPORATED
1535 HOT SPRINGS ROAD, SUITE 3
CARSON CITY, NEVADA 89706

INITIAL EXCAVATION DIMENSIONS AND SURFACE CONDITIONS
K10 Buried Paint Site
Hawthorne Army Depot
Hawthorne, Nevada

FIGURE: 3
DATE: December 6, 2005
PROJECT NO: 93OT.04284.00

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Attachment 2

2000 U.S. Army Center for Health Promotion and Preventative Medicine (USACHPPM) Evaluation Analytical Data

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Table 1
K10 Historical Detections Compared to Residential Soil PRGs
SWMU K10
Hawthorne, Nevada

Compound	EPA Residential PRG (ug/kg)	LF-S-1 (ug/kg)	LF-S-2 (ug/kg)	LF-S-3 (ug/kg)	LF-SB-1 (ug/kg)	LF-SB-2 (ug/kg)	LF-SB-3 (ug/kg)
trichlorofluoromethane	390,000	17	11	11	4.1	7.8	8.3
acetone	14,000,000	210	49	120	20	19	16
2-butanone (MEK)	22,000,000	96	23	35	23	30	28
tetrahydrofuran	9,400	<24	<25	<24	<24	14	13
toluene	520,000	4.7	18	1.9	<2.4	<2.7	<2.3
2-hexanone	Not Established	40	<25	<24	<24	<27	<23
ethylbenzene	400,000	4.1	9.4	<2.4	<2.4	<2.7	<2.3
m/p - xylene	270,000	20	26	2	<2.4	<2.7	<2.3
o - xylene		8.8	6.2	<2.4	<2.4	<2.7	<2.3
isopropyl benzene	570,000	5.4	5.7	1.4	<2.4	<2.7	<2.3
n-propylbenzene	240,000	8.5	<2.5	<2.4	<2.4	<2.7	<2.3
1,3,5-trimethylbenzene	21,000	31	2.1	<2.4	<2.4	<2.7	<2.3
1,2,4-trimethylbenzene	52,000	75	4.5	1.7	<2.4	<2.7	<2.3
sec-butylbenzene	220,000	9.1	<2.5	<2.4	<2.4	<2.7	<2.3
4-isopropyltoluene	Not Established	7.1	1.5	<2.4	<2.4	<2.7	<2.3
naphthalene	56,000	4.9	<2.5	<2.4	<2.4	<2.7	<2.3

MEK: methyl ethyl ketone
ug/kg: micrograms per kilogram
PRG: Preliminary Remediation Goal

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Attachment 3

NDEP SWMU K10 Buried Paint Remediation Approval Letter

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ndep
NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
protecting the future for generations

STATE OF NEVADA
Department of Conservation & Natural Resources
DIVISION OF ENVIRONMENTAL PROTECTION

Jim Gibbons, Governor
Allen Biaggi, Director
Leo M. Drozdoff, P.E., Administrator

January 23, 2007

Mr. Kevin Shannon
Hawthorne Army Depot
1 South Maine Street
Hawthorne, NV 89415-9404

RE: **Approval of Final Report, SWMU K10 Buried Paint Remediation, After Action Report, Hawthorne Army Depot, Hawthorne, Nevada, September 2006**

Dear Mr. Shannon:

The Nevada Division of Environmental Protection, Bureau of Corrective Actions (NDEP) has reviewed Hawthorne Army Depot's *Final Report, SWMU K10 Buried Paint Remediation, After Action Report, September 2006*. The report was received on January 17, 2007. This submission addressed all of the NDEP's previously submitted comments (letter: Kutsch to Millsap, June 27, 2006) and minor edits that were submitted through electronic mail (Kutsch to Collins, September 12, 2006). **Therefore, the *Final Report, SWMU K10 Buried Paint Remediation, After Action Report* is approved.** Should you have any questions, please contact me at (775) 687-9443.

