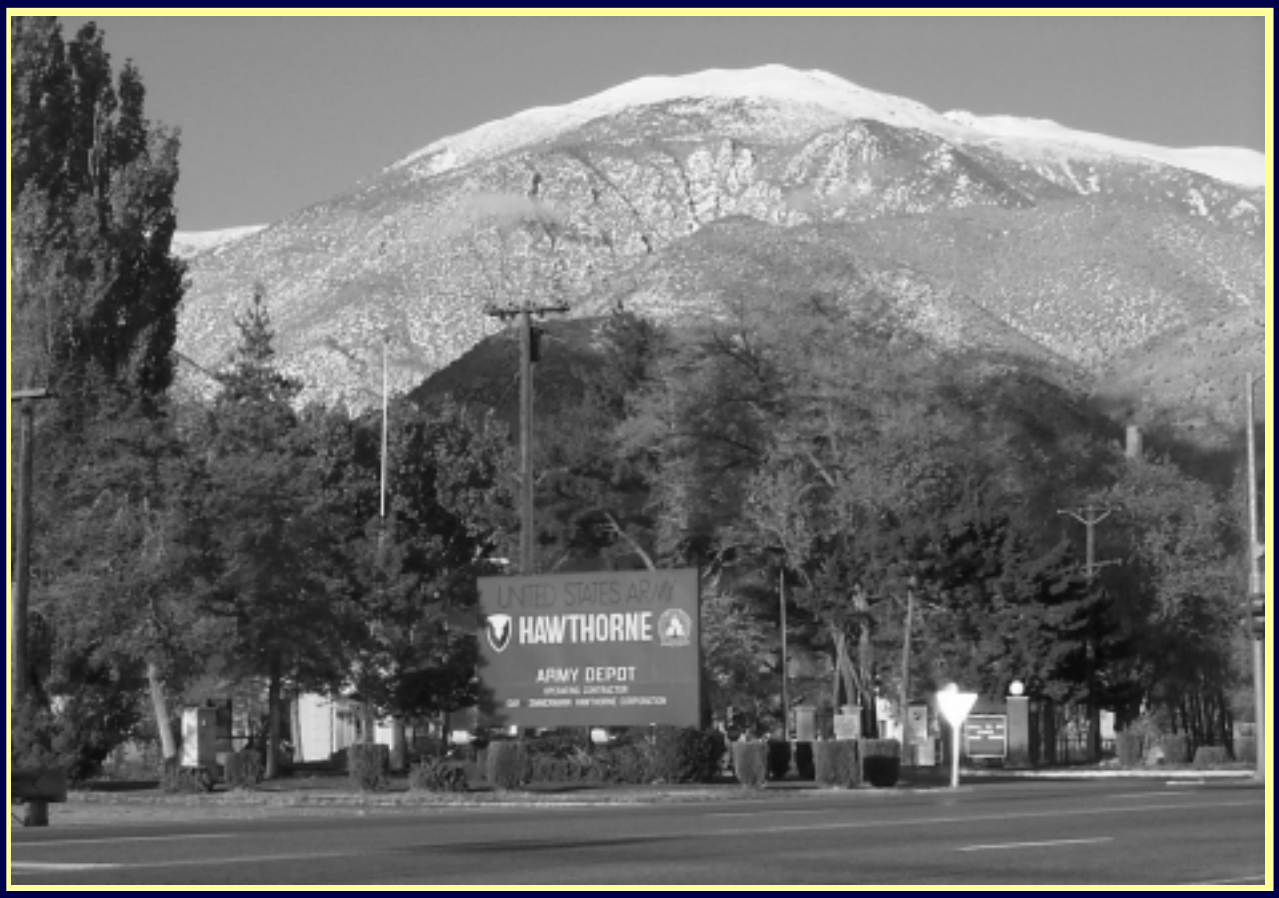
Hawthorne
Army Depot
Installation Action Plan

MARCH 2001

INSTALLATION ACTION PLAN
2001



Hawthorne
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PURPOSE

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year restoration program for an installation. The plan will define all Installation Restoration Program (IRP) requirements and propose a comprehensive approach and associated costs to conduct future investigations and remedial actions at each Solid Waste Management Unit (SWMU) at the installation and other areas of concern.

In an effort to coordinate planning information between the IRP manager, major army commands (MACOMs), installations, executing agencies, regulatory agencies, and the public, an IAP has been completed for Hawthorne Army Depot. The IAP is used to track requirements, schedules and tentative budgets for all major Army installation restoration programs.

All site specific funding and schedule information has been prepared according to projected overall Army funding levels and is therefore subject to change during the document's annual review. Under current project funding, all remedies will be in place at Hawthorne Army Depot by the end of 2010.

CONTRIBUTORS TO THIS YEAR'S IAP

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ACRONYMS & ABBREVIATIONS

AEC	Army Environmental Center
bgs	below ground surface
CA	Corrective Action
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CMS	Corrective Measure Study
COE	U.S. Army Corps of Engineers
CPT	Cone Penotrometer
CY	Cubic Yards
DA	Department of Army
DD	Decision Document
DERA	Defense Environmental Restoration Account
DERP	Defense Environmental Restoration Program
DOD	Department of Defense
DOL	Directorate of Logistics
DSERTS	Defense Site Environmental Restoration Tracking System
DSMOA	Defense/ State Memorandum of Agreement
EPA	United States Environmental Protection Agency
ER,A	Environmental Restoration, Army (Formally DERA)
FS	Feasibility Study
FY	Fiscal Year
GOCO	Government Owed/Contractor Operated
HWAAP	Hawthorne Army Ammunition Plant
HWAD	Hawthorne Army Depot
IAP	Installation Action Plan
IRA	Interim Remedial Action
IRP	Installation Restoration Program
LTM	Long Term Monitoring
MCL	Maximum Contaminant Level
NDEP	Nevada Division of Environmental Protection
NE	Not Evaluated
NFA	No Further Action
NFRAP	No Further Remedial Action Planned
NON	Notice of Noncompliance
NOV	Notice of Violation
NPL	National Priorities List
OB/OD	Open Burning / Open Detonation
ODA	Old Demolition Area
OMA	Operations and Maintenance - Army
OWS	Oil and Water Separator
POL	Petroleum, Oil and Lubricants
PA	Preliminary Assessment
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PCE	Perchloroethylene
PPB	Parts Per Billion
PPM	Parts Per Million
PY	Prior Year
RA	Remedial Action

ACRONYMS & ABBREVIATIONS

LIST OF ACRONYMS AND ABBREVIATIONS CONTINUED…

RAC	Risk Assessment Code
RA(C)	Remedial Action - Construction
RA(O)	Remedial Action - Operation
RAB	Restoration Advisory Board
RAP	Remedial Action Plan
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RECAP	Risk Evaluation/ Corrective Action Program
REM	Removal
RI	Remedial Investigation
RIP	Remedy in Place
RFI	RCRA Facility Investigation
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SI	Site Inspection
STP	Sewer Treatment Plant
SVOC	Semi-Volatile Organic Compounds
SWMU	Solid Waste Management Unit
TCE	Trichloroethylene
TPH	Total Petroleum Hydrocarbons
TRC	Technical Review Committee
USACE	United States Army Corps of Engineers
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine
USAEC	United States Army Environmental Center
USAEHA	United States Army Environmental Hygiene Agency (now CHPPM)
USATHMA	United States Army Toxic and Hazardous Material Agency (replaced by AEC)
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VOC	Volatile Organic Compounds

SUMMARY

STATUS: Non-NPL.

NUMBER OF DSERTS SITES:

123 DSERTS sites
- 32 Active ER,A Eligible Sites
- 91 Response Complete DSERTS Sites

DIFFERENT SITE TYPES:

7	Burn Areas	1	Fire/Crash Training Area
4	Contaminated Fill	4	Surface Disposal Area
3	Disposal Pit/Dry Well	4	Waste Treatment Plants
1	Incinerator	1	Explosive Ordnance Disposal Area
4	Storage Areas	42	Surface Impoundments
5	Spill Site Areas	1	Unexploded Munitions/Ordnance
41	Landfills	1	Above Ground Storage Tank
1	Firing Range	2	Underground Storage Tanks
1	Other		

CONTAMINANTS OF CONCERN: 2,4,6-Trinitrotoluene (TNT), 1,3,5-Trinitro-1,3,5-Triazacychlohexane (RDX), Composition D (ammonium picrate), Unexploded Ordnance (UXO)

MEDIA OF CONCERN: Soil, Groundwater

COMPLETED REM/IRA/RA:
- 4 RAs

CURRENT IRP PHASES:

RI/FS 1 sites	RD/RA 9 sites
RA 2 sites	LTM 17 sites
LTO 3 sites	

PROJECTED IRP PHASES:

IRA 1 site	RD 9 sites
RA 11 sites	LTM 4 sites
LTO 1 site	

IDENTIFIED POSSIBLE REM/ IRA/RA:
- RA at HWAAP- B04, B20, B24, B26, B27A, B29, I02, I07, I08, I09/10, J29
- IRA at HWAAP-I02

FUNDING:

FY1993 to FY00 Funds:	$ 22,221,000
Current Year (FY01) Funds:	$ 2,001,000
FUTURE REQUIREMENTS:	$ 22,349,000
TOTAL:	$ 46,571,000

DURATION:

YEAR OF IRP INCEPTION:	1993
YEAR OF IRP COMPLETION EXCLUDING LTM:	2010
YEAR OF IRP COMPLETION INCLUDING LTM:	2014

INSTALLATION INFORMATION

LOCALE

HWAD is located in Mineral County, Nevada, approximately 135 miles southeast of Reno, NV. The depot covers an area of approximately 150,000 acres and encloses three sides of the town of Hawthorne which has a population of approximately 4,500 people. HWAD is bounded on three sides by mountains; the Wassuk Mountain Range on the west, the Gillis Range on the east, and the Excelsior Mountains on the south. Walker Lake bounds the depot on the north.

COMMAND ORGANIZATION

MAJOR COMMAND: United States Army Materiel Command (AMC), Environmental Quality Division

MAJOR SUBORDINATE COMMAND: U.S. Army Operations Support Command, Environmental Quality Directorate

INSTALLATION: HWAD, Operations Review Division

INSTALLATION RESTORATION PROGRAM (IRP) EXECUTING AGENCY

Investigation and Remedial Action Phase; U.S. Army Corps of Engineers, Sacramento District

REGULATOR PARTICIPATION

FEDERAL: U.S. Environmental Protection Agency, Region IX

STATE: Nevada Department of Environmental Protection (NDEP)

REGULATORY STATUS

- Non-NPL/ RCRA Permit
- Interagency Agreement, None

MAJOR CHANGES TO ACTION PLAN FROM PREVIOUS YEAR (FY 00)

- Several sites have now been closed with minimal surface work and final documentation.
- Remediation at 2 of the largest contaminated sites continue. Further investigation at 2 sites. Continued area wide groundwater monitoring.

INSTALLATION DESCRIPTION

HWAD is currently a Government owned/Contractor operated (GOCO) facility. Day & Zimmermann Hawthorne Corporation [DZHC, Former Day and Zimmermann/Basil Corporation (DZB)] is the current operating contractor. The government and DZHC employ approximately 500 personnel. The current mission of HWAD is to receive, issue, store, renovate, inspect, demil, and dispose of conventional ammunition.

The installation was originally constructed in 1928 as a US Naval Ammunition Depot. The early mission of the depot was to store, service, and issue ammunition to the Pacific Area. Following World War II, the Depot was actively involved in the demolition of various types of allied and enemy ammunition. The role of the Depot was also expanded to include receiving, renovating, loading, maintaining, storing, and issuing ammunition, explosives, expendable ordnance items, and/or weapons and technical ordnance materials. The Depot was also used to test weapons and dispose of unserviceable and/or dangerous ammunition and explosives. In 1977 the Depot was transferred to the U.S. Army renamed Hawthorne Army Ammunition Plant (HWAAP). After the transfer, HWAAP was redesignated as a GOCO Plant in 1980 and operating under the direction of DZB. Its mission in 1980-1994 was to

(1) receive, produce, assemble, load, issue, store, renovate, inspect, test demilitarize, and dispose of conventional ammunition;

(2) operate and/or maintain in operational readiness cast and fuel-air explosive loading plants, rocket assemble plants, and medium/major caliber assembly lines;

(3) provide special/experimental high explosive casting, extruding, and pressing; fuel air explosive loading and support services to designated research and development activities;

(4) provide storage facilities for war reserve ammunition, and maintain designated ammunition in a state of readiness for mobilization, including assembling or otherwise providing base unit materials; and

(5) conduct testing of solid propelled munitions, high explosive warheads, mechanical and electronic fuses, cartridge cases, primers, rocket motors, and other ballistic devices.

HWAAP was redesignated as Hawthorne Army Depot (HWAD) and its mission was revised on 1 October 1994. HWAD has continued to fulfill its revised mission (shipping, storage and recycling of munitions) and operating under the direction of DZHC.

HWAD is not on the National Priority List (NPL). Studies and investigations have been conducted under the guidance of State of Nevada Department of Environmental Protection Agency (NDEP). Releases of hazardous substances, pollutants, or contaminants have been located within the meaning of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA) and applicable State Law. The regulatory process for the Installation Restoration Program is governed under RCRA.

