US Army Corps of Engineers Sacramento District
Hawthorne Army Depot
Hawthorne, Nevada

Decision Document

Solid Waste Management Unit A11
Mag 18AT5 Disposal Pit

November 2001

TETRA TECH
180 Howard Street, Suite 250
San Francisco, CA 94105

Mr. Herman Millsap
Hawthorne Army Depot
1 South Maine Street
Hawthorne, NV 89415-9404

Subject: Draft – Remedial Investigation Report Addendum
Solid Waste Management Unit A-11
Mag 18AT5 Disposal Pit

Dear Mr. Millsap:

The Nevada Division of Environmental Protection (NDEP) has received and evaluated Hawthorne Army Depot (HWAD) May 2001 Remedial Investigation Report Addendum for SWMU A-11 Mag 18AT5. Based on NDEP's review of the December 1997 Remedial Investigation/Report, a literature/personnel interview research, geophysical surveys, and near surface soil sampling were conducted. The literature/personnel research indicated that the pit was used for disposal of pyrotechnics, explosives, propellants, and ammunition boxes/solid waste by open burning. Based on this information, the chemicals of concern were defined as semi-volatile organic compounds (SVOCs), metals, explosives, and potential for chemical agents due to the proximity to Solid Waste Management Unit (SWMU) A-05. The geophysical surveys identified "disrupted surface soils" and two magnetometer anomalies. The near surface soil sampling indicated detectable metals with only one sample exceeding the HWAD proposed cleanup goal (PCG) for arsenic. The reports recommended that an intrusive subsurface sampling be conducted to complete the Remedial Investigation of SWMU A-11.

Based on this information, NDEP reviewed the subject report and have the following comments.

Comment No. 1, Section 2.3 – Soil Sampling: This section describes SWMU A-11 as a disposal pit. The December 1997 Remedial Investigation Report describes the SWMU as "an open unlined disposal pit" and "The floor of the pit is littered with melted aluminum, copper, and lead slag, and is stained with black ash residue." Based on NDEP previous site visits and discussion with HWAD personnel, this SWMU was a soil borrow pit used to construct MAG 18AT5. At a later date, small portions of the pit were used as unlined open burn areas. The May 2001 report needs to accurately describe the pit.

Comment No. 2, Section 3.0 – Field Activities: Based on the additional investigation by Tetra Tech (Tt), NDEP concurs that the disposal of chemical agents in this pit is highly unlikely and they should not be included on the list of chemicals of concern.

Comment No. 3, Section 3.1 – Subsurface Soil Investigation: This section states that three test pits and one trench were excavated as part of the subsurface soil investigation.

However, the section does not provide selection criteria or the potential for additional impacted soils to remain undocumented in the pit area. HWAD is required to provide this information in the final report.

Comment No. 4, Section 3.2 – Interim Remediation: The report describes the process to separate the debris from the impacted soils. Section 5 provides additional description of the debris as "this trench contained a high volume of ash, wood, and metal debris, indicating this area within the disposal pit was used for solid waste disposal." Based on the description of the material, these types of material are required to be disposed of in a permitted construction debris landfill. HWAD is required to provide additional information on the types of materials ("debris") placed back in the pit, re-excavate the material and properly dispose of in a permitted landfill, or meet all landfill requirements and obtain a landfill permit.

Comment No. 5, Section 4.2, Investigation Soil Sample Results - Trench Samples (pre-remediation): Based on the analytical testing results, NDEP concurs that the "subsurface soil near this part of the disposal pit be remediated for these metals (aluminum, cadmium, and lead) before the SWMU can be recommended for closure."

Comment No. 6, Section 4.3, Soil Removal Sample Results – Excavation Samples: The report states that cadmium, chromium, and lead exceeded their respective HWAD Proposed Cleanup Goals (PCGs). However, since this report was prepared, NDEP approved (August 10, 2001) the adoption of EPA Region IX Preliminary Remediation Goals for HWAD. Based on PRGs cleanup standards only one sample (008NE30NW) collected from the northeast trench excavation area exceeded the PRG standards for cadmium and lead. This sample exceeded the cadmium residential standard but not the industrial, and lead exceeded the industrial standard. The report needs to be revised based on these new standards.

Comment No. 7, Section 5 Conclusions and Recommendations: NDEP does not concur with the recommendation of leaving the lead impacted soil in-place and covering with clean fill to "minimize the potential exposure". The impacted soil was reported to be at a depth of 3 feet along the northeast wall where the excavation was advanced to a depth of 9 feet. This indicates that the lateral extent of the impacted soil has not been characterized and there are no limiting factors that would prevent the remediation of these soils.

If you have any questions concerning NDEP's review of this document, please feel free to contact our office at 7750687-4670 ext 3029 or kscarbro@govmail.nv.us.

Sincerely,

Ken Scarbrough
Bureau of Federal Facilities

Ken Scarbrough

To: Herman Millsap (E-mail); Rebecca Benscoter (E-mail)
Subject: A-11

Herman N Jewel

Back working on HWAD. Stead AFB is out the door.

A-11

If I remember correctly, when I was down there I gave you a example of a nasty letter for A-11 concerning the RI Addendum for A-11 report.

I have the Decision Document for A-11, but have not received the revised Addendum Report. Take a look at your system and see if we can revise it before NDEP reviews the DD.

Thanks and hope you had a good weekend.

Ken
HWAD's Favorite State Employee

DEPARTMENT OF THE ARMY
Hawthorne Army Depot
1 South Maine Avenue
Hawthorne, NV 89415-9404

19 DEC 2001

PLY TO
ATTENTION OF

Operations Review Division

RECEIVED
DEC 21 2001
ENVIRONMENTAL PROTECTION

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

Dear Mr. Scarbrough:

References:

a. Decision Document, HWAAP-A11, Mag 18AT5 Disposal Pit, Hawthorne Army Depot, Hawthorne, Nevada, November 2001 (enclosure).

b. Decision Document, HWAAP-H01, Fire Training Pit, Hawthorne Army Depot, Hawthorne, Nevada, November 2001 (enclosure).

c. Decision Document, HWAAP-H04, Navyside Landfill, Hawthorne Army Depot, Hawthorne, Nevada, November 2001 (enclosure).

References a, b and c are forwarded for your information and action. Request after your review and approval, a copy of the signed signature page be returned to HWAD in order to show response completed to higher headquarters.

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

Sincerely,

Florentino F. Cardenas
Civilian Executive Assistant

Enclosures

Decision Document SWMU A11

November 2001

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.

US Army

17 DEC 2001

Anne L. Davis
Lieutenant Colonel, US Army
Commanding

State of Nevada

14 JAN 2002

Paul Liebendorfer
Chief, Bureau of Federal Facilities

Decision Document for Closure of
Solid Waste Management Unit A11
Hawthorne Army Depot
Hawthorne, Nevada

1.0 INTRODUCTION

This decision document describes the rationale for the proposed closure of solid waste management unit (SWMU) A11. SWMU A11 is an open unlined disposal pit on the southeast side of the Hawthorne Army Depot (HWAD), Hawthorne, Nevada, east of Magazine 18AT5. Tetra Tech, Inc. (Tt) prepared this document with the help of the US Army Corps of Engineers, Sacramento District (USACE) and HWAD for the Nevada Department of Environmental Protection (NDEP), the lead regulatory agency for environmental issues at HWAD.

Tt and Ecology and Environment (E&E) performed remedial investigations and groundwater monitoring at the HWAD. These tasks were conducted from 1993 through 1997, primarily at SWMUs designated by the Army and the NDEP. The purpose of the sampling 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, to present conclusions, and to recommend 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 A). 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 A11 is in HWAD's south magazine area, on the southeast side of HWAD (Figure 1-1). This SWMU is an open soil borrow pit that is east of Magazine 18AT5 (Figure 1-2). The pit measures 350 feet long by 100 feet wide and is up to 10 feet deep in some areas. A ramp leading into the west side of the pit and numerous soil piles inside the west half of the pit were noted during both the 1992 site screening inspection conducted by Resource Applications, Inc., (RAI 1992) and the 1994 field investigation conducted by Tt (Tt 1997a). A small area of the pit contained some melted aluminum, copper, wood and black ash residue.

The USACE, HWAD, and the NDEP agreed to define the boundaries of each SWMU using annotated monuments and survey pins. As part of our 1997 field investigations, Tt surveyed SWMU A11 and constructed a survey monument. A brass survey pin on the monument designates it as HWAAP-32-1996 with the SWMU number as A11. Two corner pins were set and surveyed to define a SWMU boundary, with the monument on the northwest corner. The location of these corner markers and the SWMU boundary are shown on Figure 1-2. Survey data is presented in Appendix B.

SWMU A11 is about 1,500 feet south of SWMU A05, the Mustard Gas Disposal area. Because of the close proximity to these two SWMUs, mustard gas was originally designated as a potential chemical of concern.

Currently, there are no monitoring wells near SWMU A11. However, depth to groundwater in this vicinity is projected to be about 275 feet (USAEHA 1987-1988).

3.0 SITE CONDITIONS

According to the USAEHA (1987-1988), the installation disposed of pyrotechnics, explosives, and propellants, ammunition, boxes, and other solid waste by open burning and waste piling at this site. The 1992 RAI report described metal waste in the pit to include melted aluminum, copper, lead, and slag. The pit also may have been used for disposing of mustard gas and phosgene (RAI 1992). The period of these disposal operations is unknown.

During site inspections by USAEHA (1987-1988), and RAI (1992), evidence of metal and waste and ash residue were noted in a small area in the borrow pit.

During Tt's remedial investigation (1997a), we observed that the pit contained two rows of soil piles that appeared to have been deposited by a dump truck. Soil encountered at the surface during the investigation included light gray silts, which varied from silty sands to silts with clays, and gravelly silty sands throughout the site.

Tt determined the assumption that chemical agents were disposed of at SWMU A11 to be false. The potential presence of these agents at this SWMU was assumed only because of the close proximity to the mustard disposal site at SWMU A05, where chemical agents were disposed of. HWAD personnel who took part in the mustard disposal activities assured the environmental coordinator at HWAD that mustard was not disposed of at SWMU A11. Therefore, subsurface investigations could proceed without requiring the extensive costs or precautions for trained chemical agent technicians in level A personal protective equipment to conduct the sampling. In addition, by virtue of these interviews, the NDEP agreed to drop chemical agents from the list of chemicals of concern for SWMU A11.

Based on the past uses of the pit and on observations made during the previous inspections, the target analytes for SWMU A11 were explosives, metals, semivolatile organic compounds (SVOCs), and total petroleum hydrocarbons as diesel (TPHd). Near-surface samples also were analyzed for benzene, toluene, ethyl benzene, and xylenes (BTEX).

4.0 INVESTIGATIONS

USEHA conducted site inspections of SWMU A11 (1987-1988), as well as Jacobs Engineering (1988) and RAI (1992).

Tt conducted airborne ground penetrating radar, surface ground penetrating radar, and magnetometry surveys at SWMU A11.

In 1994, we collected three near-surface soil samples at locations SS01, SS02, and SS03 and two duplicate samples at SS02. These near-surface samples were collected at depths of approximately six to 12 inches in the disposal pit and were analyzed for explosives, metals, semivolatile organics, TPHd, and total BTEX. All analyses were performed under guidelines set in the CDAP (Tt 1994).