Sincerely,

Raquel M. Kutsch

Raquel M. Kutsch
Department of Defense Branch
Bureau of Corrective Actions

SS/RMK

cc: Scott Smale, Supervisor, Department of Defense Branch, Bureau of Corrective Actions, NDEP
Lt. Col. Hardee Green, Hawthorne Army Depot, Hawthorne, NV 89415
Herman Millsap, Hawthorne Army Depot, Hawthorne, NV 89415
Rebecca Benscoter, Hawthorne Army Depot, Hawthorne, NV 89415
Sophie Ngu, USACE Sacramento District, 1325 J Street, Sacramento, CA 95814
Jeff Collins, SECOR International Incorporated, 1535 Old Hot Springs Road, Suite 3, Carson City, NV 89706

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Attachment 4

Confirmation Sampling Details and Locations

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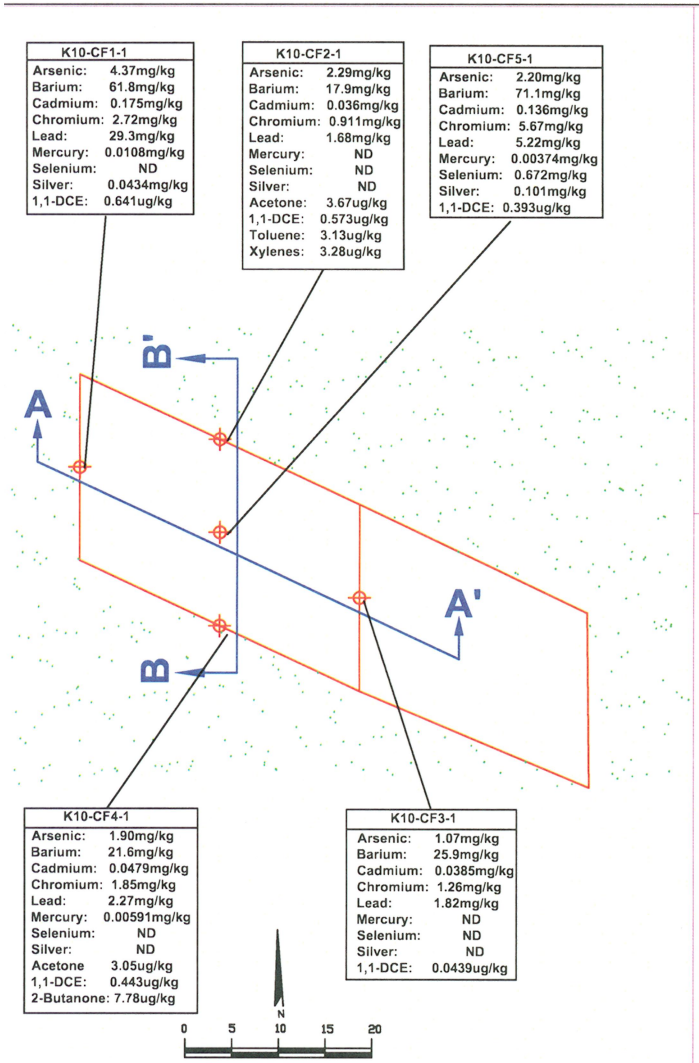