In December 1995, to facilitate public involvement in HWAD's Installation Restoration Program, HWAD published public notices in the Mineral County Independent Newspaper for establishment of a Restoration Advisory Board (RAB). Only one inquiry to public notices was received. Because of insufficient public response, a RAB will not be formed but information concerning the Installation Restoration Program will continuously be released to the public through the media and display at the Mineral County Library.

CONTAMINATION ASSESSMENT

Site investigations and groundwater monitoring have been conducted by the Army, US Army Environmental Hygiene Agency (USAEHA), US Army Toxic and Hazardous Materials Agency (USATHAMA), and US Geological Survey (USGS), Corps of Engineers, and numerous contractors in various areas throughout the installation since 1974. The primary contaminates of concern are explosives (2,4,6-Trinitrotoluene (TNT), 1,3,5-Trinitro-1,3,5-Triazacychlohexane (RDX), nitrate/nitrite) and Unexploded Ordnance (UXO).

Prior to the transfer of HWAAP to the Department of Army, USGS conducted a study in three phases under the direction of Department of Navy to assess the possibility of groundwater contamination in the vicinity of the disposal pits at facilities 103-41 (HWAAP-B29), 103-16 (HWAAP-B27a). The disposal pits were constructed to receive explosive waste from the demilitarization operation. The explosive waste included composition D (ammonium picrate), amatol (TNT plus ammonium nitrate) and RDX.

In Phase I & III, November 1974 - November 1977, USGS installed a total of twenty six exploratory wells in immediate proximity and northwest of the disposal area adjacent to demilitarization facility 103-41 (HWAAP-B29). Analysis of water samples taken from the wells showed levels of nitrate/nitrite above background, and several of the wells were found to contain TNT. The highest concentration of TNT (300 ppb and 430 ppb) was detected in two separate determinations in one of the wells. The compound dinitrotoluene (DNT) was also detected from one of the wells. Study indicated that a narrow plume of TNT contamination existed in a northwesterly direction.

In Phase II, June 1976 - November 1977, USGS installed eight exploratory wells in the vicinity of disposal pits adjacent to the demilitarization facility 103-16 (HWAAP-B27a). Chemical analysis of the groundwater samples revealed nitrate/nitrite levels to be above background in most cases and one sample from one of the wells showed TNT at a trace level.

After the transfer of HWAAP in 1977 to the Department of Army, US Army Armament Material Readiness Command (ARRCOM) requested USATHAMA, then known as Project Manager for Chemical Demilitarization and Installation Restoration (PMCDIR), to conduct assessments of HWAAP to determine if there was any contamination resulting from past waste disposal practices.

Installation assessment was conducted between 1977 and 1981 by USATHAMA. Over 25 pits were identified to have received explosive wastes from loading and demilitarization operations in the production areas: 101, 102, 103, 104/49, and 108. The assessment concluded that TNT had migrated in a narrow plume to a distance of between 1,200 and 3,200 feet down gradient from 103-41 disposal pits. The migration rate of TNT was slower than the groundwater rate. The assessment also concluded that nitrogen compounds, primarily nitrate, were migrating in two plumes toward Walker Lake. Study was performed showing no impact from HWAD operations to Walker Lake.

A disposal area for mustard and phosgene chemical munitions (HWAAP-A05) was located during the assessment. The area was first used during World War II; it was last used in 1946 to decontaminate and bury an unspecified quantity of mustard munitions and their toxic agent contents. In 1991 an attempt was made to locate the munitions and to determine if any mustard agent remained either in the soil or in the munitions. Several pits were located and excavated. M-15 chemical detectors gave positive readings for mustard at only one munition; however, laboratory analyses of samples taken from the munitions were negative. Testing of vapors from the pits was negative. Since the analyses were inconclusive, the area could still have chemical agent munitions buried beneath the surface.

Several test ranges were also identified in the assessment. Of particular concern is the range near Walker Lake where extensive munition testing was conducted from World War II to the early seventies. Most of the rounds impacted in the lake and many remain there as UXO. Live rounds are frequently found on the receding shoreline of Walker Lake.

Another area of concern is west of Walker Lake which was used for training. It was reported by Explosive Ordnance Division (EOD) personnel to be one of the most heavily UXO contaminated areas at HWAD.

The Rocket Test Area located near the southern boundary of HWAD also contains UXOs in the impact area. Adjacent to the Rocket Test Area is also a site that was used for fuze and ordnance disposal from World War II through the Korean War. It was reported that demolition charges used to destroy the munitions were so large that live munitions were found as far as one mile from the detonation pit. The area is considered extremely hazardous and is fenced to discourage trespassing.

An evaluation of Solid Waste Management Units (SWMUs) was performed by USAEHA between May 1987 and August 1988. At that time 82 SWMUs were identified. Site screening inspections were conducted from July ’92 through December ’92 to verify the SWMU’s, and data were gathered for the US EPA to revise the Hazard Ranking System (HRS2). As a result of the site screening inspections, a total of 123 SWMUs were identified.

CONTAMINATION ASSESSMENT

Under the Installation Restoration Program - Defense Environmental Restoration Account, remedial investigation of Group A Solid Waste Management Units (33 SWMUs) since 1993; Group B (55 SWMUs), Old Bomb Disposal Sites (12 SWMUs (UXO and explosive disposal and burned sites)), 7 Underground Storage Tank sites, 1 Above Ground Storage Tank site since 1994 have been conducted.

Group A SWMU's consist of 29 catchment pits/ponds/ impoundments sites, 2 disposal pit site, 1 disposal pile site and 1 landfill. Work performed includes surface geophysics survey, near surface soil and subsurface sampling and analyses, and groundwater sampling at 3 existing wells. Baseline Risk Assessments for the 29 sites have completed. Groundwater sampling is included in the long-term groundwater monitoring plan.

Group B SWMU's consist of 23 landfills, 15 catchment/pits/ impoundments, 2 Deactivation Furnace areas, 7 disposal pits/ditches/ trenches, 2 OB pits, 5 discharge/spill areas, and 1 mustard gas disposal area. Work performed includes aerial photography, GPS surveying, Airborne Geophysics Survey, Surface Geophysics Survey, Subsurface Screening for Utilities and UXOs, Soil Gas Survey, Soil Sampling and analyses, Ground Water Measurements. Groundwater sampling at some of these sites are part of the ground water monitoring program. Baseline Risk Assessments for most of the sites will be included in the RIFS.

A pilot study for windrow composting was performed during the summer of 1997. In this study, 2,500 cubic yards of soil containing TNT, HMX and DNT was treated at SWMU's B20, B32 and I15. Remediation was completed at these sites and they are currently going through the closure process. As part of the pilot study, regulatory requirements for the process as well as operating conditions were established for the site. The involved regulatory agencies determined that the remediation process would not require a containment building or a solid surface pad. In addition, using treated wooden ammunition boxes as a wood source was deemed acceptable. The original study was expanded to include 300 cubic yards of ammonium picrate contaminated soil. Results indicate that this treatment process will successfully remediate soil contaminated with ammonium picrate for which, prior to this test, there was no accepted treatment methodology.

Old Bomb Disposal Sites consists of 6 landfills, 4 open burn burial pit sites and 2 popping furnace sites. These sites were used for disposal of ordnance. Airborne ground penetration radar (AGPR) survey was conducted to evaluate these sites. As a result of the survey and previous geophysical surveys, test pits are proposed to characterize geophysical anomalies, soil samplings are proposed to determine if release of hazardous constituents has occurred.

7 UST sites are located at Bldg 13, 103-6, 101-25, 94, Camp Jumbo, Bldg 106-10, and 20-21. Tanks were removed between 1991 and 1993. Sampling results showed evidence of elevated levels of total petroleum hydrocarbons (TPH) ranging from about 6,000mg/kg to 73,000mg/kg at depth ranging from 5 to 19 feet. Three sites, Camp Jumbo, Building 106-10 and Building 20-21, decision document for no further action have been signed by the regulatory agency. A pilot study bioventing system at Bldg 13 has been turned over to the COE for long term monitoring. Installation of Bldg 103-6 and 101-25 is complete.

Above ground storage tank (AST) Site, HWAAP-J03 (Bldg 70 Diesel Leak), consists of two 100,000 gallon ASTs that were installed in 1940s and had been leaking diesel fuel over a period of time. In 1991 the contaminated soils were removed by HWAD creating a large excavation pit. Remedial investigation conducted in 1994 indicated that soil contamination of TPH was at an elevated level of over 40,000 mg/kg in the excavation pit, and TPH ground water was at 11 mg/l. The two AST tanks were removed in February 1997. A bioventing pilot study was completed at this site. Stockpiled soils contaminated with petroleum hydrocarbons from twelve sites was collected at HWAAP-J03. This soil was used to fill the excavation pit. The enhanced bioventing test results indicate that bioventing may be able to remediate the site within eight years.

Window composting of sites within the 101 production area is complete. Additional sites have been identified and based on future evaluation, may be added to active sites for remediation. Composting is performed outside, on the bare ground.

This IAP includes only the IRP eligible sites and those listed in the Defense Site Environmental Restoration Tracking System (DSERTS) database.

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A Brief Appraisal of the Water Resources of the Walker Lake Area, Mineral, Lyon, and Churchill Counties, NV. Reconnaissance Series Report No. 40, .	Everett, D.E. and F.E. Rush; NV DWR	1967
Hydrologic Regimen of Walker Lake, Mineral County, NV. WR Information Series, Report No. 21.	Rush, F.E.; NV DWR and USGS	1974
Ground Water Contamination by Percolating Explosives Wastes, Hawthorne Army Ammunition Plant, Mineral County, Nevada, Phase I, November 1974 .	US Department of the Interior, Geologic Survey	Jun-75
Source of Nitrate in Water from Supply Well 8, Hawthorne Naval Ammunition Depot, Nevada.	Van Denburgh, A.S., F.E. Rush; U.S. Geological Survey Administrative Progress Report	1975
Ground water contamination by percolating explosives wastes, Hawthorne Naval Ammunition Depot, Nevada, Phase I, Reconnaissance of the 103-41 Area	Van Denburgh, A.S., and R.R. Squires; U.S. Geological Survey Administrative Progress Report	1976
Preliminary Investigation of the Geothermal Resources near Hawthorne, NV. Project Report No. 50	Bohm, B.W. and R.L. Jacobsen; Water Resources Center, Desert Research Institute	1977
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Installation Assessment of Naval Ammunition Depot, Hawthorne, NV. Records Evaluation Report No. 114.	U.S. Army Toxic and Hazardous Materials Agency, Aberdeen Proving Ground, MD	Aug-77
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Analysis of Surface Water and Sediment Samples from HWAAP for TNT, Picric Acid and RDX	Energetic Materials Div, LCWSL, ARRADCOM, Dover, NJ	20-Nov-78
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Ground Water Contamination by Percolating Explosives Wastes, HWAAP, Mineral County, NV, Phase IV, Reconnaissance Near Walker Lake	USGS	1980
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Ground water contamination by percolating explosives wastes, Hawthorne Army Ammunition Plant, Mineral County, NV, Phase III, Reconnaissance of the 103-41 Area	Van Denburgh, A.S., D.G. Schaefer, and D.B. Wood; U.S. Geological Survey Administrative Progress Report	1980
Field Investigation of Uncontrolled Hazardous Waste Sites, FIT Project, Site Inspection Report on Hawthorne Army Ammunition Plant.	Ecology & Environment, Inc.	1981
Final Report, Survey and Assessment of Hawthorne Army Ammunition Plant, Hawthorne, Nevada	USATHAMA, Aberdeen Proving Ground, Maryland	Sep-81

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Hazardous Waste Technical Consultation No. 38-26-0225-82, Waiver of Ground-water Monitoring Requirements, HWAAP, Hawthorne, NV		21-24 Jun 1982
Water Quality Engineering Consultation No. 32-66-0176-83, HWAAP, Hawthorne, NV		6-9 Dec 1982
Water Quality Engineering Special Study No. 32-24-0444-84, Evaluation of Waste water Treatment Alternatives, HWAAP, Hawthorne, NV		9-16 May 1983
Hazardous Waste Management Survey No. 37-26-0335-84, HWAAP, Hawthorne, NV		26-30 Sept 1983
Closure/Post-Closure Plans, Hawthorne Army Ammunition Plant. Contract No. DAAA09-80-C-3011	Facilities Engineering Division, Day & Zimmermann/Basil Corporation	2-Nov-83
Hazardous Waste Investigation Report	Coulson, A.; NDEP at HWAAP	1985
Letter, HWAAP to EPA Region IX. Information regarding potential releases from Solid Waste Management Units	HWAAP	Dec-85
Aerial Photographs of HWAAP	Nevada Department of Transportation	1986
Data on GW quality for the Walker Lake 1 degrees by 2 degrees quadrangle, Western Nevada and Eastern California. Open File Report #85-0648-1. .	Welch, A.H. and R.P. Williams; U.S. Geological Survey	1987
Ground-Water Contamination Survey No. 38-26-0850-88. Evaluation of Solid Waste Management Units. Final Report. HWAAP, Hawthorne, NV 12-19 May 1987 and 1-5 August 1988.	USAEHA	1988
RCRA Facility Assessment, Hawthorne Army Ammunition Plant, TES IV Work Assignment No. 419	Jacobs Engineering	1988
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Final Report Ordnance and Environmental Investigation at HWAAP, Hawthorne, NV, Volume 1,2, 3 and Appendices A-G, CEHND	International Technology Corporation (IT Corp)	May-89
Air Pollution Emission Assessment No. 42-21-0644-90, HWAAP, Hawthorne, NV		14-18 Aug 1989
Investigation and Evaluation of Underground Storage Tanks, Hawthorne, NV	HWAAP	Sep-89
Hazardous Wastes Management Consultation Survey No. 37-66-0169-90, HWAAP, NV		10-12 Oct 1989
Hawthorne Army Ammunition Plant, Area 101 Surface Impoundments, Field and Lab Data and Analysis, Attachments 1-8	Waterworks	1989
Geohydrologic Study No. 38-26-0371-91, Western Area Demilitarization Facility, HWAAP, Hawthorne, NV	USAEHA	15-25 Oct 1990
Letter Arver Ferguson, USACE, Fort Worth District, from Jacqueline Wyland, U.S. EPA Chief, Office of Federal Facilities. Subject: Comments on Hazardous waste cleanup at Hawthorne Army Ammunition Plant as related to Base Closure EIS	Wyland, J.	1989