After we determined that mustard gas was not likely present at SWMU A11, Tt excavated three test pits and one trench on May 16, 2000, as part of the subsurface soil investigation. Two samples were collected from each of the three test pits, and four samples were collected from the trench. All ten samples were analyzed for volatile organic compounds (VOCs), SVOCs, explosives, picric acid, and metals. Soil sampling was conducted under Tt's supervision, in accordance with the quality assurance/quality control procedures presented in the Tt sampling and analysis plan (Tt 1997b).

5.0 INVESTIGATION RESULTS

During the USAEHA and RAI inspections, evidence of metal waste and ash residue were noted in a small area in the borrow pit. No investigation activities were conducted during those inspections, and no samples were collected from the SWMU. Jacobs Engineering recommended in its report that the degree and extent of impact of selected analytes in the surface soil should be assessed in order to minimize potential present and future releases into the environment.

The airborne ground penetrating radar survey showed the soil in the pit to be disrupted, indicating possible buried debris. The magnetometry survey found two anomalous areas within the pit, which usually indicates buried metal debris. These results were presented in the remedial investigation report (Tt 1997a).

Metals, except for arsenic, detected at this SWMU in the near-surface soil samples appear ubiquitous at near background levels and do not appear to be at concentrations of environmental risk to human health. Arsenic was found at an elevated concentration in one near-surface soil sample.

Metals, VOCs, and explosives were found in the soil samples collected from the subsurface soil investigation. Aluminum (5,920 to 99,200 mg/kg), cadmium (0.15 to 234 mg/kg), chromium (6.9 to 68.2 mg/kg), and lead (8.5 to 29,000 mg/kg) were found at concentrations greater than their respective PCGs in the samples collected from the investigation trench. Several VOCs also were found in these soil samples, but only the VOC trichloroethene (TCE) (0.0006 to 54.7 mg/kg) was found in two of the trench soil samples at concentrations greater than the TCE PCG. Two explosives were found in two separate subsurface soil samples, but neither of these concentrations were greater than their respective PCGs. Therefore, based on this and the previous investigation data for SWMU A11, the only subsurface soils that require further action are those soils near the investigation trench, and the only analytes of concern are the metals aluminum, cadmium, chromium, and lead, and the one VOC TCE. At the time of the investigation, cleanup goals were established based on calculations of Subpart S. Since that time, NDEP and HWAD have adopted EPA Region IX PRGs. Based on these new standards aluminum, cadmium and chromium are no longer chemicals of concern at SWMU A11.

Tt recommended that the soils near the investigation trench be excavated from SWMU A11 and transported to SWMU C01a/01b, where they would be stabilized during the treatability study of metals in soil at HWAD. Also, Tt recommended that the disposal pit be backfilled with clean soil as a precaution to eliminate the potential surface exposure to soils in the pit that might contain residual concentrations of the chemicals of concern. The backfilling also would eliminate the disposal pit as a stormwater catch basis, which could leach any residual concentrations of the chemicals of concern that might have been left in place.

No groundwater data is available in the vicinity of SWMU A11, but the depth to the groundwater at this SWMU is estimated to be about 275 feet below the ground surface (bgs). Based on the low concentrations of the chemicals of concern detected in the surface and near-surface soil samples and on the depth to the groundwater, Tt recommended that the SWMU A11 groundwater not be assessed.

6.0 REMEDIATION

Tt excavated the soils identified during the trenching investigation with concentrations of metals and TCE above HWAD PCGs. The excavation was 30 feet wide by 60 feet long by 9 feet deep. The removed soil was mechanically screened to remove the oversized material, which was mostly inert metal and wood debris, and returned it to the borrow pit. The screened soil was analyzed again for metals and VOCs. These results appeared to show that the mechanical screening liberated the TCE from the soil and was no longer a chemical of concern in the soils to be treated for metals. These screened soil samples also were analyzed for all of the analytes of concern to assure that chemicals other than the elevated metals concentrations were not in the affected soil. The homogenized screened soil was transported to the lead treatability study site at SWMU C01a/01b so that the affected soils could be treated by the metals stabilization process.

Tt collected nine excavation samples and one duplicate sample from the excavation to assess if sufficient soil had been removed to remediate the site. These samples were analyzed for VOCs, SVOCs, explosives, picric acid, and metals.

In coordination with Tt's 2000 bioremediation of explosives in soil pilot study at SWMU B29, we backfilled the borrow pit at SWMU A11 with treated compost. This bioremediation process degrades the explosives chemicals by mixing the soil on a treatment pad with biodegradable additives, creating compost piles. After the soil is treated, it is disposed of within the secure boundaries of HWAD at convenient open excavations. Because the volume of compost material increases the volume of the excavated soil by approximately one-third, all of the compost cannot be put back into the excavation that the treated soil came from. Instead, open excavations at HWAD were used to dispose of the additional volume of compost. SWMU A11 required clean backfill material to fill the disposal pit before it could be recommended for closure. Tt transported approximately 3,700 cubic yards of treated compost from the treatment pad at SWMU B29 and placed it into the SWMU A11 disposal pit. Compaction wasn't required during this backfill operation, but the heavy equipment that placed the compost into the pit tracked over the backfilled area several times to obtain some degree of compaction. The borrow pit will be backfilled to grade.

Because the borrow pit was backfilled to cover the soils that potentially contained elevated concentrations of the metals aluminum, cadmium, chromium, and lead, the possible surface exposure pathway of these analytes was eliminated.

7.0 REMEDIATION RESULTS

The analytical results of the soil samples collected from the excavation showed no concentrations of explosives, VOCs, or SVOCs greater than their respective PRGs. One soil sample collected from a depth of three feet bgs contained lead at 1,790 mg/kg greater than its respective PRG. This concentration of lead was overlooked until after backfilling was initiated. Additional review of this data indicates the impacted soil appears to be less than 3 cubic yards; therefore, the depth of the impacted soil with the clean composted fill material, this soil is not considered to be a risk to human health or the environment. NDEP was notified of the limited amount of lead contaminated soil and concurred with HWAD's recommendation to leave the limited contaminated soil in place.

Because the disposal pit was backfilled to cover the soils that contained elevated concentrations of lead, the possible surface exposure pathway of this analytes was eliminated. Therefore, Tt recommends SWMU A11 for closure, with regard to this metal of concern, with the following restrictions:

- The disposal pit will be backfilled to above grade, and slightly "crowned" to facilitate drainage;
- No excavation will be allowed in the vicinity of the former pit;
- The HWAD building and grounds department will not dig trenches through the former pit; and

The screened soil samples that were collected from the removed soil before it was transported to the metals stabilization treatment site were found to contain no concentrations of explosives, VOCs, or SVOCs greater than their respective PCGs. Elevated concentrations of lead were found in these samples, justifying the need for treating the soils before disposal.

8.0 PUBLIC INVOLVEMENT

It is US 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 at the local public library, which includes final copies of all past studies and other documents on environmental issues at HWAD. As future environmental documents are made available to HWAD, the repository will be updated.

HWAD has solicited community participation to establish a restoration 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 ongoing environmental issues and will continue to solicit community involvement and will establish a RAB should there be sufficient community interest.

9.0 CONCLUSIONS

Although one of the nine soil samples collected from the soil removal excavation at SWMU A11 contained elevated concentrations of lead greater than its respective PRGs, a comparison of the investigation results and the excavation results show a sharp decrease in the lead concentrations. The soils that contain the residual lead concentrations are at a depth of three feet bgs and have been covered with clean backfill material. No other analytes of concern persist at this SWMU. Therefore, Tt recommends SWMU A11 for closure with regard to the analytes of concern, with the restrictions stated above in Section 7.

10.0 REFERENCES

Jacobs Engineering. 1988. RCRA Facility Assessment, Hawthorne Army Ammunition Plan, TES IV Work Assignment No. 433.

RAI. 1992. Site Screening Inspection (SSI) for the Hawthorne Army Ammunition Plant, Hawthorne, Nevada. Prepared for the US Army Corps of Engineers Toxic and Hazardous Materials Agency by Resource Applications, Inc., Falls Church, Virginia. December 1992.

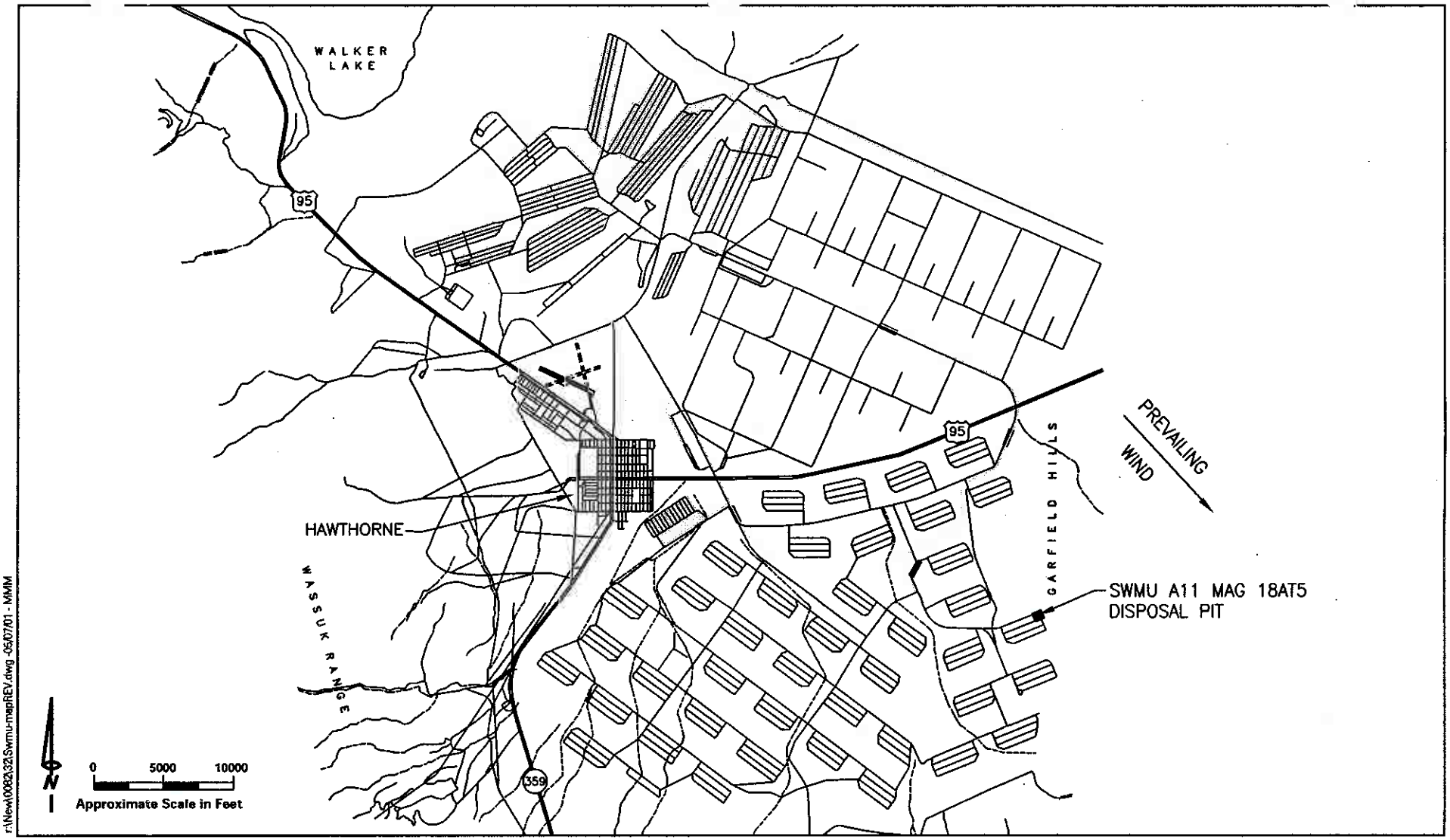
Tetra Tech, Inc. (Tt). 1994. Hawthorne Army Ammunition Plant - Group B Remedial Investigation: Final Chemical Data Acquisition Plan.