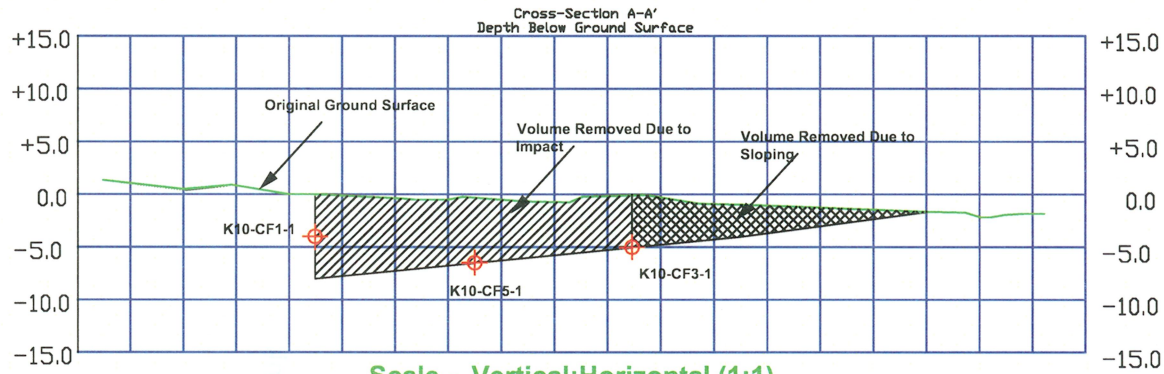

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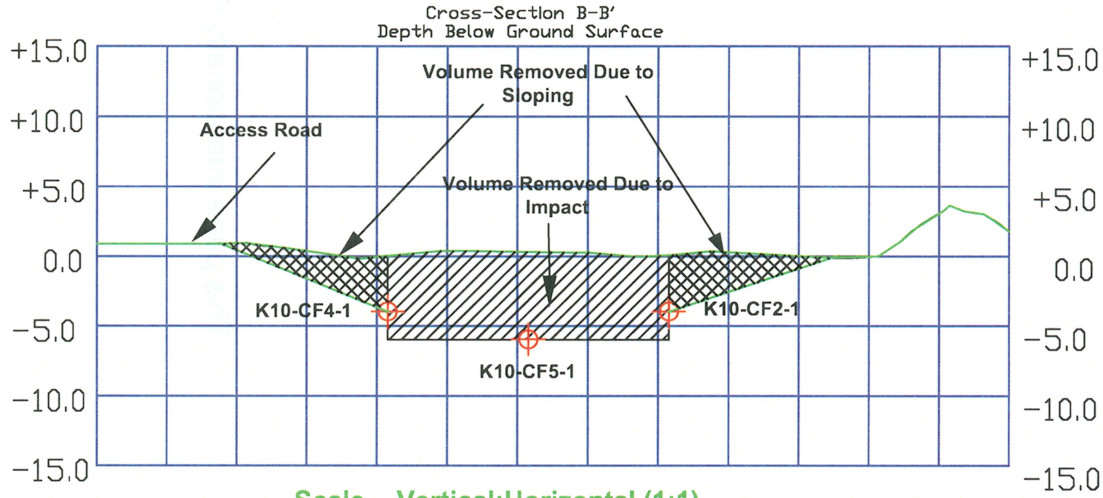

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As shown

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PHONE: (775) 884-4561 FAX: (775) 884-4555

FOR:			FIGURE
US Army Corps of Engineers Hawthorne Army Depot K10 Buried Paint Remediation		CONFIRMATION SAMPLING DETAILS LOCATIONS & RESULTS	6
JOB NUMBER: 93OT.04284.00	DRAWN BY: BLK	CHECKED BY: JRC	APPROVED BY: JRC	DATE: 12-6-05