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Summary Report, Phase I Investigation for Closure of 101 Area Surface Impoundments	Day & Zimmermann/Basil Corporation by Waterworks, Escalon, CA	28-Mar-90
Range Condition and Vegetation Inventory, Hawthorne Army Ammunition Plant (HWAAP), with maps	Rathburn, F.W.	1991
Soil Survey of Hawthorne Army Ammunition Plant, NV	U.S. Department of Agriculture, Soil Conservation Service	1991
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Geohydrologic Study No. 38-26-KP66-92, Former Underground Storage Tank Sites, HWAAP, Hawthorne, NV	USAEHA	10-21 Aug 1992
Preliminary Assessment Screening No. 38-26-KS38-92, Babbitt Landfill, HWAAP, Hawthorne, NV	USAEHA	19-20 Aug 1992
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Data & Documentation transfer, Group B SWMUs, Vol 1-3	Tetra Tech, Inc.	Feb-95
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Final RFA Report for 24 SWMUs, HWAD	Ecology & Environment, Inc.	Apr-95
Quality Control Summary Report, RFA of 9 & 24 SWMUs, HWAD	Ecology & Environment, Inc.	Apr-95
Monument Installation Plan, HWAD	Tetra Tech, Inc.	Jun-95
Site Assessment, Rodeo Grounds Community Pit and Dock 1 Borrow Pits, HWAD	CESPK	Sep-95
Airborne Ground Penetration Radar Survey, part 1-9, HWAD	Airborne Environmental Services	Sep-95
Group A & B SWMUs, Proposed Modification to CDAP, HWAD	Tetra Tech, Inc.	Feb-96
Final Closure Report for SWMUs: HWAAP-A03, B28a-d, I14, J04-10, J13, J17, J21, J22, J24, HWAD	Tetra Tech, Inc.	Feb-96
Final RFI Work Plan, Group A SWMUs, HWAD	Tetra Tech, Inc.	Mar-96
Final Data Package, Group B SWMUs with Recommendations for Further Action, Vol 1, 2a & b, HWAD	Tetra Tech, Inc.	Apr-96

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Title	Author	Date
Field Investigation Plan Amendment: RCRA Facility Investigation of Group A Solid Waste Management Units, HWAD	Ecology & Environment, Inc.	Jun-96
Draft Design Technical Specifications for Remedial Bioventing Systems at Three Underground Storage Tank Sites, HWAD	Tetra Tech, Inc.	Jul-96
Building 70, AST Removal, Project Work Plan, HWAD	Davy International	Sep-96
Draft Summary of Report for the Building 13 Enhanced Bioremediation Pilot Test, HWAD	Tetra Tech, Inc.	Sep-96
Final Site Safety and Health Plan, Remedial Investigation Group A and B Solid Waste Management Units	Tetra Tech, Inc.	Sep-96
Final Summary of Report for the Building 13 Enhanced Bioremediation Pilot Test, HWAD	Tetra Tech, Inc.	Dec-96
Field Investigation Photolog: RCRA Facility Investigation of Group A Solid Waste Management Units, HWAD	Ecology & Environment, Inc.	Dec-96
Final Design Technical Specifications for Remedial Bioventing Systems at Three Underground Storage Tank Sites, HWAD	Tetra Tech, Inc.	Jan-97
Final Data Package, Group B SWMUs with Recommendations for Further Action, Vol 1, 2a & b, HWAD	Tetra Tech, Inc.	Jan-97
Final Sampling and Analysis Plant, HWAD	Tetra Tech, Inc.	Jan-97
Final Standard Operating Procedures for Ground Water Sampling at HWAD	Tetra Tech, Inc.	Jan-97
Final Site Safety and Health Plan, Remedial Investigation Group A and B Solid Waste Management Units	Tetra Tech, Inc.	Jan-97
Final RCRA Facility Investigation Report for Group A Solid Waste Management Units A-04, B-16, B-24, B-26 and H-01, Hawthorne Army Depot, Hawthorne, Nevada	Ecology & Environment, Inc.	May-97
Draft Report Bioremediation Pilot Study Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Nov-97
Final Engineering Evaluation/Cost Analysis For Explosives Remediation, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Jan-98
Draft Project work Plan, Additional Remedial Investigation SWMUs B-26, B27b and J-28, Hawthorne Army Depot, Hawthorne, Nevada	Allied Technology Group, Inc.	Jan-98
Draft Volume 1, Remedial Investigation Report Solid Waste Management Units, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Dec-97
Draft RI Reports for SWMU B25, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Feb-98
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Draft RI Report for SWMUs B22a, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Feb-98
Draft RI Report for SWMUs B22b, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Feb-98
Draft RI Report for SWMUs B23, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Feb-98
Draft RI Report for SWMUs B27a, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Feb-98
Draft RI Report for SWMUs B32, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Feb-98
West 101 Production Area soil Remediation Hawthorne Army Depot, Hawthorne, Nevada	U.S. Army Corps of Engineers, Sacramento District	Feb-98

PREVIOUS STUDIES

Title	Author	Date
Draft Project Work Plan, Installation of Remedial Bioventing Systems at Two Former UST Sites, Hawthorne Army Depot, Hawthorne, Nevada	Allied Technology Group, Inc.	Feb-98
Draft RI Report for SWMU B27c, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Mar-98
Draft RI Report for SWMU I07, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Mar-98
Draft RI Report for SWMU B27b, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Mar-98
Draft RI Report for SWMU I15, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Mar-98
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Final Soil Gas Implementation Technical Memorandum, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Apr-98
Draft RI Report for SWMU B20, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Apr-98
Draft RI Report for SWMU B29, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Apr-98
Draft RI Report for SWMU J11/15, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Apr-98
Draft RI Report for SWMU J14, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Apr-98
Building 70 Enhanced Bioremediation Pilot Test, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Apr-98
Draft Well Abandonment Work Plan, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	May-98
Final Bioremediation Pilot Study Report of Explosives in Soil, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	May-98
Draft RI Report for SWMU I02, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	May-98
Draft RI Report for SWMU J28, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	May-98
Draft RI Report for SWMU J29, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	May-98
Draft RI Report for SWMU J23, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	May-98
1st Quarter Ground Water Sampling Report, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	May-98
Draft Ground Water Sampling Work Plan and Quality Assurance Plan, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Jun-98
Final Well Abandonment Work Plan, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Jun-98
Draft RI Report for SWMUs H04, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Jun-98
Draft RI Report for SWMU A08, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Jun-98
Draft RI Report for SWMU I13, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Jul-98
Draft RI Report for SWMU J12, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Jul-98
Draft RI Report for SWMUs H05, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Jul-98
Soil Gas Results Technical Memorandum, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Aug-98
Final Ground Water Sampling Work Plan and Quality Assurance Plan, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Aug-98
2nd Quarter Ground Water Sampling Report, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Aug-98
Draft Well Abandonment Closure Report, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Aug-98
Draft RI Report for SWMU I03/04, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Aug-98
Draft RI Report for SWMU I09/10, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Aug-98

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Title	Author	Date
Draft RI Report for SWMU I11, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Aug-98
Draft RI Report for SWMU I17, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Aug-98
Draft RI Report for SWMU I18, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Aug-98
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Draft RI Report for SWMU J02, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Sep-98
Draft RI Report for SWMU J16, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Sep-98
Project Workplan West 101 Production Area Soil Remediation, Hawthorne Army Depot, Hawthorne, Nevada	Harding Lawson Associates	Sep-98
Final RI Report for SWMU J25, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Sep-98
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Final RI Report for SWMU B22a, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Oct-98
Final RI Report for SWMU B22b, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Oct-98
Final RI Report for SWMU B23, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Oct-98
Final RI Report for SWMU B27a, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Oct-98
Final RI Report for SWMU B29, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Oct-98
Final RI Report for SWMU I02, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Oct-98
Final RI Report for SWMU I07, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Oct-98
Final RI Report for SWMU I15, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Oct-98
Final RI Report for SWMU A08, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Nov-98
Final RI Report for SWMU B20, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Nov-98
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Building 70 Enhanced Bioremediation Radius of Influence Test Report, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Nov-98
Final RI Report for SWMU B32, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Nov-98
3rd Quarter Ground Water Sampling Report, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Nov-98
Final RI Report for SWMU C01a/01b, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Nov-98
Final RI Report for SWMUs B25, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Dec-98

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Title	Author	Date
Final RI Report for SWMU B27b, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Dec-98
Final RI Report for SWMU I03/04, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Dec-98
Final RI Report for SWMU I05, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Dec-98
Final RI Report for SWMU I06, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Dec-98
Final RI Report for SWMU I17, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Dec-98
Final RI Report for SWMU I18, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Dec-98
Final RI Report for SWMU J11/15, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Dec-98
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Final RI Report for SWMU J29, Hawthorne Army Depot, Hawthorne, Nevada	Tetra Tech, Inc.	Dec-98
Final Quarterly Groundwater Monitoring report	Tetra Tech, Inc.	Oct-99
Three Year Groundwater Monitoring Well Evaluation	Tetra Tech, Inc.	Nov-00
Further Investigation on HWAAP-B27c, I-II, J-14, J-28	Tetra Tech, Inc.	Dec-00

ER,A ELIGIBLE ACTIVE DSERTS SITES

HWAAP-A06B
OLD BOMB DISPOSAL AREA 2

SITE DESCRIPTION

This landfill area that covers about 2 acres is located one mile southwest of Rocket Mountain. Operations began in 1944, it is not known when operations ceased. Disposal of ordnance and hundreds of drums of unknown material occurred in the landfill.

A 1987 USAEHA report indicates that the disposed waste may include picric acid and explosives. A 1989 investigation conducted by International Technology Corporation (IT) included geophysical surveying, five test pits, and soil sampling. Elevated levels of explosives (TNT 96 mg/kg), metals and picric acid (62 mg/kg) were found, along with geophysical anomalies. In 1994 an airborne ground penetrating radar (AGPR) surveying was completed. The entire site was surveyed with multiple targets identified in the western and northwestern trenches. In 1994, an Army evaluation team visited the site to determine if the UXO at the site posed an imminent hazard. As a result of the evaluation, an imminent threat to human safety was determined to exist.

Long Term monitoring for the Old Bomb Area started in 1997 and will continue.

IRP STATUS

RRSE RATING: HIgh (1B)

CONTAMINANTS OF CONCERN:
Explosives, UXO

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
LTM

FUTURE IRP PHASE:
LTM , RI/FS, RD, RA

PROPOSED PLAN

Because of potential risk of UXO at the site, intrusive investigation is not recommended. Due to safety considerations, this site will be placed under a 5-year review status. A decision document is being prepared for submission to NDEP for concurrence. Money has been placed in the out-year for RI/FS, RD, and RA in the event that remediation becomes necessary.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							233
IRA							
RD							16
RA(C)							332
RA(O)							
LTM	1	1	1	1	6	1	9
LTO							

PROJECTED TOTAL: $601,000

HWAAP-A06C
OLD BOMB DISPOSAL AREA 3

SITE DESCRIPTION

This site is a landfill that measures 500' x 100' and is located one mile south of Rocket Mountain. Operations began in 1944; it is not known when operations ceased. A 1987 USAEHA report indicates that disposal of many drums and possible ordnance items occurred in this landfill.

A 1989 investigation conducted by International Technology Corporation (IT) included geophysical surveying, excavating one test pit and soil sampling. Elevated levels of metals as well as the presence of geophysical anomalies were found. In 1994, an airborne GPR survey was completed, and an Army evaluation team visited the site and determined that UXO poses an imminent hazard.

Long term monitoring for the Old Bomb Area started in 1997.

IRP STATUS

RRSE RATING: Medium (2B)

CONTAMINANTS OF CONCERN:
Explosives, Metals, UXO

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
LTM

FUTURE IRP PHASE:
LTM , RI/FS, RD, RA

PROPOSED PLAN

Because of potential risk of UXO at the site, intrusive investigation is not recommended. Due to safety considerations, this site will be placed under a 5-year review status. A decision document is being prepared for submission to NDEP for concurrence. Money has been placed in the out-year for RI/FS, RD, and RA in the event that remediation becomes necessary.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							233
IRA							
RD							16
RA(C)							332
RA(O)							
LTM	1	1	1	1	6	1	9
LTO							

PROJECTED TOTAL: $601,000

HWAAP-A06D
OLD BOMB DISPOSAL AREA 4

SITE DESCRIPTION

This landfill and waste treatment site is located one half mile southeast of Rocket Mountain and covers about 300 square feet with two partially filled trenches flanking the east and west sides. Operations began in 1944; it is not known when operations ceased. A 1987 USAEHA report indicates that disposal of wastewater containing explosives occurred in addition to disposal and burning of PEP (pyrotechnic, explosives and propellants) and ordnance. Explosives staining in trenches was also observed.