_____. 1997a. Final Remedial Investigation Report, Solid Waste Management Unit A11, MAG 18AT5 Disposal Pit, Hawthorne Army Depot, Hawthorne, Nevada. December 1997.

_____. 1997b. Final Sampling and Analysis Plan, Remedial Investigations, Groups A and B Solid Waste Management Units, Hawthorne Army Depot, Hawthorne, Nevada. February 1997.

USAEHA. 1987-1988. Final Report. Groundwater Contamination Survey No. 38-26-0850-88. Evaluation of Solid Waste Management Units. HWAAP, Hawthorne, Nevada. May 12-19, 1987, and August 1-5, 1988.

FIGURES



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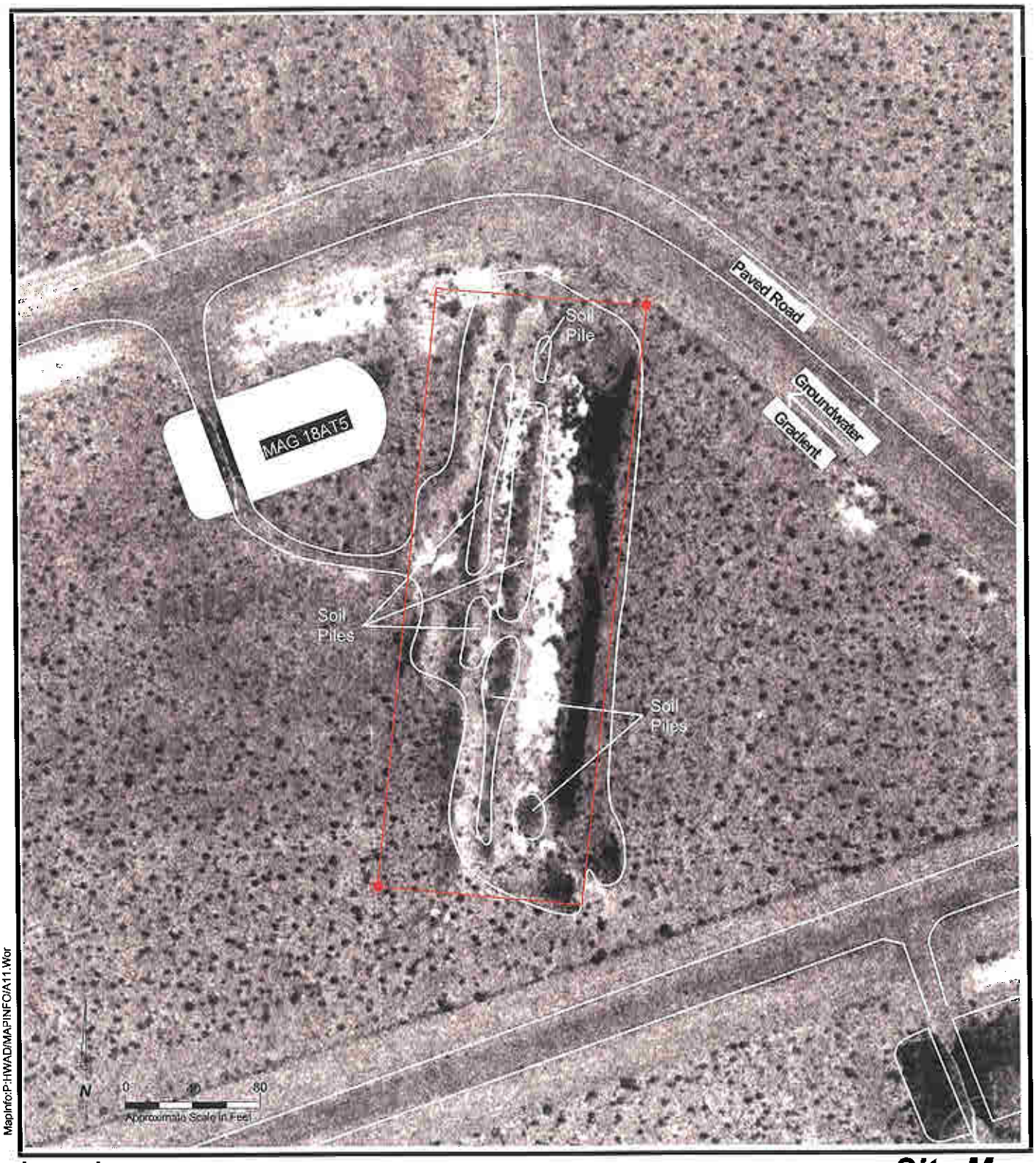
Location Map
SWMU A11
MAG 18AT5 Disposal Pit

Hawthorne Army Depot
Hawthorne, Nevada

Tetra Tech, Inc.

Figure 1-1



MapInfo:P:HWAD/MAPINFO/A11.Wor

Legend:

- Boundary Corner Pin
- Explosion Barrier
- SWMU Monument

Site Map
SWMU A11
MAG 18AT5 Disposal Pit

Hawthorne Army Depot
Hawthorne, Nevada

Figure 1-2

Tetra Tech, Inc.

APPENDIX A

PROPOSED CLOSURE GOALS

PETER G. MORROS, *Director*
ALLEN BIAGGI, *Administrator*
(775) 687-4670
TDD 687-4678
Administration
Water Pollution Control
Facsimile 687-5856
Mining Regulation and Reclamation
Facsimile 684-5259

STATE OF NEVADA
KENNY C. GUINN
Governor

Waste Management
Corrective Actions
Federal Facilities
Air Quality
Water Quality Planning
Facsimile 687-8396

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF ENVIRONMENTAL PROTECTION

333 W. Nye Lane, Room 138
Carson City, Nevada 89706

August 10, 2001

Mr. Vernon L. Shankle, P.E.
Chief, Operations Review Division
Department of The Army
Hawthorne Army Depot
1 South Maine Street
Hawthorne, NV 89415-9404

Post-It® Fax Note 7671	Date	# of pages ▶ 5
To Herman	From KGN	
Co./Dept.	Co.	
Phone #	Phone #	
Fax #	Fax #	

Subject: Adoption of EPA Region IX Preliminary Remediation Goals
Hawthorne Army Depot
Hawthorne, Nevada

The Nevada Division of Environmental Protection (NDEP) has received and evaluated Hawthorne Army Depot (HWAD) July 16, 2001 letter concerning the adoption of EPA Region IX Preliminary Remediation Goals (PRGs). Based on NDEP's review of the files, HWAD, NDEP and, the U.S. Army Center for Health, established cleanup standards in 1995/1996 using Subpart 5 calculations. As requested by NDEP during our meetings in April and July 2001, these cleanup standards were reviewed and updated based on current information.

Based on the Army's research, HWAD is requesting to adopt EPA Region IX Preliminary Remediation Goals (PRG's) for establishment of soil action levels. NDEP adopted these standards on October 3, 1996 under NAC 445A.2272 (d) "Contamination of soil: Establishment of action levels" and concurs with the adoption of both the residential and industrial standards for HWAD. NDEP recommends that residential standards be applied to all projects located in the main administrative portion of the base and former base housing areas primarily located on the west side of Highway 395 and that residential/industrial standards be used as appropriate for the industrial portion of the facility.

The Army needs to provide documentation and justification for establishment of cleanup standards for all chemicals of concern (e.g. ammonium picrate) at HWAD that are not identified

on the EPA Region IX PRG's tables (formerly IRIS) to NDEP. EPA Region IX currently maintains this table on the Internet at http://www.epa.gov/region09/waste/sfund/prg. Due to potential revisions to the PRG's tables, HWAD needs to evaluate EPA's Region IX PRGs table every two years and provide NDEP a revised written summary (January 2003, 2005, etc.).

If you have any questions, or need further clarification, please do not hesitate to contact our office (775) 687-4670, extension 3039 or email pliebend@govmail.state.nv.us.

Sincerely,

Paul Liebendorfer
Chief, Bureau of Federal Facilities

REN/KS/js

cc:
Herman Millsap, HWAD
Sophie Ngu, Sacramento Corps of Engineers
Jim Lukasko, Sacramento Corps of Engineers

Hawthorne Army Depot				
		NDEP established Soil Action Level January 1996	Proposed EPA PRG table dated 11/01/00	
Contaminant	Casno.	PCG	R-PRG's	T-PRG's
		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	78000	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	82	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 EPA PRG table dated 11/01/00	
Contaminant	Casno	PCG	R-PRG's	I-PRG's
		mg/kg	mg/kg	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

APPENDIX B

SURVEY DATA

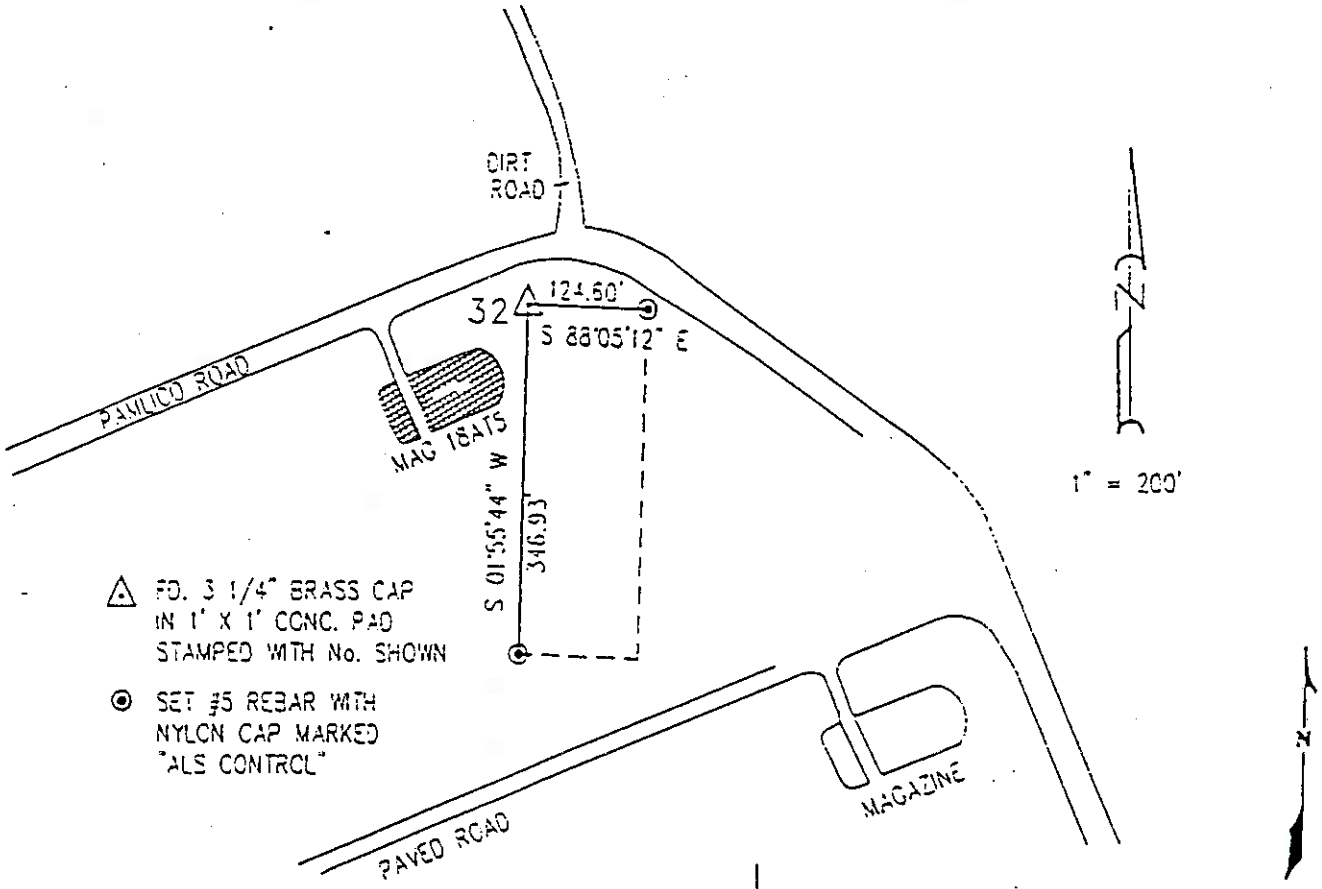
COUNTRY	TYPE OF MARK	STATION	
USA	BRASS CAP	32	
LOCALITY	STAMPING ON MARK	AGENCY (CAST IN MARKS)	ELEVATION (FT) (M)
HAWTHORNE NEV.	32 A-11	COE HWAAP	4456.92
LATITUDE	LONGITUDE	DATUM	DATUM
38°29'52.13098" N	118°31'01.14921" W	NAD '27	NGVD '29
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE	ESTABLISHED BY (AGENCY)
136328.35	518987.54	NEVADA SP WEST	A.L.S.
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE	DATE / ORDER
			1997 / 2ND