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Attachment 5

Stockpile Footprint Confirmation Sample Locations and Results

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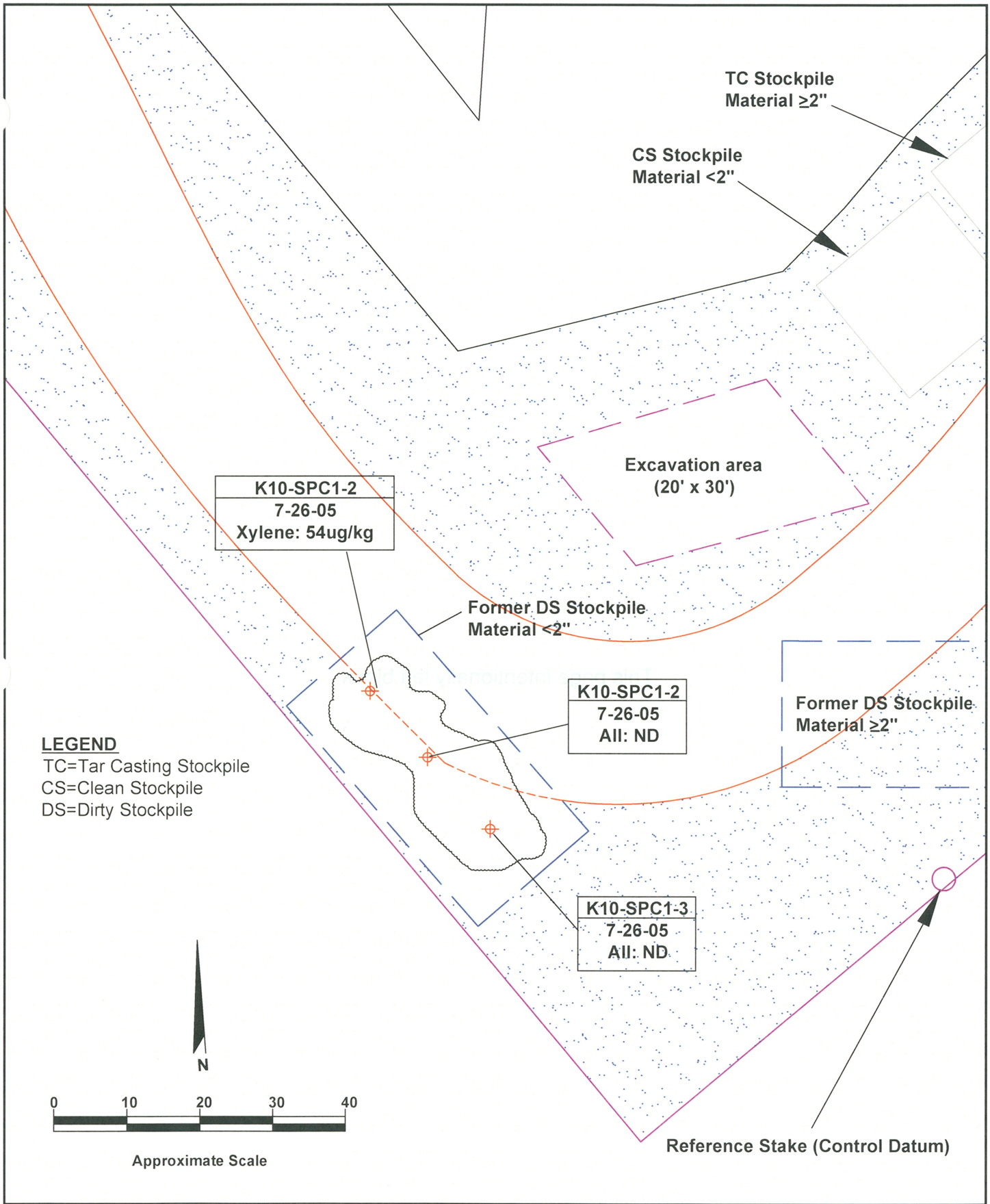

SECOR INTERNATIONAL INCORPORATED
1535 HOT SPRINGS ROAD, SUITE 3
CARSON CITY, NEVADA 89706

STOCKPILE FOOTPRINT CONFIRMATION SAMPLE LOCATIONS AND RESULTS

Hawthorne Army Depot
Hawthorne, Nevada

FIGURE 5

DATE: 12/6/05

PROJECT NO: 930T.04284.00

Figure 5

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Attachment 6

2005 Secor Buried Paint Remediation Analytical Data

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Table 2
Analytical Result Summary
SWMU K10
Hawthorne, Nevada