A 1989 investigation conducted by International Technology Corporation (IT) included geophysical surveying, excavation of seven test pits, and soil sampling. Elevated levels of explosives (TNT 130,000 mg/kg), metals, and picric acid (3,300 mg/kg), along with geophysical anomalies were found. In 1994, an airborne ground penetrating radar (AGPR) survey was completed over the entire site at several target locations. An Army evaluation team visited the site, and determined that UXO poses an imminent hazard.

Long term monitoring for the Old Bomb Area started in 1997 and will continue.

IRP STATUS

RRSE RATING: High (1B)

CONTAMINANTS OF CONCERN:
Explosives, Metals, UXO

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
LTM

FUTURE IRP PHASE:
LTM, RI/FS, RD, RA

PROPOSED PLAN

Because of potential risk of UXO at the site, intrusive investigation is not recommended. Due to safety considerations, this site will be placed under a 5-year review status. A decision document is being prepared for submission to NDEP for concurrence. Money has been placed in the out-year for RI/FS, RD, and RA in the event that remediation becomes necessary.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							233
IRA							
RD							16
RA(C)							332
RA(O)							
LTM	1	1	1	1	6	1	9
LTO							

PROJECTED TOTAL: $601,000

HWAAP-A06E
OLD BOMB DISPOSAL AREA 5

SITE DESCRIPTION

This waste pile and treatment site measures about 850' x 100' and is located immediately east of Old Bomb Disposal Area No. 4. Three 150'x30'x20' trenches are located in the center of this site. Operations began in 1940; it is not known when operations ceased. A 1987 USAEHA report indicates that many tons of ordnance were burned and/or buried at this site. Explosive staining and exposed ordnance have been observed.

A 1989 investigation conducted by International Technology Corporation (IT) included geophysical surveying, four test pits, and soil sampling. Elevated levels of metals as well as geophysical anomalies were found. In 1994, airborne ground penetrating radar (AGPR) survey was completed over the entire site at several targets. An Army evaluation team visited the site, and determined that UXO at the site poses an imminent hazard.

Long term monitoring for the Old Bomb area started in 1997 and will continue.

IRP STATUS

RRSE RATING: High (1B)
CONTAMINANTS OF CONCERN:
Explosives, Metals, TPH, UXO
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
LTM
FUTURE IRP PHASE:
LTM, RI/FS, RD, RA

PROPOSED PLAN

Because of potential risk of UXO at the site, intrusive investigation is not recommended. Due to safety considerations, this site will be placed under a 5-year review status. A decision document is being prepared for submission to NDEP for concurrence. Money has been placed in the out-year for RI/FS, RD, and RA in the event that remediation becomes necessary.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							233
IRA							
RD							16
RA(C)							332
RA(O)							
LTM	1	1	1	1	6	1	9
LTO							

PROJECTED TOTAL: $601,000

HWAAP-A07
NAVAL INSHORE OPS TNG CNTR FIRING RANGE

SITE DESCRIPTION

HWAAP-A07 are waste piles at the Naval Inshore Operations Training Center Firing Range (NIOTC) located west of Highway 95 between the Marine Rifle Range and Police Pistol Range. The site covers approximately 50 acres and has existing pits that were used as disposal sites. Only a small portion of the site remains active. The site was infrequently used for about 35 years, since the 1960's. The waste piles consist of metal ammunition cans, inert 3.5 inch rockets, fuse cans and similar debris resulting from Navy training. The pile consists of approximately 300 cubic yards of debris. Hazardous waste was not buried at this location, however, reactive UXO's are present. Flash floods are common in this area during heavy rainfall events and gully erosion exposes the solid waste and UXO's.

Reconnaissance surveys and sweeps have been performed at the site. In 1994, an Army evaluation team visited the site to determine if the UXO at the site pose an imminent hazard. As result of the evaluation, an imminent threat to human safety was determined. Semiannual sweeps are conducted for UXO.

DSERTS lists this site as RC in August 1988.

IRP STATUS

RRSE RATING: NE
CONTAMINANTS OF CONCERN:
Metals, Explosives,UXO
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE: RI
FUTURE IRP PHASE: RC

PROPOSED PLAN

Any future action at this site is managed under the Range Rule. Because of potential risk of UXO at the site, intrusive investigation is not recommended. Continue semiannual sweeps for UXO, fence area off.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS						100	
IRA							
RD							
RA(C)							
RA(O)							
LTM							
LTO							

PROJECTED TOTAL: $100,000

HWAAP-A08
CONSTRUCTION DEBRIS LANDFILL

SITE DESCRIPTION

HWAAP-A08, a 20-acre unlined landfill, is located west of the Property Disposal Office. The site was operated from 1950 to 1980 as a landfill for the disposal of lumber, wooden crates, packing materials and other refuse and debris. Asphalt rubble has also been disposed of at the site. Household waste, paints and solvents may have been disposed of at this site.

In 1994, the investigation activities completed at the site included 112 acres of magnetometry survey at a 20 foot grid within the boundaries of a 124 acres airborne GPR survey. Seventy feet of CPT sounding were conducted at 3 locations to determine optimal subsurface soil sampling depths. Investigation has been completed. Groundwater monitoring started in 1997 and has detected low levels of contamination at this site.

DSERTS lists this site RC in December of 1998 as well as listing an IRA associated with this site.

PROPOSED PLAN

HWAD, COE and NDEP have tentatively agreed to close this site and abandon two of the three monitoring wells. The remaining well will be kept open for base wide monitoring.

IRP STATUS

RRSE RATING: Medium (2B)

CONTAMINANTS OF CONCERN:
Metals, Solvents

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA/SI, RI/FS

CURRENT IRP PHASE:
LTM

FUTURE IRP PHASE:
RC

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	10						
IRA							
RD							
RA(C)							
RA(O)							
LTM							
LTO							

PROJECTED TOTAL: $10,000

HWAAP-B04
101-44 IMPOUNDMENT

SITE DESCRIPTION

HWAAP-B04 is a double-lined surface impoundment approximately 140'x240'x15', having a capacity of 586,000 gallons designed to collect explosive-contaminated wash-down water from demilitarization operations. The impoundment was never used, but was constructed using soil from a previous unlined impoundment that had collected explosive wash-down water from 1944 to 1977. The newer lined impoundment was constructed at the same location as the older unlined impoundment.

A 1989 RI included collecting near surface, subsurface and ground water samples from within and adjacent to the impoundment. Explosives and petroleum hydrocarbons were detected in the soil samples and explosives were detected in the ground water at levels up to 30 mg/L.

Additional RI work in 1994 included 4 surface samples collected from within the impoundment where visual staining of explosives was observed, and ground water samples from existing wells. Elevated concentrations of explosives (240 mg/kg of RDX, and 22 mg/kg of 1,3,5-trinitrobenzene) were detected in these soil samples. Groundwater samples detected high level of explosives (2600 ug/L of RDX, 3.6 ug/L of 1,3,5-TNB, 18 ug/L of 4-Amino-DNT, 40 ug/L of picric acid). Sixty-eight feet of CPT sounding was conducted at 2 locations to assess the optimal depths to collect subsurface soil samples. Explosive contamination exceeds NDEP requirements. Annual groundwater monitoring began in 1997.

Currently, only well, DZB101-44MW3, (upgradient) shows elevated explosives (RDX) levels.

PROPOSED PLAN

Continue monitoring of groundwater for explosives to include additional wells (2) for better delineation. RA will include soil excavation and on site treatment with bioremediation.

IRP STATUS

RRSE RATING: Medium (2B)

CONTAMINANTS OF CONCERN:
TNT, RDX, ammonium picrate

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA/SI, RI, RD

CURRENT IRP PHASE:
RA, LTM

FUTURE IRP PHASE:
LTM

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)	300	300	606	294			844
RA(O)							
LTM	6	6	6	6	25		951
LTO							

PROJECTED TOTAL: $3,344,000

HWAAP-B12
101-10 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B12 is an inactive unlined surface impoundment located east of building 101-10 and measures 18 by 18 by 6 feet deep. The pit is eroded and partially filled with windblown sand. Two discharge pipes enter the impoundment from the west and an additional pipe enters from the south. No piles of dredged soil are evident at this impoundment. The impoundment was in operation from 1940 to the early 1970's and received large amounts of wastewater containing TNT and RDX. Ground water is estimated to be at approximately 120 feet bgs but has not been sampled at this site.

Visible evidence of TNT-stained soils in and surrounding the impoundment was noted during investigations (1988-1992).

RI work in 1994 included surface soil and hand auger sampling, and CPT advanced to a depth of 56 feet. Three surface soil samples, one hand auger sample and two CPT soil samples were collected and analyzed for explosives and metals. Elevated concentrations of RDX (1900 mg/kg), TNB (70 mg/kg), TNT (2600 mg/kg), DNT (4.8 mg/kg) and Beryllium (0.60 mg/kg) were detected in the soil. A low concentration of picric acid was also detected. Investigation results show concentrations of explosives reduce significantly with depth. All the groundwater monitoring (started in 1997) for the 101 Production Area is now tracked under this site. The RA was completed in 1999.

IRP STATUS

RRSE RATING: Medium (2B)

CONTAMINANTS OF CONCERN:
TNT, RDX, Metals

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA

CURRENT IRP PHASE:
LTM

FUTURE IRP PHASE:
LTM

PROPOSED PLAN

LTM will continue; LTM for all of the 101 Area is funded under this site.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)							
RA(O)							
LTM	120	120	120	120	125		
LTO							

PROJECTED TOTAL: $605,000

HWAAP-B20
101-41 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B20 consists of three inactive unlined surface impoundments, two steel settling tanks, and one trench located southwest of Building 101-41. The impoundments are interconnected and range from 1,300 to 2,700 square feet in area and between 6 and 10 feet deep. Associated with them is a trench that runs west from the tank location. Two steel tanks placed in tandem between Building 101-41 and the impoundments allowed for settling of solids prior to discharge to the impoundments. This impoundment operated from 1940 to the early 1970's and received large amounts of waste water containing TNT and RDX.

RI work completed in 1994 included surface soil and hand auger sampling, and CPT. Seven surface soil samples, seven hand auger samples and four CPT soil samples were collected and analyzed for explosives and metals. Visible evidence of TNT stained soils were observed in the impoundments. Elevated concentrations of RDX (310 mg/kg), 1,3,5-TNB (87 mg/kg), 2,4,6-TNT (20000 mg/kg), 2-Amino-DNT (20 mg/kg), and 2,4-DNT (18 mg/kg) were detected in soil exceeding the Remediation criteria. None of the metals were detected at levels exceeding the soil remediation criteria.

The site was remediated under a pilot study of windrow composting. A total of 2,500 cubic yards from B-20, B-32 and I-15 was treated using various recipes in 1997. In 1997, TCE was discovered in groundwater. In 1999, additional soil gas surveys and subsurface sampling was conducted to delineate TCE in soil. Installed four passive vapor extraction wells.

DSERTS lists this site RC in September 1997.

PROPOSED PLAN

Continue monitoring vapor extraction wells and groundwater wells and further delineation of TCE contamination in groundwater.

LTM is being funded under B12 also.

IRP STATUS

RRSE RATING: High (1B)

CONTAMINANTS OF CONCERN:
TNT, RDX, TCE

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA/SI, RI/FS, RA (soil)

CURRENT IRP PHASE:
RI (groundwater)

FUTURE IRP PHASE:
RC (soil), RD, RA (groundwater)

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD						15	
RA(C)						120	
RA(O)							
LTM							
LTO							

PROJECTED TOTAL: $135,000

HWAAP-B23
103-30 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B23 is an inactive unlined surface impoundment located south of Building 103-30 and measures 15 by 60 by 4 ft. The pit is eroded and partially filled with windblown sand. This impoundment was in operation from 1940 to the early 1970's and received moderate amounts of wastewater containing TNT and RDX.

RI work in 1994 included two surface soil samples, two hand auger samples and one CPT soil sample that were collected from within the impoundment and analyzed for explosives and metals. Elevated concentrations of explosives; HMX (4,000 mg/kg), RDX (33000 mg/kg), 1,3,5-TNB (13 mg/kg), 2,4,6-TNT (150,000 mg/kg), 2,4-DNT (12 mg/kg) were detected in the soils. Low concentrations of metals and picric acid were detected. Analytical results show concentrations of explosives reduce significantly with depth.

Soil composting was completed in 1999.

Based on remedial action at this site the potential for groundwater contamination has been eliminated.

IRP STATUS

RRSE RATING: High (1B)

CONTAMINANTS OF CONCERN:
TNT, RDX, HMX

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA/SI, RI/FS, RA

CURRENT IRP PHASE:
LTM

FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document presenting the RI/RA history will be submitted for regulatory approval in FY 2001.