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)
	° ' "	° ' "		

MONUMENT 32 - SWMU A-11
FROM HIGHWAY 95 TAKE MINE ROAD SOUTHEAST 3600 FEET TO 1ST AVENUE SOUTH, THEN NORTHEAST ON 1ST 2.1 MILES TO PAMLICO ROAD, THEN SOUTHEAST ON PAMLICO ROAD 3.2 MILES. SEE MAP BELOW. MONUMENT IS A 3 1/4" BRASS CAP SET IN A 1' X 1' CONCRETE PAD AND IS MARKED WITH A 4" X 4" X 6' WOOD POST, PAINTED WHITE.



SKETCH

DA FORM 1 OCT 44 1959 REPLACES DA FORMS 1958 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.

APPENDIX C

ANALYTICAL DATA FROM INVESTIGATION

Description of Duplicates

A11-DP020 is a duplicate of All-SS02-1-S
A11-DP021 is a duplicate of All-SS02-1-S
A11-DP022 is a duplicate of All-SS02-1-S
A11-DP023 is a duplicate of All-SS02-1-S
A11-DP025 is a duplicate of All-SS02-1-S
A11-DP028 is a duplicate of All-SS02-1-S
A11-DP029 is a duplicate of All-SS02-1-S
A11-030NW053SW-03B is a duplicate of A11-030NW053SW-03A

Petroleum Hydrocarbons
Method 8015M (BCA Field)

Sample ID	Location ID	Sample Date	Depth	TPH (as diesel) mg/kg
A11-DP020	SS02	7/9/94	0	<0.2
A11-SS01-1-S	SS01	7/9/94	0	<0.2
A11-SS02-1-S	SS02	7/9/94	0	<0.2
A11-SS03-1-S	SS03	7/9/94	0	<0.2

Analyses	4
Detections	0
Minimum Concentration	0
Maximum Concentration	0
HWAD - PCG	100
HWAD - PCG Hits	0

Metals
Method 6010 (BCA)

Sample ID	Location ID	Sample Date	Depth	Lab	Aluminum	Arsenic	Barium	Cadmium	Chromium	Lead	Selenium	Silver
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
A11-DP025	DP025	7/9/94	0	BCA	NA	35	140	2.1	8.2	20	<5	<0.9
A11-SS01-1-S	SS01	7/9/94	0	BCA	NA	123	100	10.8	10	55.6	<5	44.6
A11-SS02-1-S	SS02	7/9/94	0	BCA	NA	39	130	2.2	10	17	<5	<0.9
A11-SS03-1-S	SS03	7/9/94	0	BCA	NA	31	110	2	10	19	<5	<0.9
Analyses					0	4	4	4	4	4	4	4
Detections					0	4	4	4	4	4	0	1
Minimum Concentration					0	31	100	2	8.2	17	0	44.6
Maximum Concentration					0	123	140	10.8	10	55.6	0	44.6
HWAD - PCG					80000	100	2000	20	20	100	20	100
HWAD - PCG Hits					0	1	0	0	0	0	0	0

Notes:
NA = Not analyzed
Zero values reported for minimum and maximum concentrations indicate no detections reported.

Explosives
Method 8090M (BCA Field)

Sample ID	Location ID	Sample Date	Depth	Lab	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	RDX	Tetryl
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
A11-DP028	DP028	7/9/94	0	BCA Field	<0.5	<0.25	NA	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<50	<0.25
A11-SS02-0-S	SS02	7/9/94	0	BCA Field	<0.5	<0.25	NA	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<50	<0.5
A11-SS02-1-S	SS02	7/9/94	0	BCA Field	<0.5	<0.25	NA	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<50	<0.5
A11-SS03-1-S	SS03	7/9/94	0	BCA Field	<0.5	<0.25	NA	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<50	<0.5
Analyses					4	4	0	4	4	4	4	4	4	4	4	4
Detections					0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration					0	0	0	0	0	0	0	0	0	0	0	0
Maximum Concentration					0	0	0	0	0	0	0	0	0	0	0	0
HWAD - PCG					4	8		233	2.6	80	800	800	800	40	64	800
HWAD - PCG Hits					0	0		0	0	0	0	0	0	0	0	0

Notes:
Zero values reported for minimum and maximum concentrations indicate no detections reported.
NA = Not analyzed

Volatile ganics
Method 8260 (BCA)

Sample ID	Location ID	Sample Date	Depth	Lab	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2-Chloroethylvinylether	Benzene	Benzyl chloride	Bromobenzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
A11-DP023	DP023	7/9/94	0	BCA	<0.0002	<0.0004	<0.0006	<0.0002	<0.0006	<0.0004	<0.0002	<0.0002	<0.0002	<0.0006
Analyses					1	1	1	1	1	1	1	1	1	1
Detections					0	0	0	0	0	0	0	0	0	0
Minimum Concentration					0	0	0	0	0	0	0	0	0	0
Maximum Concentration					0	0	0	0	0	0	0	0	0	0
HWAD - PCG						150		10				89	112	10
HWAD - PCG Hits						0		0				0	0	0

Notes:
Zero values reported for minimum and maximum concentrat

Volatile Organics
Method 8260 (BCA)

Sample ID	Location ID	Sample Date	Depth	Lab	Tetrachloroethene	Toluene	Total Xylene Isomers	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl chloride
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
A11-DP023	DP023	7/9/94	0	BCA	<0.0006	<0.0004	<0.0006	<0.0002	<0.0002	<0.001	<0.0001	<0.0002
Analyses					1	1	1	1	1	1	1	1
Detections					0	0	0	0	0	0	0	0
Minimum Concentration					0	0	0	0	0	0	0	0
Maximum Concentration					0	0	0	0	0	0	0	0
HWAD - PCG					15	16000	160000			10	24000	24000
HWAD - PCG Hits					0	0	0			0	0	0

Notes:
Zero values reported for minimum and maximum concentrat

Moisture
Method D2216 (BCA)

Sample ID	Location ID	Sample Date	Depth	Lab	Moisture/TNFR
					Percent
A11-DP023	DP023	7/9/94	0	BCA	3
A11-DP025	DP025	7/9/94	0	BCA	3.4
A11-SS01-1-S	SS01	7/9/94	0	BCA	1.3
A11-SS02-1-S	SS02	7/9/94	0	BCA	3.1
A11-SS03-1-S	SS03	7/9/94	0	BCA	0.58

Analyses	5
Detections	5
Minimum Concentration	0.58
Maximum Concentration	3.4
HWAD - PCG	
HWAD - PCG Hits	

M[illegible]s

Methods 6010A and 7471A (APCL)

Sample ID	Location ID	Sample Date	Depth	Aluminum, Total	Arsenic, Total	Barium, Total	Beryllium, Total	Cadmium, Total	Chromium, Total	Lead, Total	Mercury, Total	Selenium, Total	Silver, Total
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
A11-TP01-01-S	TP01	5/16/2000	4	11500	12.3	111	0.38	0.36	9.7	16	<0.038	<0.19	0.24
A11-TP01-02-S	TP01	5/16/2000	4	8390	9.6	105	0.35	0.3	7.2	10.4	<0.035	0.29	<0.084
A11-TP02-01-S	TP02	5/16/2000	4	10100	10.3	128	0.33	0.29	9.4	14.1	<0.035	<0.18	0.28
A11-TP02-02-S	TP02	5/16/2000	4	10200	10.5	123	0.35	0.25	9.6	20.3	<0.035	<0.18	<0.085
A11-TP03-01-S	TP03	5/16/2000	4	11600	13.1	106	0.28	0.27	10.5	15.3	<0.035	<0.17	0.16
A11-TP03-02-S	TP03	5/16/2000	4	9210	10.8	106	0.35	0.26	8	15	0.038	0.25	0.21
A11-TR01-01-S	TR01	5/16/2000	4	54000	<11	31.1	<0.003	234	53.8	10200	0.089	<19	<9.3
A11-TR01-02-S	TR01	5/16/2000	2.5	7800	9.6	103	0.23	0.94	7.9	19.9	<0.035	<0.18	0.19
A11-TR01-03-S	TR01	5/16/2000	6	99200	4.2	44.1	<0.004	159	68.2	20900	0.067	<23	<11
A11-TR01-04-S	TR01	5/16/2000	4	8780	10.7	102	0.3	4.7	7.1	33	<0.035	0.18	0.2
A11-008NE030NW-03	008NE030NW	7/25/2000	3	60000	4.9	82.9	<1.4	88.4	38.5	1790	0.076	<78	<38
A11-010NW008SW-03	010NW008SW	7/25/2000	3	8850	10.7	72.2	<0.004	0.19	10.8	11.8	<0.041	<0.21	<0.1
A11-030NW008SW-03	030NW008SW	7/25/2000	3	9350	9.3	102	0.053	0.54	9.1	20.6	<0.041	<0.2	<0.098
A11-010NW023SW-03	010NW023SW	7/25/2000	3	7950	11.9	73.3	<0.003	0.15	10.2	10.6	<0.039	<0.19	0.11
A11-030NW023SW-03	030NW023SW	7/25/2000	3	11500	11.2	124	0.021	1.6	10.9	41.4	<0.042	<0.21	0.12
A11-010NW038SW-03	010NW038SW	7/25/2000	3	8870	10.1	72.6	<0.004	0.21	13	11.3	<0.041	<0.2	<0.099
A11-030NW038SW-03	030NW038SW	7/25/2000	3	9130	7.4	97.4	<0.004	2.5	7.8	213	<0.043	<0.22	<0.1
A11-010NW053SW-03	010NW053SW	7/25/2000	3	5920	12.2	58.5	0.094	0.25	6.9	8.5	<0.04	<0.2	<0.096
A11-030NW053SW-03A	030NW053SW	7/25/2000	3	10900	9.2	110	0.086	1.9	10.2	43.9	<0.035	<0.18	0.15
A11-030NW053SW-03B	030NW053SW	7/25/2000	3	11500	9.4	113	0.035	1.9	10.7	77.8	<0.035	<0.18	0.12
A11-SC01	SC01	7/25/2000	0	11400	13.5	111	0.17	1.5	9.3	23.1	<0.043	<0.22	0.15
A11-SC02	SC02	7/25/2000	0	14700	10.4	108	0.041	11.4	13.3	247	<0.038	<0.19	0.11
Analyses				22	22	22	22	22	22	22	22	22	22
Detections				22	21	22	15	22	22	22	4	3	12
Minimum Concentration				5920	4.2	31.1	0.021	0.15	6.9	8.5	0.038	0.18	0.11
Maximum Concentration				99200	13.5	128	0.38	234	68.2	20900	0.089	0.29	0.28
HWAD - PCG				80000	100	2000	1	20	20	100	24	20	100
HWAD - PCG Hits				1	0	0	0	3	3	5	0	0	0
Maximum Background Concentration				12365	18.1	447	0.58	1.08	13.76	16.7	0.108	0	0
Background Hits				4	0	0	0	10	3	13	0	0	0