	Regulatory Levels			Excavation Confirmation Samples					Stockpile Profile Samples						Stockpile Footprint Confirmation Samples		
	TCLP Level mg/L	20 times TCLP		**K10-CF1-1**	**K10-CF2-1**	**K10-CF3-1**	**K10-CF4-1**	**K10-CF5-1**	**K10-DS-1**	**K10-DS-2**	**K10-DS-2 (Rerun at Higher Dilution Factor)[6]**	**K10-CS-1**	**K10-CS-2**	**K10-CS-3 (≥2-inches)**	**K10-SP1C-1**	**K10-SP1C-2**	**K10-SP1C-3**
Metals (Total)				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Mercury	0.2	4	mg/kg	0.0108	ND[1]	ND	0.00591	0.00374	0.00871	0.0148	NA[2]	0.00256	0.00605	0.00313	ND	ND	ND
Arsenic	5	100	mg/kg	4.37	2.29	1.07	1.90	2.20	3.10	3.44	NA	2.40	4.49	5.12	5.2	5.0	7.3
Barium	100	2000	mg/kg	61.8	17.9	25.9	21.6	71.1	37.7	48.2	NA	23.7	42.4	33.3	63	62	85
Cadmium	1	20	mg/kg	0.175	0.036	0.0385	0.0479	0.136	0.0806	0.101	NA	0.0451	0.0861	0.088	ND	ND	ND
Chromium	5	100	mg/kg	2.72	0.911	1.26	1.85	5.67	3.86	13.0	NA	1.68	10.4	1.98	5.0	4.9	7.0
Lead	5	100	mg/kg	29.3	1.68	1.82	2.27	5.22	18.0	**234**	NA	2.58	5.65	4.01	5.0	5.9	20
Selenium	1	20	mg/kg	ND	ND	ND	ND	0.672	0.518	0.829	NA	ND	0.643	0.553	ND	ND	ND
Silver	5	100	mg/kg	0.0434	ND	ND	ND	0.101	ND	ND	NA	ND	ND	ND	ND	ND	ND
TCLP Metals																	
Lead	5		mg/kg	NA	NA	NA	NA	NA	NA	**14.4**	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds (Total)				ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
1,1-Dichloroethylene	0.7	14	mg/kg	0.641	0.573	0.439	0.443	0.393	3.58	ND	ND	ND	0.438	ND	ND	ND	ND
1,2-Dichloroethane	0.5	10	mg/kg	ND	ND	ND	ND	ND	ND	4.91	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	200	4000	mg/kg	ND	ND	ND	7.78	ND	65.9	72.5	ND	ND	ND	ND	NA	NA	NA
2-Hexanone	NRL[5]	NRL	mg/kg	ND	ND	ND	ND	ND	ND	202	ND	ND	ND	ND	NA	NA	NA
4-Methyl-2-pentanone	NRL	NRL	mg/kg	ND	ND	ND	ND	ND	239	1640	773	ND	ND	ND	NA	NA	NA
Acetone	NRL	NRL	mg/kg	ND	3.68	ND	3.05	ND	1610	4510	3460	ND	ND	4.97	NA	NA	NA
Benzene	0.5	10	mg/kg	ND	ND	ND	ND	ND	ND	4.67	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	NRL	NRL	mg/kg	ND	ND	ND	ND	ND	51.6	423	2510	ND	0.217	5.79	ND	ND	ND
Methylene Chloride	NRL	NRL	mg/kg	ND	ND	ND	ND	ND	ND	ND	1680	ND	ND	ND	NA	NA	NA
Toluene	NRL	NRL	mg/kg	ND	3.13	ND	ND	ND	242	1500	8810	ND	0.492	0.524	ND	ND	ND
Xylenes (total)	NRL	NRL	mg/kg	ND	3.28	ND	ND	ND	323	1850	11300	ND	2.10	34.0	54	ND	ND

1) ND indicates that the concentration did not exceed the laboratory detection limit for this compound.
2) NA indicates that the compound was not analyzed for.
3) For compound-specific detection limits, see analytical reports in Appendix C.
4) Results highlighted in bold indicate an exceedance of the regulatory limit.
5) NRL indicates that no regulatory level is currently available.
6) K10-DS-2 was re-analyzed by the laboratory at a dilution factor of 50.