Based upon concurrence of NDEP, LTM will be discontinued.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)							
RA(O)							
LTM	18						
LTO							

PROJECTED TOTAL: $18,000

HWAAP-B24
102-52 ACID PIT

SITE DESCRIPTION

HWAAP-B24 is an open pit located adjacent to Building 102-52. The pit was used from 1950 to 1980 for discharged battery electrolyte waste fluid, battery acid spills and wash down water from the battery shop, Building 102-52. Acid and large quantities of water flowed from this building into this pit. Stained soil is evident in and around the subject pit.

RI work in 1994 included two surface soil samples, two hand auger samples and two CPT soil samples. Samples were collected within the pit and analyzed for explosives, metals, SVOCs, VOCs, PCBs, and TPH. Elevated lead (620 mg/kg), RDX (150 mg/kg), TPH (34000 mg/kg), and PCB-1260 (36 mg/kg) were detected. Low concentrations of SVOC, explosives except RDX, and TPH-gasoline were also detected. Sampling results show contaminant concentrations generally decreased with depth.

IRP STATUS

RRSE RATING: High (1B)

CONTAMINANTS OF CONCERN:
Lead, Cadmium, PCB, Explosives, TPH

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA/SI, RI/FS

CURRENT IRP PHASE:
RD

FUTURE IRP PHASE:
RA

PROPOSED PLAN

To reduce risk to human health, RA is recommended to excavate and remediate (composting) the high levels of explosive compounds.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS				6			
IRA							
RD							
RA(C)				77	68		
RA(O)							
LTM							
LTO							

PROJECTED TOTAL: $151,000

HWAAP-B26
103-6 POL PIT

SITE DESCRIPTION

HWAAP-B26 is an inactive unlined surface impoundment located north of Building 103-6. The impoundment measures 25 by 85 by 8 feet. The impoundment operated from the 1940s to 1980s and received steam line blow down water, fuel oil, crude oil and other waste POL products. There is visible evidence of POL-stained soils in and around the pit.

In 1992 the impoundment was backfilled with soil to almost grade level. The pit is currently characterized by a depressed area approximately twice as large as the originally reported size of the impoundment.

RI work in 1994 included surface soil and hand auger sampling, and CPT soundings. Two hand auger samples and two CPT soil samples were collected from within the pit and analyzed for explosives, metals, SVOCs, VOCs, PCBs, and TPH. All groups of chemicals were detected in the surface and subsurface soil. 16,000 mg/kg of TPH-D and 120 mg/kg of TNT were detected in one sample at 6 to 6.5 feet bgs and 0.17 mg/kg of TNT was detected at a depth of 5 feet.

IRP STATUS

RRSE RATING: Low (3B)

CONTAMINANTS OF CONCERN:
TPH, Solvents, Metals

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA/SI, RI/FS

CURRENT IRP PHASE:
RD

FUTURE IRP PHASE:
RA

PROPOSED PLAN

A RA of excavation (soil and source) or land farming may be needed.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD					20		
RA(C)					200		
RA(O)							
LTM							
LTO							

PROJECTED TOTAL: $220,000

HWAAP-B27A
103-16 ORDNANCE WASHOUT IMPOUNDMENT (CATCHMENT PIT)

SITE DESCRIPTION

HWAAP-B27a consists of eight inactive unlined surface impoundments and two drainage ditches located northwest of the ordnance washout Building 103-16. The eight impoundments occupy a total area of 10 acres. Each impoundment is up to 8 feet deep. Two drainage ditches exist at the site. One ditch extends northwest from the facility for approximately one half mile and the second ditch extends southeast of the facility and is branched to the northwest near the impoundments. The impoundments have eroded and are partially filled with windblown sand. There is visible evidence of the several inches of Yellow D and TNT stained soils in the pits and sidewalls. The drainage ditches and the pits have potentially received up to 20,000 gallons of wastewater containing Yellow D, RDX, TNT, and red fuming nitric acid between 1946 and 1981.

Groundwater samples (in 1974) from the area have been analyzed and nitrates were detected above 70 ug/l (USGS phase II investigation). No significant levels of TNT, RDX or ammonium picrate were detected in the groundwater. No groundwater remediation required.

RI work in 1994 included collecting 15 surface soil samples, 14 hand auger samples and 7 CPT soil samples from the pits and the ditches and analyzing samples for explosives and metals. Metals and explosives were detected in surface soils in the ditches and in the impoundments. In general the concentrations decreased with depth. TNT was detected at concentrations of 700 mg/kg and 340 mg/kg in surface samples and then decreased to 71 mg/kg at a depth of 5 feet. Elevated levels of lead (200 mg/kg), beryllium (1.1 mg/kg), cadmium (23 mg/kg), and total chromium (120 mg/kg)were also detected in the surface soils.

PROPOSED PLAN

To reduce risk to human health, RA is recommended to remove and remediate the high levels of explosive and metal compounds. Excavations and treatment by bioremediation is suggested for RA.

IRP STATUS

RRSE RATING: Medium (2B)

CONTAMINANTS OF CONCERN:
TNT, RDX, Yellow D, Nitric Acid, Metals

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI, RI/FS

CURRENT IRP PHASE:
RD

FUTURE IRP PHASE:
RA

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD					50		
RA(C)					498		
RA(O)							
LTM							
LTO							

PROJECTED TOTAL: $548,000

HWAAP-B29
103-41 ORDNANCE WASHOUT IMPOUNDMENT(UNLINED PONDS)

SITE DESCRIPTION

HWAAP-B29 is a series of inactive unlined surface impoundments connected by steel troughs covering an area of approximately 0.25 square miles north of Building 103-41. Nine impoundments at this site each measure approximately 25 by 100 by 3 feet, which were used for TNT wash water. Five larger ponds measure approximately 100 by 100 by 10 feet. These larger impoundments were used for Yellow D wash water.

Yellow D, TNT stained soils and black burn residue in the impoundments are evident. Groundwater sampling (1974 & 1980) at the site detected up to 620 ug/l of TNT and other organic and inorganic, nitrogen-bearing compounds. Current groundwater monitoring shows low levels of explosives.

RI work in 1994 included groundwater sampling, surface soil and hand auger sampling, and CPT soundings. A pilot study successfully treated 300 cy of ammonium picrate contaminated soil using wind-row composting.

Remediation in 2000 has revealed contamination to a greater depth with high probability of groundwater impact. This discovery will result in higher cost to remediate this site. Additional subsurface soil sampling to delineate volume of contaminated soil and assess impact to groundwater.

LTM started in 1997.

IRP STATUS

RRSE RATING: High (1B)

CONTAMINANTS OF CONCERN:
RDX, TNT, Amatol, Ammonium Picrate

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA/SI, RI/FS, RD

CURRENT IRP PHASE:
RA, LTM

FUTURE IRP PHASE:
LTM

PROPOSED PLAN

To reduce risk to human health, RA is recommended to remove and remediate the high levels of explosive compounds. Long term groundwater monitoring will be required. Decision Document for this site will be revised to reflect increased soil and water contamination in 2001.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)	1172	894	664	917			1523
RA(O)							
LTM	65	65	65	65	64	70	1604
LTO							

PROJECTED TOTAL: $7,168,000

HWAAP-C01A & C01B
102-31 ROTARY DEACTIVATION FURNACE

SITE DESCRIPTION

HWAAP-C01a & b are incinerators operated from 1968 to 1983 to deactivate small arms ammunition, primers and fuses. Prior to 1980, these furnaces emitted particulates to the atmosphere. After 1980, the incinerators were retrofit with cyclone separators and bag houses.

Investigation activities completed in 1994 included 101 surface soil samples in a 20 foot grid and 18 subsurface soil samples from 6 CPT soundings. Lead was found in 59 surface samples above 1,200 mg/kg to 200,000 mg/kg. No elevated concentrations of lead were found in the subsurface samples.

Due to the location and proximity of personnel and the high lead levels a pilot treatability study for lead stabilization was completed in 1999. Remediation completed in 2000 involved stabilization, removal and landfilling

PROPOSED PLAN

Final Closure Document will be submitted to NDEP in 2001.

IRP STATUS

RRSE RATING: Medium (2B)

CONTAMINANTS OF CONCERN:

Lead, Chronmium, Explosives

MEDIA OF CONCERN:

Soil

COMPLETED IRP PHASE:

PA/SI, RI/FS, RD

CURRENT IRP PHASE:

RA

FUTURE IRP PHASE:

RC

HWAAP-C04
OLD BOMB POPPING FURNACE 1

SITE DESCRIPTION

This site is a metal furnace designated as Popping Furnace No. 1 located approximately ½ mile southwest of Rocket Mountain. It measures 10' x 10' x 5'. It has metal sides and a door with a grated top and dirt floor. The incinerator is bermed and partially covered with soil. Ash and burn residue cover the furnace floor. An open pit is located behind the site and was used as a disposal site for ash and burn residue. The period of operation began in the 1930's and ended in the 1950's.

A 1987 USAEHA report indicates that the furnace was used to destroy all types of PEP (pyrotechnic, explosives and propellants) by soaking the dunnage with diesel fuel and igniting it.

A 1989 investigation conducted by International Technology Corporation (IT) included soil sampling of three pits. Evidence of elevated concentrations of metals was found.

Investigation in 1994 included airborne ground penetrating radar (AGPR) surveying over the entire site at several target locations.

Long term monitoring for the Old Bomb Area started in 1997 and will continue.

PROPOSED PLAN

Because of potential risk of UXO at the site, no intrusive activity will be conducted. Site will be placed on a 5-year status. LTM will continue. Money has been placed in the out-year for RI/FS, in the event that remediation becomes necessary.

IRP STATUS

RRSE RATING: Low (3B)

CONTAMINANTS OF CONCERN:
Explosives, Lead, UXO

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
LTM

FUTURE IRP PHASE:
LTM, RI/FS

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							349
IRA							
RD							
RA(C)							
RA(O)							
LTM	1	1	1	1	6	1	9
LTO							

PROJECTED TOTAL: $369,000

HWAAP-C05
OLB BOMB POPPING FURNACE 2

SITE DESCRIPTION

This site is a metal furnace designated as Popping furnace No. 2. The furnace is about 100 yards southeast of HWAAP-C04. HWAD personnel constructed the furnace by using a round steel cylinder measuring 4' x 20' and connected it to a 20' high smoke stack. The furnace is underground and bermed with earth. Ash and burn residue cover the furnace floor. An open pit is located behind the site and was used as a disposal site for ash and burn residue. The period of operation began in the 1930's and ended in the 1950's.

A 1987 USAEHA report indicates that the furnace was used to destroy all types of PEP (pyrotechnic, explosives and propellants) by soaking the dunnage with diesel fuel and igniting it.

A 1989 investigation conducted by International Technology Corporation (IT) included soil sampling of three pits. Evidence of elevated concentrations was found for metals.

Investigation in 1994 included airborne ground penetrating radar (AGPR) surveying over the entire site at several target locations.

Long term monitoring for the Old Bomb Area started in 1997 and will continue.

PROPOSED PLAN

Because of potential risk of UXO at the site, no intrusive activity will be conducted. Site will be placed on a 5-year status. LTM will continue. Money has been placed in the out-year for RI/FS in the event that remediation becomes necessary.

IRP STATUS

RRSE RATING: Low (3B)

CONTAMINANTS OF CONCERN:
Explosives, Metals, UXO

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
LTM

FUTURE IRP PHASE:
LTM, RI/FS

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							349
IRA							
RD							
RA(C)							
RA(O)							
LTM	1	1	1	1	6	1	9
LTO							

PROJECTED TOTAL: $369,000

HWAAP-G01B
OLD BOMB OB/OD GROUND 2

SITE DESCRIPTION

This is a waste treatment site that includes three individual ravines. Operations began in 1940 and ended in 1970. A 1987 USAEHA report indicated that many tons of ordnance were burned or detonated in this area. The waste was then left in piles at the site. There is visible staining of explosives and the site is littered with melted ordnance.

A 1989 investigation conducted by International Technology Corporation (IT) included geophysical surveying two test pits, and soil sampling. Evidence of elevated levels of metals was found.

Investigation in 1994 included airborne ground penetrating radar (AGPR) surveying over many open pits with metallic debris. Also, an Army evaluation team visited the site to determine if the UXO at the site pose an imminent hazard.

Long term monitoring for the Old Bomb Area started in 1997.

IRP STATUS

RRSE RATING: High (1B)

CONTAMINANTS OF CONCERN:
Explosives, Metals, UXO

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
LTM

FUTURE IRP PHASE:
LTM, RI/FS

PROPOSED PLAN

Because of potential risk of UXO at the site, intrusive investigation is not recommended. Defer 5-years (DD). Money has been placed in the out-year for RI/FS in the event that remediation becomes necessary.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							349
IRA							
RD							
RA(C)							
RA(O)							
LTM	1	1	1	1	6	1	9
LTO							

PROJECTED TOTAL: $369,000

HWAAP-G01C
OLB BOMB OB/OD GROUND 3 (D AREA)

SITE DESCRIPTION

This waste treatment site is located approximately one-half mile southeast of Rocket Mountain. The site measures about 1,000' x 300' and is divided into 10 sections separated by 10' soil berms. Operation began in 1940 and ended in 1970. A 1987 USAEHA report indicates that PEP (pyrotechnic, explosives and propellants) was burned at this site. There is visible staining of explosives and the site is littered with ordnance.