NE = not established

Volatile Org[illegible] Compounds
Method 8[illegible]A (APCL)

Sample ID	Location ID	Sample Date	Depth	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl chloride	1,1,1,2-Tetrachloroethane
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
A11-TP01-01-S	TP01	5/16/2000	4	<0.000231	<0.000142	<0.000205	<0.000231	<0.000214	<0.000169	<0.000401
A11-TP01-02-S	TP01	5/16/2000	4	<0.0002	<0.00027	<0.00023	<0.00025	<0.00047	<0.00027	<0.00054
A11-TP02-01-S	TP02	5/16/2000	4	<0.00021	<0.00027	<0.00023	<0.00025	<0.00048	<0.00027	<0.00055
A11-TP02-02-S	TP02	5/16/2000	4	<0.00021	<0.00027	<0.00023	<0.00025	<0.00048	<0.00027	<0.00055
A11-TP03-01-S	TP03	5/16/2000	4	<0.00021	<0.00027	<0.00023	<0.00025	<0.00047	<0.00027	<0.00054
A11-TP03-02-S	TP03	5/16/2000	4	<0.00021	<0.00027	<0.00023	<0.00025	<0.00048	<0.00027	<0.00055
A11-TR01-01-S	TR01	5/16/2000	4	<11.8	<7.2	<10.4	0.46	<10.8	<8.6	<20
A11-TR01-02-S	TR01	5/16/2000	2.5	<0.00021	<0.00027	<0.00023	<0.00025	<0.00048	<0.00027	<0.00055
A11-TR01-03-S	TR01	5/16/2000	6	<14.2	<8.8	<12.6	0.77	<13.2	<10.4	<26
A11-TR01-04-S	TR01	5/16/2000	4	<0.00021	<0.00027	<0.00023	<0.00025	<0.00047	<0.00027	<0.00054
A11-008NE030NW-03	008NE030NW	7/25/2000	3	<0.00023	<0.0003	<0.00025	<0.00028	<0.00053	<0.0003	<0.00061
A11-010NW008SW-03	010NW008SW	7/25/2000	3	<0.00024	<0.00032	<0.00027	<0.00029	<0.00056	<0.00032	<0.00065
A11-030NW008SW-03	030NW008SW	7/25/2000	3	<0.00024	<0.00031	<0.00026	<0.00029	<0.00055	<0.00031	<0.00063
A11-010NW023SW-03	010NW023SW	7/25/2000	3	<0.00023	<0.00029	<0.00025	<0.00027	<0.00052	<0.00029	<0.0006
A11-030NW023SW-03	030NW023SW	7/25/2000	3	<0.00025	<0.00032	<0.00027	<0.0003	<0.00057	<0.00032	<0.00066
A11-010NW038SW-03	010NW038SW	7/25/2000	3	<0.00024	<0.00031	<0.00026	<0.00029	<0.00055	<0.00031	<0.00064
A11-030NW038SW-03	030NW038SW	7/25/2000	3	<0.00026	<0.00033	<0.00028	<0.00031	<0.00059	<0.00033	<0.00068
A11-010NW053SW-03	010NW053SW	7/25/2000	3	<0.00023	<0.00031	<0.00026	<0.00028	<0.00054	<0.00031	<0.00062
A11-030NW053SW-03A	030NW053SW	7/25/2000	3	<0.00021	<0.00027	<0.00023	<0.00025	<0.00047	<0.00027	<0.00055
A11-030NW053SW-03B	030NW053SW	7/25/2000	3	<0.00021	<0.00027	<0.00023	<0.00025	<0.00048	<0.00027	<0.00055
A11-SC01	SC01	7/25/2000	0	<0.00025	<0.00033	<0.00028	<0.0003	<0.00058	<0.00033	<0.00067
A11-SC02	SC02	7/25/2000	0	<0.00022	<0.00029	<0.00025	<0.00027	<0.00051	<0.00029	<0.00059
Analyses				22	22	22	22	22	22	22
Detections				0	0	0	2	0	0	0
Minimum Concentration				0	0	0	0.46	0	0	0
Maximum Concentration				0	0	0	0.77	0	0	0
HWAD - PCG				16000	NE	NE	10	24000	24000	NE
HWAD - PCG Hits				0	NE	NE	0	0	0	NE

NE = not established

Volatile Org[illegible] Compounds
Method 8200A (APCL)

Sample ID	Location ID	Sample Date	Depth	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromoethane (EDB)	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
A11-TP01-01-S	TP01	5/16/2000	4	<0.000552	<0.000214	<0.00032	<0.000125	<0.000196	<0.000205	<0.000285
A11-TP01-02-S	TP01	5/16/2000	4	<0.0021	<0.00018	<0.00051	<0.00035	<0.00043	<0.00086	<0.00034
A11-TP02-01-S	TP02	5/16/2000	4	<0.0022	<0.00019	<0.00052	<0.00035	<0.00044	<0.00087	<0.00034
A11-TP02-02-S	TP02	5/16/2000	4	<0.0022	<0.00019	<0.00052	<0.00035	<0.00044	<0.00087	<0.00034
A11-TP03-01-S	TP03	5/16/2000	4	<0.0022	<0.00018	<0.00051	<0.00035	<0.00043	<0.00086	<0.00034
A11-TP03-02-S	TP03	5/16/2000	4	<0.0022	<0.00019	<0.00052	<0.00035	<0.00043	<0.00087	<0.00034
A11-TR01-01-S	TR01	5/16/2000	4	<28	<10.8	<16.8	<6.4	<10	<10.4	<15
A11-TR01-02-S	TR01	5/16/2000	2.5	<0.0022	<0.00019	<0.00052	<0.00035	<0.00044	<0.00087	<0.00034
A11-TR01-03-S	TR01	5/16/2000	6	<34	<13.2	<20	<7.6	<12	<12.6	<18.2
A11-TR01-04-S	TR01	5/16/2000	4	<0.0022	<0.00018	<0.00051	<0.00035	<0.00043	<0.00086	<0.00034
A11-008NE030NW-03	008NE030NW	7/25/2000	3	<0.0024	<0.00021	<0.00058	<0.00039	<0.00049	<0.00097	<0.00038
A11-010NW008SW-03	010NW008SW	7/25/2000	3	<0.0026	<0.00022	<0.00061	<0.00041	<0.00051	<0.001	<0.0004
A11-030NW008SW-03	030NW008SW	7/25/2000	3	<0.0025	<0.00022	<0.0006	<0.00041	<0.0005	<0.001	<0.0004
A11-010NW023SW-03	010NW023SW	7/25/2000	3	<0.0024	<0.0002	<0.00057	<0.00039	<0.00048	<0.00095	<0.00037
A11-030NW023SW-03	030NW023SW	7/25/2000	3	<0.0026	<0.00022	<0.00062	<0.00042	<0.00052	<0.001	<0.00041
A11-010NW038SW-03	010NW038SW	7/25/2000	3	<0.0025	<0.00022	<0.0006	<0.00041	<0.00051	<0.001	<0.0004
A11-030NW038SW-03	030NW038SW	7/25/2000	3	<0.0027	<0.00023	<0.00064	<0.00043	<0.00054	<0.0011	<0.00042
A11-010NW053SW-03	010NW053SW	7/25/2000	3	<0.0025	<0.00021	<0.00059	<0.0004	<0.00049	<0.00099	<0.00039
A11-030NW053SW-03A	030NW053SW	7/25/2000	3	<0.0022	<0.00019	<0.00052	<0.00035	<0.00043	<0.00087	<0.00034
A11-030NW053SW-03B	030NW053SW	7/25/2000	3	<0.0022	<0.00019	<0.00052	<0.00035	<0.00044	<0.00087	<0.00034
A11-SC01	SC01	7/25/2000	0	<0.0027	<0.00023	<0.00064	<0.00043	<0.00053	<0.0011	<0.00042
A11-SC02	SC02	7/25/2000	0	<0.0023	<0.0002	<0.00056	<0.00038	<0.00047	<0.00094	<0.00037
Analyses				22	22	22	22	22	22	22
Detections				0	0	0	0	0	0	0
Minimum Concentration				0	0	0	0	0	0	0
Maximum Concentration				0	0	0	0	0	0	0
HWAD - PCG				480	NE	NE	0.008	7200	NE	NE
HWAD - PCG Hits				0	NE	NE	0	0	NE	NE

NE = not established

Volatile Orga Compounds
Method 82 A (APCL)

Sample ID	Location ID	Sample Date	Depth	4-Isopropyltoluene	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
A11-TP01-01-S	TP01	5/16/2000	4	<0.000338	<0.000223	<0.000169	<0.000276	<0.000214	<0.000205	<0.000374
A11-TP01-02-S	TP01	5/16/2000	4	<0.0004	<0.00014	<0.00024	<0.0014	<0.00024	<0.00074	<0.0012
A11-TP02-01-S	TP02	5/16/2000	4	<0.00041	<0.00015	<0.00024	<0.0015	<0.00024	<0.00075	<0.0012
A11-TP02-02-S	TP02	5/16/2000	4	<0.00041	<0.00015	<0.00024	<0.0015	<0.00024	<0.00075	<0.0012
A11-TP03-01-S	TP03	5/16/2000	4	<0.0004	<0.00014	<0.00024	<0.0014	<0.00024	<0.00074	<0.0012
A11-TP03-02-S	TP03	5/16/2000	4	<0.0004	<0.00014	<0.00024	<0.0014	<0.00024	<0.00075	<0.0012
A11-TR01-01-S	TR01	5/16/2000	4	<17.6	<11.4	<8.6	<14.6	<10.8	<10.4	<19.6
A11-TR01-02-S	TR01	5/16/2000	2.5	<0.00041	<0.00015	<0.00024	<0.0015	<0.00024	<0.00075	<0.0012
A11-TR01-03-S	TR01	5/16/2000	6	<22	<13.8	<10.4	<17.6	<13.2	<12.6	<24
A11-TR01-04-S	TR01	5/16/2000	4	<0.0004	<0.00014	<0.00024	<0.0014	<0.00024	<0.00074	<0.0012
A11-008NE030NW-03	008NE030NW	7/25/2000	3	<0.00045	<0.00016	<0.00027	<0.0016	<0.00027	<0.00083	<0.0014
A11-010NW008SW-03	010NW008SW	7/25/2000	3	<0.00047	<0.00017	<0.00028	<0.0017	<0.00028	<0.00088	<0.0015
A11-030NW008SW-03	030NW008SW	7/25/2000	3	<0.00047	<0.00017	<0.00028	<0.0017	<0.00028	<0.00086	<0.0014
A11-010NW023SW-03	010NW023SW	7/25/2000	3	<0.00044	<0.00016	<0.00026	<0.0016	<0.00026	<0.00082	<0.0014
A11-030NW023SW-03	030NW023SW	7/25/2000	3	<0.00049	<0.00017	<0.00029	<0.0017	<0.00029	<0.0009	<0.0015
A11-010NW038SW-03	010NW038SW	7/25/2000	3	<0.00047	<0.00017	<0.00028	<0.0017	<0.00028	<0.00087	<0.0014
A11-030NW038SW-03	030NW038SW	7/25/2000	3	<0.0005	<0.00018	<0.00029	<0.0018	<0.00029	<0.00092	<0.0015
A11-010NW053SW-03	010NW053SW	7/25/2000	3	<0.00046	<0.00016	<0.00027	<0.0016	<0.00027	<0.00085	<0.0014
A11-030NW053SW-03A	030NW053SW	7/25/2000	3	<0.0004	<0.00014	<0.00024	<0.0014	<0.00024	<0.00074	<0.0012
A11-030NW053SW-03B	030NW053SW	7/25/2000	3	<0.0004	<0.00015	<0.00024	<0.0015	<0.00024	<0.00075	<0.0012
A11-SC01	SC01	7/25/2000	0	<0.0005	<0.00018	<0.00029	<0.0018	<0.00029	<0.00091	<0.0015
A11-SC02	SC02	7/25/2000	0	<0.00044	<0.00016	<0.00026	<0.0016	<0.00026	<0.0008	<0.0013
Analyses				22	22	22	22	22	22	22
Detections				0	0	0	0	0	0	0
Minimum Concentration				0	0	0	0	0	0	0
Maximum Concentration				0	0	0	0	0	0	0
HWAD - PCG				NE	10	NE	NE	NE	89	112
HWAD - PCG Hits				NE	0	NE	NE	NE	0	0