Attachment 7

2005 Buried Paint Remediation Analytical Data vs. Industrial RSLs

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2005 Buried Paint Remediation Analytical Data vs. Insdustrial RSLs

				Sample Location										
				Excavation Confirmation Samples					Clean Stockpile Profile Samples			Stockpile Footprint Confirmation Samples		
Analyte	Units	EPA RSLs (2010) Industrial	HWAD Background Screening Levels	K10-CF1-1	K10-CF2-1	K10-CF3-1	K10-CF4-1	K10-CF5-1	K10-CS-1	K10-CS-2	K10-CS-3 (>2 inches)	K10-SP1C-1	K10-SP1C-2	K10-SP1C-3
Metals (Total)														
Mercury	mg/kg	34.00	NE	**0.0108**	ND	ND	**0.00591**	**0.00374**	**0.00256**	**0.00605**	**0.00313**	ND	ND	ND
Arsenic	mg/kg	1.6	**18.1**	**4.37**	**2.29**	**1.07**	**1.9**	**2.2**	**2.4**	**4.49**	**5.12**	**5.2**	**5.0**	**7.3**
Barium	mg/kg	190,000	**447**	**61.8**	**17.9**	**25.9**	**21.6**	**71.1**	**23.7**	**42.4**	**33.3**	**63**	**62**	**85**
Cadmium	mg/kg	800	**108**	**0.175**	**0.036**	**0.0385**	**0.0479**	**0.136**	**0.0451**	**0.0861**	**0.088**	ND	ND	ND
Chromium	mg/kg		**13.76**	**2.72**	**0.911**	**1.26**	**1.85**	**5.67**	**1.68**	**10.4**	**1.98**	**5.0**	**4.9**	**7.0**
Lead	mg/kg	800	**16.7**	**29.3**	**1.68**	**1.82**	**2.27**	**5.22**	**2.58**	**5.65**	**4.01**	**5.0**	**5.9**	**20**
Selenium	mg/kg	5,100	NE	ND	ND	ND	ND	**0.672**	ND	**0.643**	**0.553**	ND	ND	ND
Silver	mg/kg	5,100	NE	**0.0434**	ND	ND	ND	**0.101**	ND	ND	ND	ND	ND	ND
VOCs (Total)														
1,1-Dichloroethylene	ug/kg	1100000		**0.641**	**0.573**	**0.439**	**0.443**	**0.393**	ND	**0.438**	ND	ND	ND	ND
1,2-Dichloroethane	ug/kg	17000		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	ug/kg	200000000		ND	ND	ND	**7.78**	ND	ND	ND	ND	NA	NA	NA
2-Hexanone	ug/kg	1400000		ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
4-Methyl-2-pentanone	ug/kg	53000000		ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Acetone	ug/kg	630000000		ND	**3.68**	ND	**3.05**	ND	ND	ND	**4.97**	NA	NA	NA
Benzene	ug/kg	5400		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/kg	27000		ND	ND	ND	ND	ND	ND	**0.217**	**5.79**	ND	ND	ND
Methylene Chloride	ug/kg	53000		ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Toulene	ug/kg	45000000		ND	**3.13**	ND	ND	ND	ND	**0.492**	**0.524**	ND	ND	ND
Xylenes (total)	ug/kg	2700000		ND	**3.28**	ND	ND	ND	ND	**2.10**	**34.0**	**54**	ND	ND

Notes:

RSLs - Regional Screening Levels

HWAD - Hawthorne Army Depot

mg/kg - milligram per kilogram

ug/kg - microgram per kilogram

NE- Not Established

Bold - results above method detection limit

Highlighted in blue - above EPA RSL (industrial), below HWAD Background Screening Levels