A 1989 investigation conducted by International Technology Corporation (IT) included geophysical surveying, installation and sampling of ground water monitoring wells, two test pits, and soil sampling. Ground water was encountered at 140ft. bgs. Elevated levels of explosives (TNB 110 mg/kg) were detected in the soil. No explosives were detected in the ground water.

Investigation in 1994 included airborne ground penetrating radar (AGPR) surveying over the area. Also, an Army evaluation team visited the site to determine if the UXO at the site pose an imminent hazard.

Long term monitoring for the Old Bomb Area started in 1997.

IRP STATUS

RRSE RATING: High (1B)

CONTAMINANTS OF CONCERN:
Explosives, UXO, Metals

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
LTM

FUTURE IRP PHASE:
LTM, RI/FS

PROPOSED PLAN

Because of potential risk of UXO at the site, intrusive investigation is not recommended. Defer 5-years (DD). LTM will continue. Money has been placed in the out-year for RI/FS in the event that remediation becomes necessary.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							349
IRA							
RD							
RA(C)							
RA(O)							
LTM	1	1	1	1	6	1	9
LTO							

PROJECTED TOTAL: $369,000

HWAAP-H04
NAVYSIDE LANDFILL

SITE DESCRIPTION

HWAAP-H04 is an inactive landfill covering approximately 11 acres. The specific period of operation and the types of material that was disposed in the landfill are not known. Based on a site visit and interviews it appears that the Navy Side Landfill contains primarily domestic, office, and general industrial/commercial waste generated from the operations and maintenance at the base.

Soil samples were collected in 1997. The only metal found with a concentration greater than its maximum expected background level was mercury (0.2 mg/kg and 0.3 mg/kg) none exceeded the PCG for mercury of 24 mg/kg. Two pesticides 4,4-DDE and 4,4-DDT were found in only one of the nine soil samples and at a maximum concentration of 0.002 mg/kg. No concentrations of explosives, VOCs, or herbicides were found in any of the subsurface soil samples. Limited UXO was found at the site.

Long term monitoring started in 1997. Investigation in 1999 of VOCs and SVOCs as potential sources to groundwater found no significant contamination.

DSERTS lists an IRA completed at this site.

IRP STATUS

RRSE RATING: Medium (2B)

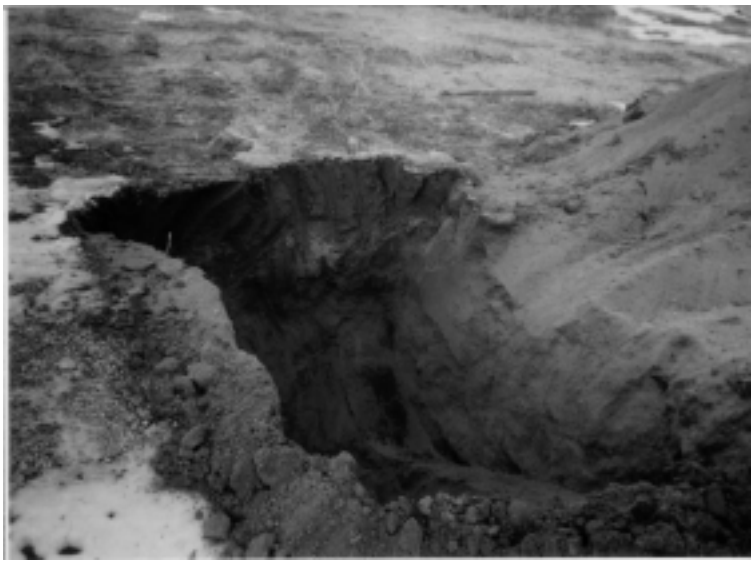
CONTAMINANTS OF CONCERN:
TPH

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
LTM

FUTURE IRP PHASE:
LTM



PROPOSED PLAN

A Closure Document will be submitted to NDEP in 2001 and proposed discontinuation of LTM.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)							
RA(O)							
LTM	30	30	30	30			
LTO							

PROJECTED TOTAL: $120,000

HWAAP-H05
OLD DEPOT LAUNDRY WASHOUT

SITE DESCRIPTION

HWAAP-H05, Old Depot Laundry Washout contains a sump that accepted explosives-contaminated water from the depot laundry and dry cleaning facility.

Line locators and GPR were used(in 1997 to determine the location of the drain lines. TCE was found in the soil. A VOC and SVOCs plume has been located in groundwater associated with this site. Metals were not found in the soil or sediment sample above action levels.

The building sump and adjacent soil, which are the source of the TCE contamination, were removed in 1999.

IRP STATUS

RRSE RATING: Medium (2B)
CONTAMINANTS OF CONCERN:
VOCs, SVOCS
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA/SI, RI, IRA
CURRENT IRP PHASE:
LTM
FUTURE IRP PHASE:
LTM

PROPOSED PLAN

A Closure Document will be submitted to NDEP in 2001 and proposed discontinuation on LTM.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)							
RA(O)							
LTM	35	30	30	30			
LTO							

PROJECTED TOTAL: $125,000

HWAAP-I02
110 GROUP OPEN BURNING PIT

SITE DESCRIPTION

Previous HWAAP-G02 and G03 were subsets of this site. Those two subsites have been removed from the DSERTS database and all future work will refer to site HWAAP-I02.

HWAAP-I02 is a disposal area (approximately 4 acres) that includes pits for wastewater treatment and open trenches used for open burn and disposal of ordnance. Visible staining of explosives is present on the surface soils. The area appears to have been in operation from the early to late 1950's based on aerial photographs, however, use and history of the site is not well documented.

Previous investigations (1988, 1989 & 1992) included magnetometry surveys and exploration pits. Soil samples collected from these pits contained elevated concentrations of explosives and metals. Four monitoring wells were installed to assess the impact to groundwater. Concentrations of explosives in groundwater exceeded 70 ug/L with elevated concentrations of metals.

RI in 1994 included 1.4 acres of 10 foot spacing GPR, within a 4 acre area of reconnaissance airborne GPR to delineate pits and trenches.

Groundwater was first sampled in 1988, and annual LTM was started in 1997.

IRP STATUS

RRSE RATING: Low (3B)

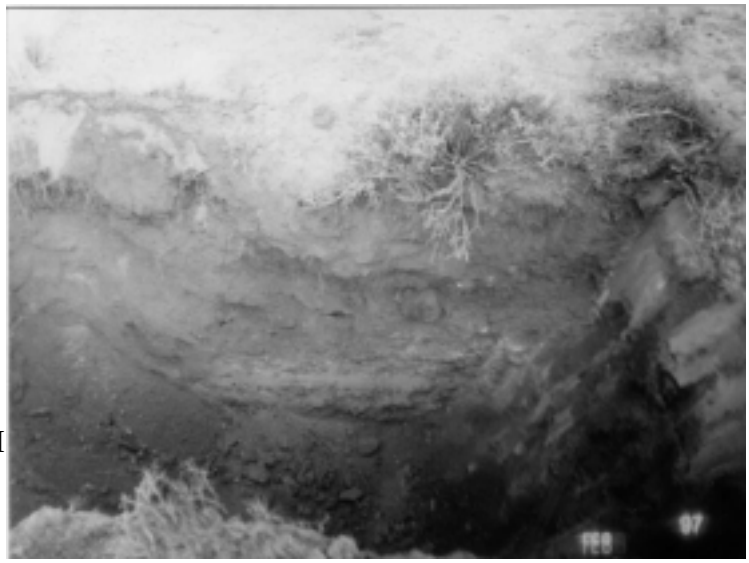
CONTAMINANTS OF CONCERN:
Explosives, Metals

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA, RI/FS

CURRENT IRP PHASE:
RI/FS (LTM)

FUTURE IRP PHASE:
RD, RA, LTM



PROPOSED PLAN

RA will include limited soil removal and composting. Long term monitoring will continue under the RI/FS phase.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA					500		
RD					380		
RA(C)					393	3407	
RA(O)							
LTM	9	9	9	9	9	45	45
LTO							

PROJECTED TOTAL: $4,815,000

HWAAP-I07
101-44 LANDFILL

SITE DESCRIPTION

HWAAP-I07 is an open pit landfill formerly used to store large scrap metal items. It is likely that diesel fuel from demilitarization operations (Bldg 101-44) was disposed of at this site. This site was used from the 1960's to the early 1980's.

Investigation in 1994 included 10 soil gas samples and 8 near surface soil samples. The soil samples contained up to 15,000 mg/kg of TPH-D.

There has been no impact to the ground water from metals or explosives at this site, no remediation of the ground water is recommended.

However, based on information obtained in 2000 concerning disposal of explosives at this site, additional investigation was initiated. This resulted in discovery of RDX at 70,000 ppm.

IRP STATUS

RRSE RATING: Low (3B)

CONTAMINANTS OF CONCERN:
TPH, Metals, PCBs, VOCs

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA, RI/FS

CURRENT IRP PHASE:
RD

FUTURE IRP PHASE:
RA

PROPOSED PLAN

RA will include excavation and composting. Based on discovery of RDX concentrations in soil, a new risk assessment is warranted and the CTC will be impacted.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							10
RA(C)							45
RA(O)							
LTM							
LTO							

PROJECTED TOTAL: $55,000

HWAAP-I08
BUILDING 70 PIT/LANDFILL

SITE DESCRIPTION

HWAAP-I08 is an open pit landfill located south of Bldg 70 and measures 45 x 110 x 15 feet. The period of use and activities at the site are not well documented, however, petroleum products were reportedly disposed of in the pit.

RI in 1994 included 0.9 acres of GPR on a 10 foot grid to assess the potential presence of buried objects, 3 surface and 5 near surface soil samples collected from within the pit. No buried objects were found during the GPR survey. Up to 1,200 mg/kg of TPH-d, <50 mg/kg of BTEX were detected in the soil samples. The affected soils are primarily within the open pit and to a depth of at least 35 feet bgs.

Ground water sampling down gradient of the site indicate that the affected soils have not affected the groundwater in the vicinity; therefore, no groundwater remediation is necessary.

IRP STATUS

RRSE RATING: Low (3B)

CONTAMINANTS OF CONCERN:
TPH

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA/SI, RI/FS

CURRENT IRP PHASE:
RD

FUTURE IRP PHASE:
RA

PROPOSED PLAN

RA will include excavation and composting.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							10
RA(C)							45
RA(O)							
LTM							
LTO							

PROJECTED TOTAL: $55,000

HWAAP-I09 & I10
BUILDING 49-10 PIT LANDFILL #1 & #2

SITE DESCRIPTION

HWAAP-I09 & I10 are two open pits near an area used to assemble ship mines, bombs and torpedo warheads. The period of operations is not documented. Wastewater and wash down water were reportedly discharged to these pits.

Investigation in 1994 included 10 soil gas samples, 6 surface soil samples and 15 subsurface soil samples collected from 3 borings to a depth of 56 feet. Three CPT soundings were advanced for a total of 106 feet to define the optimum depth to collect subsurface soils. The surface soil samples contained up to 1260 mg/kg of TPH-d with elevated concentrations of metals (130 mg/kg of lead).

Groundwater sampling shows hits of VOCs. Sewer line breakage appears to be the source. Further testing will occur in LTM.

In 1999, sewer lines were investigated and the findings eliminated potential release points. RD in 2000 included soil gas surveys to define groundwater plume and development of site specific natural attenuation criteria. Soil removal for the localized lead-contaminated soil and fate and transport of TPH contaminated soil was completed.

IRP STATUS

RRSE RATING: Low (3B)

CONTAMINANTS OF CONCERN:
TPH, TCE, VOCs, Lead

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA/SI, Phase I RI/FS

CURRENT IRP PHASE:
RA, LTM

FUTURE IRP PHASE:
RA, LTM

PROPOSED PLAN

Additional wells will be installed and natural attenuation data will be collected.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)					365	117	317
RA(O)							
LTM	60	60	60	60	60	60	240
LTO							

PROJECTED TOTAL: $1,399,000

HWAAP-I22
OLD BOMB OPEN BURNING PIT

SITE DESCRIPTION

This is an open burn burial pit located at the base of Rocket Mountain. There is no written history on this site and HWAD personnel were not able to speculate possible dates for use of this site. The site is littered with ordnance.

A 1989 investigation included one test pit and soil sampling. Evidence of elevated concentrations of metals was found.

Long term monitoring started in 1997 and will continue.

IRP STATUS

RRSE RATING: Low (3B)

CONTAMINANTS OF CONCERN:
Explosives, UXO, Metals

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
LTM

FUTURE IRP PHASE:
LTM

PROPOSED PLAN

Because of potential risk of UXO at the site, intrusive investigation is not recommended. Due to safety considerations, this site will be placed under a 5-year review status. A decision document is being prepared for submission to NDEP for concurrence. LTM will continue.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							349
IRA							
RD							
RA(C)							
RA(O)							
LTM	1	1	1	1	6	1	9
LTO							

PROJECTED TOTAL: $369,000

HWAAP-I23
OLD BOMB/ROCKET METAL LANDFILL

SITE DESCRIPTION

This site is an abandoned disposal site that covers about 15 acres. There is no written history on this site but interview with HWAD personnel indicate that this was a dumping ground for metal debris for at least 20 years.