NE = not established

Volatile Orga[illegible] Compounds
Method 82[illegible]A (APCL)

Sample ID	Location ID	Sample Date	Depth	Dibromochloromethane	Dibromochloropropane	Dibromomethane	Dichlorodifluoromethane	Ethylbenzene	Hexachlorobutadiene	Isopropylbenzene
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
A11-TP01-01-S	TP01	5/16/2000	4	<0.000205	<0.00073	<0.000418	<0.000401	<0.000223	<0.000134	<0.000178
A11-TP01-02-S	TP01	5/16/2000	4	<0.00054	<0.002	<0.001	<0.00053	<0.00027	<0.00096	<0.00023
A11-TP02-01-S	TP02	5/16/2000	4	<0.00055	<0.0021	<0.001	<0.00054	<0.00027	<0.00098	<0.00023
A11-TP02-02-S	TP02	5/16/2000	4	<0.00055	<0.0021	<0.001	<0.00054	<0.00027	<0.00098	<0.00023
A11-TP03-01-S	TP03	5/16/2000	4	<0.00054	<0.0021	<0.001	<0.00053	<0.00027	<0.00096	<0.00023
A11-TP03-02-S	TP03	5/16/2000	4	<0.00055	<0.0021	<0.001	<0.00054	<0.00027	<0.00097	<0.00023
A11-TR01-01-S	TR01	5/16/2000	4	<10.4	<38	<22	<20	<11.4	4.1	<9
A11-TR01-02-S	TR01	5/16/2000	2.5	<0.00055	<0.0021	<0.001	<0.00054	<0.00027	<0.00098	<0.00023
A11-TR01-03-S	TR01	5/16/2000	6	<12.6	<46	<26	<26	<13.8	4.6	<11
A11-TR01-04-S	TR01	5/16/2000	4	<0.00054	<0.0021	<0.001	<0.00053	<0.00027	<0.00097	<0.00023
A11-008NE030NW-03	008NE030NW	7/25/2000	3	<0.00061	<0.0023	<0.0011	<0.0006	<0.0003	<0.0011	<0.00025
A11-010NW008SW-03	010NW008SW	7/25/2000	3	<0.00065	<0.0024	<0.0012	<0.00063	<0.00032	<0.0011	<0.00027
A11-030NW008SW-03	030NW008SW	7/25/2000	3	<0.00063	<0.0024	<0.0012	<0.00062	<0.00031	<0.0011	<0.00026
A11-010NW023SW-03	010NW023SW	7/25/2000	3	<0.0006	<0.0023	<0.0011	<0.00059	<0.00029	<0.0011	<0.00025
A11-030NW023SW-03	030NW023SW	7/25/2000	3	<0.00066	<0.0025	<0.0012	<0.00065	<0.00032	<0.0012	<0.00027
A11-010NW038SW-03	010NW038SW	7/25/2000	3	<0.00064	<0.0024	<0.0012	<0.00063	<0.00031	<0.0011	<0.00026
A11-030NW038SW-03	030NW038SW	7/25/2000	3	<0.00068	<0.0026	<0.0013	<0.00066	<0.00033	<0.0012	<0.00028
A11-010NW053SW-03	010NW053SW	7/25/2000	3	<0.00062	<0.0023	<0.0012	<0.00061	<0.00031	<0.0011	<0.00026
A11-030NW053SW-03A	030NW053SW	7/25/2000	3	<0.00055	<0.0021	<0.001	<0.00054	<0.00027	<0.00097	<0.00023
A11-030NW053SW-03B	030NW053SW	7/25/2000	3	<0.00055	<0.0021	<0.001	<0.00054	<0.00027	<0.00098	<0.00023
A11-SC01	SC01	7/25/2000	0	<0.00067	<0.0025	<0.0013	<0.00066	<0.00033	<0.0012	<0.00028
A11-SC02	SC02	7/25/2000	0	<0.00059	<0.0022	<0.0011	<0.00058	<0.00029	<0.0011	<0.00025
Analyses				22	22	22	22	22	22	22
Detections				0	0	0	0	0	2	0
Minimum Concentration				0	0	0	0	0	4.1	0
Maximum Concentration				0	0	0	0	0	4.6	0
HWAD - PCG				83	NE	800	16000	8000	NE	NE
HWAD - PCG Hits				0	NE	0	0	0	NE	NE

NE = not established

Semivolatile Organic Compounds
Method 8[illegible]B (APCL)

Sample ID	Location ID	Sample Date	Depth	1,2,4,5-Tetrachlorobenzene	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,2-Diphenylhydrazine	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1-Chloronaphthalene	1-Naphthylamine	2,3,4,6-Tetrachlorophenol	2,4,5-Trichlorophenol
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
A11-TP01-01-S	TP01	5/16/2000	4	<0.032	<0.031	<0.03	<0.041	<0.032	<0.029	<0.054	<0.26	<0.03	<0.043
A11-TP01-02-S	TP01	5/16/2000	4	<0.03	<0.029	<0.028	<0.038	<0.03	<0.027	<0.05	<0.25	<0.028	<0.04
A11-TP02-01-S	TP02	5/16/2000	4	<0.03	<0.029	<0.028	<0.039	<0.03	<0.027	<0.051	<0.25	<0.028	<0.041
A11-TP02-02-S	TP02	5/16/2000	4	<0.03	<0.029	<0.028	<0.038	<0.03	<0.027	<0.051	<0.25	<0.028	<0.041
A11-TP03-01-S	TP03	5/16/2000	4	<0.03	<0.029	<0.028	<0.038	<0.03	<0.027	<0.05	<0.25	<0.028	<0.04
A11-TP03-02-S	TP03	5/16/2000	4	<0.03	<0.029	<0.028	<0.038	<0.03	<0.027	<0.051	<0.25	<0.028	<0.04
A11-TR01-01-S	TR01	5/16/2000	4	1	0.41	<3.1	<4.2	<3.3	<2.9	<5.6	<27	<3.1	<4.4
A11-TR01-02-S	TR01	5/16/2000	2.5	<0.03	<0.029	<0.028	<0.039	<0.03	<0.027	<0.051	<0.25	<0.028	<0.041
A11-TR01-03-S	TR01	5/16/2000	6	1.5	0.98	<3.7	<5.1	0.5	<3.6	<6.7	<33	<3.7	<5.4
A11-TR01-04-S	TR01	5/16/2000	4	<0.03	<0.029	<0.028	<0.038	<0.03	<0.027	<0.05	<0.25	<0.028	<0.04
A11-008NE030NW-03	008NE030NW	7/25/2000	3	0.77	0.34	0.097	<0.021	0.11	0.059	0.23	<0.099	<0.028	<0.029
A11-010NW008SW-03	010NW008SW	7/25/2000	3	<0.027	<0.022	<0.024	<0.022	<0.024	<0.027	<0.04	<0.1	<0.029	<0.03
A11-030NW008SW-03	030NW008SW	7/25/2000	3	<0.026	<0.022	<0.024	<0.022	<0.024	<0.026	<0.04	<0.1	<0.029	<0.03
A11-010NW023SW-03	010NW023SW	7/25/2000	3	<0.025	<0.02	<0.023	<0.02	<0.023	<0.025	<0.037	<0.098	<0.027	<0.028
A11-030NW023SW-03	030NW023SW	7/25/2000	3	<0.027	<0.022	<0.025	<0.022	<0.025	<0.027	<0.041	<0.11	<0.03	<0.031
A11-010NW038SW-03	010NW038SW	7/25/2000	3	<0.026	<0.022	<0.024	<0.022	<0.024	<0.026	<0.04	<0.1	<0.029	<0.03
A11-030NW038SW-03	030NW038SW	7/25/2000	3	<0.028	<0.023	<0.026	<0.023	<0.026	<0.028	<0.042	<0.11	<0.031	<0.032
A11-010NW053SW-03	010NW053SW	7/25/2000	3	<0.026	<0.021	<0.023	<0.021	<0.023	<0.026	<0.039	<0.1	<0.028	<0.029
A11-030NW053SW-03A	030NW053SW	7/25/2000	3	<0.023	<0.019	<0.021	<0.019	<0.021	<0.023	<0.034	<0.089	<0.025	<0.026
A11-030NW053SW-03B	030NW053SW	7/25/2000	3	<0.023	<0.019	<0.021	<0.019	<0.021	<0.023	<0.034	<0.089	<0.025	<0.026
A11-SC01	SC01	7/25/2000	0	<0.028	<0.023	<0.025	<0.023	<0.025	<0.028	<0.042	<0.11	<0.03	<0.032
A11-SC02	SC02	7/25/2000	0	0.066	0.02	<0.022	<0.02	<0.022	<0.025	<0.037	<0.096	<0.027	<0.028
Analyses				22	22	22	22	22	22	22	22	22	22
Detections				4	4	1	0	2	1	1	0	0	0
Minimum Concentration				0.066	0.02	0.097	0	0.11	0.059	0.23	0	0	0
Maximum Concentration				1.5	0.98	0.097	0	0.5	0.059	0.23	0	0	0
HWAD - PCG				NE	NE	7200	NE	NE	150	NE	NE	NE	NE
HWAD - PCG Hits				NE	NE	0	NE	NE	0	NE	NE	NE	NE

NE = not established

Semivolatile Organic Compounds
Method 8[illegible]3 (APCL)

Sample ID	Location ID	Sample Date	Depth	Dimethyl phthalate	Diphenylamine	Ethyl methanesulfonate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-c,d)pyrene
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
A11-TP01-01-S	TP01	5/16/2000	4	<0.038	<0.04	<0.04	<0.034	<0.035	<0.034	<0.03	<0.34	<0.03	<0.038
A11-TP01-02-S	TP01	5/16/2000	4	<0.035	<0.037	<0.037	<0.032	<0.033	<0.032	<0.028	<0.31	<0.028	<0.035
A11-TP02-01-S	TP02	5/16/2000	4	<0.035	<0.037	<0.037	<0.032	<0.033	<0.032	<0.028	<0.32	<0.028	<0.035
A11-TP02-02-S	TP02	5/16/2000	4	<0.035	<0.037	<0.037	<0.032	<0.033	<0.032	<0.028	<0.32	<0.028	<0.035
A11-TP03-01-S	TP03	5/16/2000	4	<0.035	<0.037	<0.037	<0.032	<0.033	0.037	<0.028	<0.31	0.051	<0.035
A11-TP03-02-S	TP03	5/16/2000	4	<0.035	<0.037	<0.037	<0.032	<0.033	<0.032	<0.028	<0.32	<0.028	<0.035
A11-TR01-01-S	TR01	5/16/2000	4	<3.9	<4.1	<4.1	<3.5	<3.6	4.89	3.5	<35	31	<3.9
A11-TR01-02-S	TR01	5/16/2000	2.5	<0.035	<0.037	<0.037	<0.032	<0.033	0.036	<0.028	<0.32	0.16	<0.035
A11-TR01-03-S	TR01	5/16/2000	6	<4.7	<4.9	<4.9	<4.3	<4.4	4.2	5.05	<42	47	<4.7
A11-TR01-04-S	TR01	5/16/2000	4	<0.035	<0.037	<0.037	<0.032	<0.033	0.037	<0.028	<0.31	0.051	<0.035
A11-008NE030NW-03	008NE030NW	7/25/2000	3	<0.032	<0.025	<0.032	0.049	<0.035	2.5	1.9	<0.17 UJ-	2.5	<0.031
A11-010NW008SW-03	010NW008SW	7/25/2000	3	<0.034	<0.027	<0.034	<0.03	<0.037	<0.026	<0.032	<0.18 UJ-	<0.023	<0.033
A11-030NW008SW-03	030NW008SW	7/25/2000	3	<0.034	<0.026	<0.034	<0.03	<0.036	<0.025	<0.031	<0.18 UJ-	<0.023	<0.032
A11-010NW023SW-03	010NW023SW	7/25/2000	3	<0.032	<0.025	<0.032	<0.028	<0.034	<0.024	<0.029	<0.17 UJ-	<0.022	<0.031
A11-030NW023SW-03	030NW023SW	7/25/2000	3	<0.035	<0.027	<0.035	<0.031	<0.037	<0.026	<0.032	<0.18 UJ-	<0.024	<0.034
A11-010NW038SW-03	010NW038SW	7/25/2000	3	<0.034	<0.026	<0.034	<0.03	<0.036	<0.025	<0.031	<0.18 UJ-	<0.023	<0.033
A11-030NW038SW-03	030NW038SW	7/25/2000	3	<0.036	<0.028	<0.036	<0.032	<0.038	<0.027	<0.033	<0.19 UJ-	<0.024	<0.034
A11-010NW053SW-03	010NW053SW	7/25/2000	3	<0.033	<0.026	<0.033	<0.029	<0.035	<0.025	<0.031	<0.17 UJ-	<0.022	<0.032
A11-030NW053SW-03A	030NW053SW	7/25/2000	3	<0.029	<0.023	<0.029	<0.026	<0.031	<0.022	<0.027	<0.15 UJ-	0.037	<0.028
A11-030NW053SW-03B	030NW053SW	7/25/2000	3	<0.029	<0.023	<0.029	<0.026	<0.031	<0.022	<0.027	<0.15 UJ-	0.034	<0.028
A11-SC01	SC01	7/25/2000	0	<0.036	<0.028	<0.036	<0.032	<0.038	<0.027	<0.033	<0.19 UJ-	<0.024	<0.034
A11-SC02	SC02	7/25/2000	0	<0.031	<0.025	<0.031	<0.028	<0.034	0.26	0.15	<0.16 UJ-	0.386	<0.03
Analyses				22	22	22	22	22	22	22	22	22	22
Detections				0	0	0	1	0	7	4	0	9	0
Minimum Concentration				0	0	0	0.049	0	0.036	0.15	0	0.034	0
Maximum Concentration				0	0	0	0.049	0	4.89	5.05	0	47	0
HWAD - PCG				NE	NE	NE	3200	3200	NE	NE	NE	NE	NE
HWAD - PCG Hits				NE	NE	NE	0	0	NE	NE	NE	NE	NE

NE = not established

Semivolatile Organic Compounds
Method 8[illegible]B (APCL)

Sample ID	Location ID	Sample Date	Depth	4-Nitrophenol	7,12-Dimethylbenz(a)anthracene	a,a-Dimethylphenethylamine	Acenaphthene	Acenaphthylene	Acetophenone	Aniline	Anthracene	Benzidine	Benzo(a)anthracene
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
A11-TP01-01-S	TP01	5/16/2000	4	<0.53	<0.057	<0.35	<0.034	<0.038	<0.04	<0.019	<0.038	<0.27	<0.045
A11-TP01-02-S	TP01	5/16/2000	4	<0.49	<0.053	<0.33	<0.032	<0.035	<0.037	<0.017	<0.035	<0.25	<0.042
A11-TP02-01-S	TP02	5/16/2000	4	<0.5	<0.054	<0.33	<0.032	<0.035	<0.037	<0.018	<0.035	<0.26	<0.043
A11-TP02-02-S	TP02	5/16/2000	4	<0.5	<0.054	<0.33	<0.032	<0.035	<0.037	<0.018	<0.035	<0.26	<0.043
A11-TP03-01-S	TP03	5/16/2000	4	<0.5	<0.053	<0.33	<0.032	<0.035	<0.037	<0.017	<0.035	<0.25	<0.042
A11-TP03-02-S	TP03	5/16/2000	4	<0.5	<0.054	<0.33	<0.032	<0.035	<0.037	<0.018	<0.035	<0.25	<0.042
A11-TR01-01-S	TR01	5/16/2000	4	<55	<5.9	<36	<3.5	<3.9	<4.1	<1.9	<3.9	<28	<4.6
A11-TR01-02-S	TR01	5/16/2000	2.5	<0.5	<0.054	<0.33	<0.032	<0.035	<0.037	<0.018	<0.035	<0.26	<0.043
A11-TR01-03-S	TR01	5/16/2000	6	<66	<7.1	<44	<4.3	<4.7	<4.9	<2.3	<4.7	<34	<5.6
A11-TR01-04-S	TR01	5/16/2000	4	<0.5	<0.053	<0.33	<0.032	<0.035	<0.037	<0.017	<0.035	<0.25	<0.042
A11-008NE030NW-03	008NE030NW	7/25/2000	3	<0.2	<0.028	<0.024	<0.035	<0.038	<0.035	<0.16	<0.024	<0.16	<0.028
A11-010NW008SW-03	010NW008SW	7/25/2000	3	<0.21	<0.029	<0.026	<0.037	<0.04	<0.037	<0.17	<0.026	<0.17	<0.029
A11-030NW008SW-03	030NW008SW	7/25/2000	3	<0.21	<0.029	<0.025	<0.036	<0.04	<0.036	<0.16	<0.025	<0.17	<0.029
A11-010NW023SW-03	010NW023SW	7/25/2000	3	<0.2	<0.027	<0.024	<0.034	<0.037	<0.034	<0.15	<0.024	<0.16	<0.027
A11-030NW023SW-03	030NW023SW	7/25/2000	3	<0.22	<0.03	<0.026	<0.037	<0.041	<0.037	<0.17	<0.026	<0.17	<0.03
A11-010NW038SW-03	010NW038SW	7/25/2000	3	<0.21	<0.029	<0.025	<0.036	<0.04	<0.036	<0.16	<0.025	<0.17	<0.029
A11-030NW038SW-03	030NW038SW	7/25/2000	3	<0.22	<0.031	<0.027	<0.038	<0.042	<0.038	<0.17	<0.027	<0.18	<0.031
A11-010NW053SW-03	010NW053SW	7/25/2000	3	<0.2	<0.028	<0.025	<0.035	<0.039	<0.035	<0.16	<0.025	<0.16	<0.028
A11-030NW053SW-03A	030NW053SW	7/25/2000	3	<0.18	<0.025	<0.022	<0.031	<0.034	<0.031	<0.14	<0.022	<0.14	0.039
A11-030NW053SW-03B	030NW053SW	7/25/2000	3	<0.18	<0.025	<0.022	<0.031	<0.034	<0.031	<0.14	<0.022	<0.14	<0.025
A11-SC01	SC01	7/25/2000	0	<0.22	<0.03	<0.027	<0.038	<0.042	<0.038	<0.17	<0.027	<0.18	<0.03
A11-SC02	SC02	7/25/2000	0	<0.19	<0.027	<0.023	<0.034	<0.037	<0.034	<0.15	<0.023	<0.16	<0.027
Analyses				22	22	22	22	22	22	22	22	22	22
Detections				0	0	0	0	0	0	0	0	0	1
Minimum Concentration				0	0	0	0	0	0	0	0	0	0.039
Maximum Concentration				0	0	0	0	0	0	0	0	0	0.039
HWAD - PCG				NE	NE	NE	4800	NE	NE	NE	24000		0.96
HWAD - PCG Hits				NE	NE	NE	0	NE	NE	NE	0		0

NE = not established

Semivolatile Organic Compounds
Method 8 B (APCL)