A 1989 investigation was completed by International Technology Corporation and included geophysical surveying, installing and sampling two ground water monitoring wells, four test pits, and soil sampling.

The two wells are located down gradient of I23 and the depth to ground in this area is approximately 96 ft. bgs. No explosives were detected in the ground water, but arsenic was detected at a concentration ranging from 0.002 to 0.02 ug/l. Elevated levels of metals were detected in the soils.

Airborne ground penetrating radar (AGPR) surveying at nine targets spanning an area of 26 acres was conducted in 1994.

Long term monitoring started in 1997 and will continue.

IRP STATUS

RRSE RATING: Low (3B)

CONTAMINANTS OF CONCERN:
Explosives, UXO, Metals

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
LTM

FUTURE IRP PHASE:
LTM

PROPOSED PLAN

Because of potential risk of UXO at the site, intrusive investigation is not recommended. Due to safety considerations, this site will be placed under a 5-year review status. A decision document is being prepared for submission to NDEP for concurrence. LTM will continue.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							349
IRA							
RD							
RA(C)							
RA(O)							
LTM	1	1	1	1	6	1	9
LTO							

PROJECTED TOTAL: $369,000

HWAAP-J03
BUILDING 70 DIESEL FUEL LEAK

SITE DESCRIPTION

This was an aboveground storage tank (AST) site located approximately 2 miles east of the HWAD gate on US Highway 95. Two 100,000-gallon ASTs were installed in the early 1940s to provide diesel fuel for the Building 70 and other sites. Fuel leakage from the ASTs occurred for an unknown length of time. The depth to ground water at Building 70 is approximately 113' below ground surface (bgs).

In 1991 over 34,000 cubic yards of soil were removed between the two tanks creating an excavation pit that measured about 80'x110'x35'.

Investigation in 1994 included line locating, drilling, sampling, installing soil-gas monitoring probes and constructing a ground water monitoring well.

A pilot study for active and then passive bioremediation was initiated in July 1997. The excavation was filled with contaminated petroleum soil from all the other sites at the installation eliminating the need to treat the soil at each site. The soil filled the excavation to within two feet of the top. Approximately 6,000 cubic yards of soil was treated. Results indicate that it will take 8 years to bioremediate.

IRP STATUS

RRSE RATING: Low (3B)

CONTAMINANTS OF CONCERN:
TPH, PCBs

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA/SI, RI/FS

CURRENT IRP PHASE:
LTO

FUTURE IRP PHASE:
LTO

PROPOSED PLAN

Long term monitoring of the bioremediation operation was initiated in 1997 and will continue.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)							
RA(O)							
LTM							
LTO	16	16	16	16	16	16	

PROJECTED TOTAL: $96,000

HWAAP-J14
103-6 TRENCH

SITE DESCRIPTION

HWAAP-J14 is a 650 foot long unlined trench, 10 to 20 feet wide and 3 to 5 feet deep. The period of use and activities at the trench are not well documented. Inspections have documented yellow stained soil thought to be explosives.

RI in 1994 included 1 sludge sample, 3 surface soil samples and 7 subsurface soil samples collected at depths up to 21.5 feet from 4 borings. Surface soil samples contained low concentrations of metals and no detectable concentrations of explosives, SVOCs or VOCs. Sludge sample contained explosives (81 mg/kg 1,3,5-trinitrobenzene) and low detection of metals (except for cadmium at 960 mg/kg and lead at 820 mg/kg). Subsurface samples contained low concentrations of metals and no detectable concentrations of SVOCs. Sump cleanup was completed in 2000 for removal of metals and chemicals of concern and disposed of off-site.

IRP STATUS

RRSE RATING: Medium (2B)

CONTAMINANTS OF CONCERN:
Metals, Explosives

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA/SI, IRA

CURRENT IRP PHASE:
RD, RA

FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document will be submitted to NDEP in 2001.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD					18		
RA(C)					180		
RA(O)							
LTM							
LTO							

PROJECTED TOTAL: $198,000

HWAAP-J28
108-3 CATCHMENT PITS

SITE DESCRIPTION

HWAAP-J28 contains two unlined catchment pits used to collect runoff water from painting operations. One of the pits is about 30 feet in diameter and 6 to 8 feet deep. The other pit is about 180 feet long by 90 feet wide by 8 feet deep. The two pits are not connected but received wastewater from the same operations.

RI work in 1994 included 22 soil gas samples, 2 sludge samples, and 14 surface samples. Low concentrations of metals except lead (300 mg/kg), and explosives were detected in a building sump. No VOCs except (low concentrations of TCE) was detected in soil gas. Investigation indicated ground water is estimated to be about 90 feet below ground surface. Chemicals of concern were removed from the sump and disposed of off-site TSD. Catchments were backfilled with remediated soil.

IRP STATUS

RRSE RATING: Low (3B)

CONTAMINANTS OF CONCERN:
Metals, Explosives, VOCs

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA, RI/FS

CURRENT IRP PHASE:
RD

FUTURE IRP PHASE:
RA, RC

PROPOSED PLAN

A Closure Document will be submitted to NDEP in 2001.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD					5		
RA(C)					12		
RA(O)							
LTM							
LTO							

PROJECTED TOTAL: $17,000

HWAAP-J29
BUILDING 103-5 LANDFILL

SITE DESCRIPTION

HWAAP-J29 is an area 800 by 400 feet that appears to have been used for disposal by open burning and burial. There is surface debris scattered round the area that consists mostly of charred wood, nails, packing material and some munition related items. The period of operations and activities at the site are not well documented.

RI work in 1994 completed activities includes 22.3 acres of GPR and magnetometry surveys within 25 acres of airborne GPR. These geophysical surveys delineate numerous anomalies that appear to be buried metallic and non-metallic debris. Fourteen soil gas samples were collected with non-detect results. Fifteen surface soil samples contained low concentrations of metals, except lead detected as high as 130 mg/kg, and no detectable concentrations of explosives, TPH-d or VOCs with one exception. One surface sample contained concentrations of explosive as high as 17,000 mg/kg, TPH as high as 1,800 mg/kg, low levels of VOCs and metals. Five CPT soundings were advanced to depths up to 40 feet to determine the optimal depths to collect subsurface soil samples. Five subsurface soil samples were collected and did not contain any detectable concentrations of explosives. Two samples contained TPH as gasoline less than 0.18 mg/kg, diesel less than 0.96 mg/kg, motor oil less than 0.44 mg/kg and heavy oil less than 0.33 mg/kg.

PROPOSED PLAN

RA will include excavation and compost.

IRP STATUS

RRSE RATING: Low (3B)

CONTAMINANTS OF CONCERN:
Metals, Explosives, Petroleum Hydrocarbons, Solvents

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA, RI/FS

CURRENT IRP PHASE:
RD

FUTURE IRP PHASE:
RA

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD					5		
RA(C)					10		
RA(O)							
LTM							
LTO							

PROJECTED TOTAL: $15,000

HWAAP-K03A
UST AT BUILDING 101-25

SITE DESCRIPTION

Site HWAAP-K03 has been broken up into 7 sub-sites (a-g) for easier tracking.

A former underground storage tank (UST) site located southeast of Building 94 on 3rd Avenue North. Seven USTs were in operation at this site from about 1936 to 1992 and leaked petroleum for a number of years. One tank site is considered closed. Three 10,000-gallon and three 12,000-gallon USTs were removed in 1991. The highest level of TPH-diesel found in the soil was 27,000 mg/kg at a depth of 14-feet. Groundwater at the site is approximately 100 ft. bgs.

An enhanced bioventing unit was installation 1998.

IRP STATUS

RRSE RATING: Low (3B)
CONTAMINANTS OF CONCERN:
2 and #6 Fuel Oil
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA, RI, RA
CURRENT IRP PHASE:
LTO
FUTURE IRP PHASE:
LTO

PROPOSED PLAN

Long term operations of the bioventing systems is being performend by the Corps of Engineers.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)							
RA(O)							
LTM							
LTO	50	50	24	24	24	24	96

PROJECTED TOTAL: $292,000

HWAAP-K03B
UST AT BUILDING 103-6

SITE DESCRIPTION

Site HWAAP-K03 has been broken up into 7 sub-sites (a-g) for easier tracking.

A former underground storage tanks (UST) site located at the intersection of Fuse Road and Salvage Road. Three USTs were in operation at the site from about 1942 to 1992 and leaked petroleum for a number of years. When two USTs were removed in 1991, the highest level of TPH-diesel found in the soil was over 48,000 mg/kg at a depth of about 15-feet. Elevated levels of over 73,000 mg/kg of TPH-diesel at depths of about 17-feet were also found when a third UST was removed in 1993. Ground water at the site is estimated to be about 100ft. bgs.

An enhanced bioventing unit was installed in 1998.

IRP STATUS

RRSE RATING: Low (3B)

CONTAMINANTS OF CONCERN:
#2 and #6 Fuel Oil

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA, RI

CURRENT IRP PHASE:
LTO

FUTURE IRP PHASE:
LTO

PROPOSED PLAN

Long term operations of the bioventing systems is being performed by the Corps of Engineers.

CONSTRAINED COST TO COMPLETE

See HWAAP-K03A for the cost of all of HWAAP-K03.

HWAAP-K03D
UST AT BUILDING 13

SITE DESCRIPTION

Site HWAAP-K03 has been broken up into 7 sub-sites (a-g) for easier tracking.

A former underground storage tanks (UST) site located approximately one-quarter mile west of the main gate to HWAD. Four USTs were in operation from about 1936 to 1993 and leaked petroleum for a number of years. Three 21,000-gallon USTs were removed in 1991 and the highest level of TPH-diesel detected in the soil was over 44,000 mg/kg at a depth of about 15-feet. Free floating product in the dirt cradle was also observed. The estimated depth to ground water below Building 13 is 100 ft. bgs.

Further RI in 1992 detected 9,000 mg/kg of TPH-diesel in the soil at a depth of 25 ft. bgs. Also a concentration of 130 mg/kg TPH-d was reported in the sample collected from the bottom of boring at 70' bgs.

A fourth UST was removed in 1993 but no sampling was done at that time. A pilot test showed bioremediation to be effective. The system was installed in 1996 and was left in place and turned over to the installation for continued operation. The Corps of engineers in 2000 assumed responsibility for continued operation.

PROPOSED PLAN

Long term operations of the bioventing systems is being performed by the Corps of Engineers.

IRP STATUS

RRSE RATING: Low (3B)

CONTAMINANTS OF CONCERN:
#2 and #6 Fuel Oil

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA, RI

CURRENT IRP PHASE:
LTO

FUTURE IRP PHASE:
LTO

CONSTRAINED COST TO COMPLETE

See HWAAP-K03A for the cost of all of HWAAP-K03.

HWAAP-K05
LUST SITE AT BLDG 117-3

SITE DESCRIPTION

There have been two reported releases of DF-2 from the 117-3 UST system, December 1984 and September 1993. The groundwater at the time of the original release was at 12ft bgs and has dropped to 15-17 bgs by the second release. The first release was approximately 1,300 gallons resulting in a Finding of Alleged Violation and Order from NDEP on 17 December 1984.

AEHA conducted a study in 1985 that showed free product at the water table. Eight monitoring wells were installed and one recovery well was installed in February 1989. The recovery system operated for four months but was unsuccessful in extracting DF-2 from the water.

In September 1993 a loss of 60 gallons occurred at the 10,000-gallon tank. During the excavation an open one-inch line was found. This line was a likely source of sub-surface overflow each time the tank was filled during the previous seventeen years. The 10,000 gallon tank was removed and the soil stockpiled on site.

AEHA conducted a geohydrologic study to delineate the contamination in 1994. There are two plumes, one approximately 5,000 square feet of groundwater and 7,500 square feet of soil contamination and one 375 square feet of groundwater and 1,500 square feet of soil. The approximate volume of DF-2 fuel in the subsurface has been estimated at 4,000 gallons (large plume) and 400 gallons (small plume). The results of sampling indicate that two samples exceeded the state soil action level of 100 ppm and two groundwater samples exceeded the state free product action level of ½ inch.

In 1996, enhanced intrinsic bioremediation was selected to treat the plumes and soil. The system was funded for DZHC to implement and installed in 1996. A Decision Document was approved by NDEP 8/22/96.

PROPOSED PLAN

Continued operation of the Enhanced Intrinsic Bioremediation system is being performed by the Corps of Engineers.

IRP STATUS

RRSE RATING: Low (3B)

CONTAMINANTS OF CONCERN:
#2 Fuel Oil

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA, RI

CURRENT IRP PHASE:
LTO (LTM in DSERTS)

FUTURE IRP PHASE:
LTO

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)							
RA(O)							
LTM							
LTO	100	50	12	12	12	12	48

PROJECTED TOTAL: $246,000

RESPONSE COMPLETE
DSERTS SITES

HWAAP-A03
COAL ASH LANDFILL (NOT OPEN)

SITE DESCRIPTION

HWAAP-A03 is an abandoned landfill located in the WADF area. The site has never been used for the disposal of coal ash though an operational permit was issued. In 1994, the investigation activities included collection of two surface soil samples. During sampling low background concentrations of metals were detected. No other chemicals of concern were detected.

PROPOSED PLAN

Response Complete. A Decision Document presenting the remedial investigation history for this site has received regulatory approval. Site closed.