Sample ID	Location ID	Sample Date	Depth	N-Nitrosopiperidine	Naphthalene	Nitrobenzene	p-Dimethylaminoazobenzene	Pentachlorobenzene	Pentachloronitrobenzene	Pentachlorophenol	Phenacetin	2,4-Dichlorophenol	2,4-Dimethylphenol
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
A11-TP01-01-S	TP01	5/16/2000	4	<0.039	<0.031	<0.033	<0.033	<0.036	<0.03	<0.12	<0.038	<0.041	<0.038
A11-TP01-02-S	TP01	5/16/2000	4	<0.036	<0.029	<0.031	<0.031	<0.034	<0.028	<0.11	<0.035	<0.038	<0.035
A11-TP02-01-S	TP02	5/16/2000	4	<0.036	<0.029	<0.031	<0.031	<0.034	<0.028	<0.11	<0.035	<0.039	<0.035
A11-TP02-02-S	TP02	5/16/2000	4	<0.036	<0.029	<0.031	<0.031	<0.034	<0.028	<0.11	<0.035	<0.038	<0.035
A11-TP03-01-S	TP03	5/16/2000	4	<0.036	<0.029	<0.031	<0.031	<0.034	<0.028	<0.11	<0.035	<0.038	<0.035
A11-TP03-02-S	TP03	5/16/2000	4	<0.036	<0.029	<0.031	<0.031	<0.034	<0.028	<0.11	<0.035	<0.038	<0.035
A11-TR01-01-S	TR01	5/16/2000	4	<4	1.4	<3.4	<3.4	3.3	<3.1	<12	<3.9	<4.2	<3.9
A11-TR01-02-S	TR01	5/16/2000	2.5	<0.036	<0.029	<0.031	<0.031	<0.034	<0.028	<0.11	<0.035	<0.039	<0.035
A11-TR01-03-S	TR01	5/16/2000	6	<4.8	2.9	<4.1	<4.1	2.9	<3.7	<15	<4.7	<5.1	<4.7
A11-TR01-04-S	TR01	5/16/2000	4	<0.036	<0.029	<0.031	<0.031	<0.034	<0.028	<0.11	<0.035	<0.038	<0.035
A11-008NE030NW-03	008NE030NW	7/25/2000	3	<0.036	0.85	<0.028	<0.028	1.5	<0.028	<0.13	<0.027	<0.03	<0.027
A11-010NW008SW-03	010NW008SW	7/25/2000	3	<0.038	<0.027	<0.029	<0.029	<0.034	<0.029	<0.14	<0.028	<0.032	<0.028
A11-030NW008SW-03	030NW008SW	7/25/2000	3	<0.037	<0.026	<0.029	<0.029	<0.034	<0.029	<0.13	<0.028	<0.031	<0.028
A11-010NW023SW-03	010NW023SW	7/25/2000	3	<0.035	<0.025	<0.027	<0.027	<0.032	<0.027	<0.13	<0.026	<0.029	<0.026
A11-030NW023SW-03	030NW023SW	7/25/2000	3	<0.039	<0.027	<0.03	<0.03	<0.035	<0.03	<0.14	<0.029	<0.032	<0.029
A11-010NW038SW-03	010NW038SW	7/25/2000	3	<0.037	<0.026	<0.029	<0.029	<0.034	<0.029	<0.13	<0.028	<0.031	<0.028
A11-030NW038SW-03	030NW038SW	7/25/2000	3	<0.04	<0.028	<0.031	<0.031	<0.036	<0.031	<0.14	<0.029	<0.033	<0.029
A11-010NW053SW-03	010NW053SW	7/25/2000	3	<0.036	<0.026	<0.028	<0.028	<0.033	<0.028	<0.13	<0.027	<0.031	<0.027
A11-030NW053SW-03A	030NW053SW	7/25/2000	3	<0.032	<0.023	<0.025	<0.025	<0.029	<0.025	<0.12	<0.024	<0.027	<0.024
A11-030NW053SW-03B	030NW053SW	7/25/2000	3	<0.032	<0.023	<0.025	<0.025	<0.029	<0.025	<0.12	<0.024	<0.027	<0.024
A11-SC01	SC01	7/25/2000	0	<0.039	<0.028	<0.03	<0.03	<0.036	<0.03	<0.14	<0.029	<0.033	<0.029
A11-SC02	SC02	7/25/2000	0	<0.035	0.073	<0.027	<0.027	0.14	<0.027	<0.13	<0.026	<0.029	<0.026
Analyses				22	22	22	22	22	22	22	22	22	22
Detections				0	4	0	0	4	0	0	0	0	0
Minimum Concentration				0	0.073	0	0	0.14	0	0	0	0	0
Maximum Concentration				0	2.9	0	0	3.3	0	0	0	0	0
HWAD - PCG				NE	3200	40	NE	NE	NE	NE	NE	NE	NE
HWAD - PCG Hits				NE	0	0	NE	NE	NE	NE	NE	NE	NE

NE = not established

Semivolatile Organic Compounds
Method 8 B (APCL)

Sample ID	Location ID	Sample Date	Depth	2-Picoline	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitrophenol-o-cresol	4-Aminobiphenyl	4-Bromophenyl phenyl ether	Phenanthrene	Phenol	Pronamide	Pyrene
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
A11-TP01-01-S	TP01	5/16/2000	4	<0.029	<0.21	<0.11	<0.088	<0.04	<0.033	<0.034	<0.02	<0.028	<0.039
A11-TP01-02-S	TP01	5/16/2000	4	<0.027	<0.2	<0.099	<0.082	<0.037	<0.031	<0.032	<0.018	<0.026	<0.036
A11-TP02-01-S	TP02	5/16/2000	4	<0.027	<0.2	<0.1	<0.083	<0.037	<0.031	<0.032	<0.019	<0.026	<0.036
A11-TP02-02-S	TP02	5/16/2000	4	<0.027	<0.2	<0.1	<0.083	<0.037	<0.031	<0.032	<0.019	<0.026	<0.036
A11-TP03-01-S	TP03	5/16/2000	4	<0.027	<0.2	<0.099	<0.082	<0.037	<0.031	<0.032	<0.018	<0.026	<0.036
A11-TP03-02-S	TP03	5/16/2000	4	<0.027	<0.2	<0.1	<0.083	<0.037	<0.031	<0.032	<0.019	<0.026	<0.036
A11-TR01-01-S	TR01	5/16/2000	4	<2.9	<22	<11	<9.1	<4.1	<3.4	0.42	<2	<2.8	<4
A11-TR01-02-S	TR01	5/16/2000	2.5	<0.027	<0.2	<0.1	<0.083	<0.037	<0.031	<0.032	<0.019	<0.026	<0.036
A11-TR01-03-S	TR01	5/16/2000	6	<3.6	<26	<13	<11	<4.9	<4.1	<4.3	<2.5	<3.4	<4.8
A11-TR01-04-S	TR01	5/16/2000	4	<0.027	<0.2	<0.1	<0.082	<0.037	<0.031	<0.032	<0.018	<0.026	<0.036
A11-008NE030NW-03	008NE030NW	7/25/2000	3	<0.14	<0.15	<0.14	<0.095	<0.025	<0.028	0.22	<0.062	<0.025	<0.027
A11-010NW008SW-03	010NW008SW	7/25/2000	3	<0.14	<0.16	<0.15	<0.1	<0.027	<0.029	<0.027	<0.066	<0.027	<0.028
A11-030NW008SW-03	030NW008SW	7/25/2000	3	<0.14	<0.16	<0.15	<0.098	<0.026	<0.029	<0.026	<0.065	<0.026	<0.028
A11-010NW023SW-03	010NW023SW	7/25/2000	3	<0.14	<0.15	<0.14	<0.093	<0.025	<0.027	<0.025	<0.061	<0.025	<0.026
A11-030NW023SW-03	030NW023SW	7/25/2000	3	<0.15	<0.16	<0.15	<0.1	<0.027	<0.03	<0.027	<0.067	<0.027	<0.029
A11-010NW038SW-03	010NW038SW	7/25/2000	3	<0.14	<0.16	<0.15	<0.099	<0.026	<0.029	<0.026	<0.065	<0.026	<0.028
A11-030NW038SW-03	030NW038SW	7/25/2000	3	<0.15	<0.17	<0.16	<0.1	<0.028	<0.031	<0.028	<0.069	<0.028	<0.029
A11-010NW053SW-03	010NW053SW	7/25/2000	3	<0.14	<0.15	<0.14	<0.096	<0.026	<0.028	<0.026	<0.063	<0.026	<0.027
A11-030NW053SW-03A	030NW053SW	7/25/2000	3	<0.12	<0.14	<0.13	<0.085	<0.023	<0.025	<0.023	<0.056	<0.023	<0.024
A11-030NW053SW-03B	030NW053SW	7/25/2000	3	<0.12	<0.14	<0.13	<0.085	<0.023	<0.025	<0.023	<0.056	<0.023	<0.024
A11-SC01	SC01	7/25/2000	0	<0.15	<0.17	<0.16	<0.1	<0.028	<0.03	<0.028	<0.069	<0.028	<0.029
A11-SC02	SC02	7/25/2000	0	<0.13	<0.15	<0.14	<0.092	<0.025	<0.027	0.039	<0.06	<0.025	<0.026
Analyses				22	22	22	22	22	22	22	22	22	22
Detections				0	0	0	0	0	0	3	0	0	0
Minimum Concentration				0	0	0	0	0	0	0.039	0	0	0
Maximum Concentration				0	0	0	0	0	0	0.42	0	0	0
HWAD - PCG				NE	NE	NE	NE	NE	NE	NE	48000	NE	2400
HWAD - PCG Hits				NE	NE	NE	NE	NE	NE	NE	0	NE	0

NE = not established

Exp[illegible]ives
Methods 8330 [illegible] 8330M (APCL)

Sample ID	Location ID	Sample Date	Depth	Picric Acid	RDX	Tetryl	2-Amino-4,6-dinitrotoluene	4-Amino-2,6-dinitrotoluene
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
A11-TP01-01-S	TP01	5/16/2000	4	<0.057	<0.099	<0.07	<0.017	<0.0086
A11-TP01-02-S	TP01	5/16/2000	4	<0.053	<0.092	<0.064	<0.015	<0.008
A11-TP02-01-S	TP02	5/16/2000	4	<0.054	<0.094	<0.066	<0.016	<0.0081
A11-TP02-02-S	TP02	5/16/2000	4	<0.054	<0.094	<0.065	<0.016	<0.0081
A11-TP03-01-S	TP03	5/16/2000	4	<0.053	<0.092	<0.065	<0.015	<0.008
A11-TP03-02-S	TP03	5/16/2000	4	<0.054	<0.093	<0.065	<0.016	<0.0081
A11-TR01-01-S	TR01	5/16/2000	4	<0.059	<0.1	<0.071	<0.017	<0.0088
A11-TR01-02-S	TR01	5/16/2000	2.5	<0.054	<0.094	<0.066	<0.016	<0.0081
A11-TR01-03-S	TR01	5/16/2000	6	<0.071	<0.12	<0.086	<0.021	<0.011
A11-TR01-04-S	TR01	5/16/2000	4	<0.053	<0.092	<0.065	<0.015	<0.008
A11-008NE030NW-03	008NE030NW	7/25/2000	3	<0.06	<0.1	<0.073	<0.017	<0.009
A11-010NW008SW-03	010NW008SW	7/25/2000	3	<0.063	<0.11	<0.077	<0.018	<0.0095
A11-030NW008SW-03	030NW008SW	7/25/2000	3	<0.062	<0.11	<0.075	<0.018	<0.0093
A11-010NW023SW-03	010NW023SW	7/25/2000	3	<0.059	<0.1	<0.071	<0.017	<0.0088
A11-030NW023SW-03	030NW023SW	7/25/2000	3	<0.065	<0.11	<0.079	<0.019	<0.0097
A11-010NW038SW-03	010NW038SW	7/25/2000	3	<0.063	<0.11	<0.076	<0.018	<0.0094
A11-030NW038SW-03	030NW038SW	7/25/2000	3	<0.066	<0.11	<0.08	<0.019	<0.01
A11-010NW053SW-03	010NW053SW	7/25/2000	3	<0.061	<0.11	<0.074	<0.018	<0.0092
A11-030NW053SW-03A	030NW053SW	7/25/2000	3	<0.054	1.2	<0.065	<0.015	<0.008
A11-030NW053SW-03B	030NW053SW	7/25/2000	3	<0.054	<0.093	<0.065	<0.016	<0.0081
A11-SC01	SC01	7/25/2000	0	<0.066	<0.11	<0.08	<0.019	<0.0099
A11-SC02	SC02	7/25/2000	0	<0.058	<0.1	<0.07	<0.017	<0.0087
Analyses				22	22	22	22	22
Detections				0	1	0	0	0
Minimum Concentration				0	1.2	0	0	0
Maximum Concentration				0	1.2	0	0	0
HWAD - PCG				7	64	800	NE	NE
HWAD - PCG Hits				0	0	0	NE	NE

NE = not established

APPENDIX D

PHOTOGRAPHS

A11, View to south, similar to #R2-P3, showing rows of soil piles. #R6-P16, 11/4/93

A11, West of R6-P16. #R6-P15, 11/4/93

A11, View to north from south end of SWMU. #R6-P17, 11/4/93

A11, Detail of burn debris, copper ignitors, ash, etc.. #R6-P18, 11/4/93

A11, Detail of ash & burn debris along east wall of SWMU. #R2-P3, 9/1/93