IRP STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
None
RRSE RATING:
Low (3A)
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

HWAAP-A04
BABBITT CLOSED LANDFILL

SITE DESCRIPTION

HWAAP-A04 is a closed unlined landfill located southeast of the Former Babbitt Housing Area and approximately 1 mile east of the base of the Wassuk Mountain Range. The landfill covers 65 to 75 acres. The landfill was in operation from 1940 to 1975 and received office and domestic waste. The landfill was operated by the modified trench method, in which operators used sand and gravel to cover the solid waste material. Refuse was routinely burned in the landfill trenches.

A geophysical survey was completed in 1994 to define the landfill area. The surveys identified anomalies which define the areas of the landfill where there appears to be buried material in linear trenches, consistent with historical data of the site. Field investigation showed buried material to be dry waste and construction debris.

IRP STATUS

RRSE RATING: High (1B)
CONTAMINANTS OF CONCERN: TPH, VOCs, Metals
MEDIA OF CONCERN: Soil
COMPLETED IRP PHASE: PA/SI, RI/FS, RD
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

Three wells were installed in 1996 to sample groundwater. The groundwater sampling program at this site has been under way for one year. Groundwater monitoring is no longer required because contamination was not found.

PROPOSED PLAN

Document presenting the RI/RA history will be submitted for regulatory approval in 2001.

HWAAP-A05
MUSTARD GAS DISPOSAL AREA

SITE DESCRIPTION

HWAAP-A05 is a site operated from 1940 to 1946 to dispose of munitions containing mustard and other chemical agents including phosgene and cyanogen chloride. The general procedure for disposal was to treat the chemicals in an open trench and backfill the excavation to grade.

The site was investigated in 1981 and in 1988 by test pits and geophysical surveys to identify disposal areas. Sixty-three soil samples collected from the test pits were analyzed and found no detections of the chemicals of concern. RI activities completed in 1994 included airborne GPR over 345 acres, 1350 feet of refraction seismic and 510 feet of reflection seismic surveys to further delineate the former disposal trenches.

There is no evidence that the contaminants continue to exist at this site. At the direction of NDEP, a fence has been constructed and signs posted to designate an off-limits area as a precaution.

IRP STATUS

RRSE RATING: Low (3B)
CONTAMINANTS OF CONCERN:
Mustard Gas, Phosgene, Cyanogen Chloride, 1,1,2,2-tetrachloroethane
MEDIA OF CONCERN: Soil
COMPLETED IRP PHASE: PA/SI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document presenting the RI/RA history will be submitted for regulatory aproval in 2001.

HWAAP-A06A
OLD BOMB DISPOSAL AREA 1

SITE DESCRIPTION

HWAAP-A06a, an unlined landfill (approximately 50 acres), is located approximately one mile west and one mile northwest of Rocket Mountain. The landfill was in operation from 1943 to 1946 for the disposal of, by means of burning and detonation, approximately 10,000 tons of mines, warheads, bombs, incendiary devices, and miscellaneous ordnance. The ground is stained by black ash and rusty-red oxidized TNT residue/ammonium picrate. Wind erosion and surface flash flooding may cause these contaminants to be dispersed.

In 1994, airborne ground penetrating radar (AGPR) surveying over both HWAAP-A06a and G01a was completed. Forty-four targets were surveyed over a 63 acre area. In 1994, an Army evaluation team visited the site to determine if the UXO at the site pose an imminent hazard. As result of the evaluation, an imminent threat to human safety was determined and a Risk Assessment Code (RAC) 2 was assigned.

IRP STATUS

RRSE RATING: Medium (2B)
CONTAMINANTS OF CONCERN:
Explosives, Metals, UXO
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Because of potential risk of UXO at the site, intrusive investigation is not recommended.

This site is an active RCRA permitted site and therefore not eligible for IRP funds.

HWAAP-A09A
AMMO CAN PILES

SITE DESCRIPTION

HWAAP A09a is a storage area of 113 piles of empty, crushed ammunition cans and 12 piles of soil/debris located west of the 100 production area and 2 miles south of the southern shore of Walker Lake. The waste piles are approximately 6 to 10 feet high and 12 to 25 feet in diameter and are estimated to range from 15 to 65 cubic yards in volume. The empty cans were dumped on open ground and then separated magnetically, crushed, and stacked into piles. The cans were not flashed to remove explosive residues and still may contain reactive powder residues. Ground water at this site is reported to be between 70 and 78 feet bgs with a northerly gradient.

Remedial investigations completed at the site in 1994 included visual characterization of the contents of the piles and collection of surface and hand auger soil sampling. Eighteen surface soil samples and eighteen hand auger samples were collected from around six of the piles for metals & explosives analyses. Low concentration of explosives and metals (lead of 230 mg/kg) were detected. The investigation indicated that a release of low magnitude had occurred. Although the lead concentration of 160 mg/kg is above the NDEP criteria of 100 mg/k, it is well below other accepted standards including the EPA Region IX PRG. The piles were inspected for ordnance and placed into a permitted landfill

IRP STATUS

CONTAMINANTS:
Explosives, Lead, Cadmium
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 4 Aug 2000.

HWAAP-A09B
BATTERY DISPOSAL AREA

SITE DESCRIPTION

HWAAP-A09b is an unlined earthen pit located 0.5 miles west of the 100 group area. The pit occupies approximately 1 acre and was used as an open dumping ground for all types of batteries, smokeless powder (propellant), and rocket packing material. The pit was used from the 1950s to the 1960s. Ground water at this site is reported to be between 70 and 80 feet bgs.

Flooding in 1992 exposed a 10-foot thick wall of batteries and rocket packing corks, and washed the waste downstream. Following the flood the batteries were removed by HWAD in 1993 and placed in a permitted off-site landfill.

In 1994, remedial investigations completed included collection of surface and hand auger samples and CPT soil samples. Three surface soil samples, three hand auger samples and two CPT samples were collected and analyzed for metals and explosives. No explosives were detected. Lead (160 mg/kg), barium (510 mg/kg) and beryllium (1.1mg/kg) were detected at moderate concentrations. The lead concentrations decrease significantly with depth. Site was re-graded in 1997.

IRP STATUS

CONTAMINANTS:
Lead, Cadmium
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 22 Mar 2000.

HWAAP-A11
MAG 18-5 DISPOSAL PIT

SITE DESCRIPTION

HWAAP-A11 is an open unlined pit approximately 300'x100'x15', located next to Magazine 18AT5 near the Mustard Gas Disposal Area (HWAAP-A05), used for the disposal of pyrotechnics, explosives, propellants, metal, ammunition boxes and other waste by open burning. The period of operation is unknown.

The SI activities completed in 1994 included ground-penetrating radar and magnetometry surveys on a 10-foot grid and the collection and analyses of 3 near surface soil samples. The soil samples contained up to 10 mg/kg of BTEX based on field screening analyses. In 2000, additional investigation and remedial action was completed by removing 200 cubic yards of soil for treatment at C01a/b. This site has been backfilled with bioremediated soil.

IRP STATUS

RRSE RATING: Low (3B)
CONTAMINANTS OF CONCERN:
BTEX, Metals, Explosives
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document presenting the RI/RA history will be submitted for regulatory approval in 2001.

HWAAP-B01
WADF IMPOUNDMENT #1

SITE DESCRIPTION

This site is not eligible for IRP funds.

HWAAP-B01, is a single-lined pit (approximately 250'x225'x15'). It has been in use since 1983. It was designed for a capacity of 1.2 million gallons to receive waste water from demil processes during emergency shut down of the waste water treatment facility or during excess accumulation of wastewater. One up gradient and three down gradient groundwater monitoring wells were installed. An interim Part B Permit was issued.

PROPOSED PLAN

This site is RC under the IRP, any future action will be handled under the Part B Permit.

IRP STATUS

CONTAMINANTS:
Ammonium Picrate
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Not Evaluated
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

HWAAP-B02 & B03
WADF IMPOUNDMENT #2 & #3

SITE DESCRIPTION

This site is not eligible for IRP funds.

HWAAP-B02 & B03, are lined surface impoundments, that have never been used since they were opened in 1983. Each impoundment (approximately 250'x225'x15') is single-lined with hypalon. Each has a design capacity of 1.3 million gallons and was designed for the same purpose as HWAAP-B01. One up gradient and three down gradient were also installed at each site. An interim Part B permit was issued.

PROPOSED PLAN

This site is RC under the IRP, any future action will be handled under the Part B Permit.

IRP STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
None
RRSE RATING:
Not Evaluated
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

HWAAP-B05
101-15 IMPOUNDMENT

SITE DESCRIPTION

HWAAP-B05, a double-lined surface impoundment approximately 100'x115'x15', is located within the 101 Production Group, designed to collect explosive-contaminated wash down water from demilitarization operations. The impoundment was never used, however, the soil used to construct the impoundment was from a previous unlined impoundment used to collect explosive wash down water from 1944 to 1977. The newer lined impoundment was constructed at the same location as the older unlined impoundment.

A 1989 RI included collecting near surface, subsurface and ground water samples from within and adjacent to the impoundment. Explosives and petroleum hydrocarbons were detected in the soil samples and explosives were detected in the groundwater at levels up to 2,000 ug/L.

Additional RI work in 1994 included 4 surface samples collected from within the impoundment where visual staining of explosives was observed, and groundwater samples from existing wells. Concentrations of explosives were detected in these soil samples above 1200 mg/kg. Ground water samples were analyzed for explosives and found RDX concentration at 3.4 ug/L. Fifty-five feet of CPT sounding were conducted at 2 locations to assess the optimal depths to collect subsurface soil samples.

The Baseline Risk Assessment was completed in 1997. The site was reevaluated in 1999 and no further action is required (an IRA to remove the liner for additional sampling was completed).

IRP STATUS

RRSE RATING: Medium (2B)
CONTAMINANTS OF CONCERN:
TNT, ammonium picrate
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 22 Nov 99.

LTM is being funded under B12.

HWAAP-B06
101-13 IMPOUNDMENT

SITE DESCRIPTION

HWAAP-B06 is a double-lined surface impoundment approximately 85'x15'x15' designed to collect explosive-contaminated wash down water from demilitarization operations. The impoundment was never used, however, the soil used to construct the impoundment was from a previous unlined impoundment used to collect explosive wash down water from 1944 to 1977. The newer lined impoundment was constructed at the same location as the older unlined impoundment.

A 1989 RI included collecting near surface, subsurface and ground water samples from within and adjacent to the impoundment. High concentrations of explosives were detected in the soil samples and only ammonium picrate was detected in the ground water at a concentration of 3,600 ug/L.

Additional RI work in 1994 included 5 surface samples collected. Concentrations of explosives and semi-volatile organic compounds were detected in these soil samples above 5 mg/kg and 70 mg/kg respectively. Visual staining from explosives was observed and at such high levels that samples could not be shipped for analyses. Ground water samples were found to contain low level of explosives. Twenty-five feet of CPT sounding was conducted at 1 location to assess the optimal depths to collect subsurface soil samples. Contamination exceeds NDEP requirements.

RA by composting was commenced in 1998 and completed in 1999.

IRP STATUS

RRSE RATING: Medium (2B)
CONTAMINANTS OF CONCERN:
TNT, RDX, Yellow D
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA/SI, RI/FS, RA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document presenting the RI/RA history will be submitted for regulatory approval in FY 2001.

HWAAP-B07
101-1 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B07 is an unlined surface impoundment located southeast of Building 101-1 and measures approximately 15 feet by 12 feet. The pit is approximately 4 feet deep. The impoundment was in operation from 1940 to the early 1970's and received large amounts of wastewater containing TNT and RDX. Piles of dredged soil were located on all sides of the impoundment.

Visible evidence of TNT stained soils in the impoundment was noted during site investigations. Soil sampling has confirmed the contamination of the explosives in the soil in 1988-1992. Ground water is estimated to be at approximately 120 feet bgs but has not been sampled at this site.

RI work in 1994 included surface soil and hand auger sampling, and CPT soundings to a depth of 40 feet bgs. One surface soil sample, one hand auger sample and three CPT soundings were collected and analyzed for metals and explosives. Low concentrations of metals (except beryllium) and explosives contamination were detected in the soil. Beryllium was detected in two samples collected from 31 and 40 feet below ground at 0.73 mg/kg and 0.67 mg/kg, respectively.

This site was backfilled, graded and closed in 1999.

IRP STATUS

CONTAMINANTS:
TNT, RDX
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI, RI/FS, RA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document presenting the RI/RA history will be submitted for regulatory approval in FY 2001.

HWAAP-B08
101-1 SOUTH CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B08 is an inactive unlined surface impoundment located southwest of Building 101-1 and measures approximately 45 by 72 by 6 feet. Two discharge pipes from Building 101-1 enter the impoundment on the east side and one discharge pipe enters the impoundment at the southern corner near a manhole. The impoundment was in operation from 1940 to the early 1970's and received large amounts of wastewater containing TNT and RDX.

Visible evidence of TNT stained soils in the impoundment was noted during site investigations (1988-1992). Soil sampling has confirmed the contamination of the soil with explosives. Groundwater is estimated to be at approximately 120 feet bgs but has not been sampled at this site.

RI work in 1994 included surface soil and hand auger sampling, and CPT soundings to a depth of 47 feet bgs. Three surface soil samples, three hand auger samples and two CPT soil samples were collected and analyzed for metals and explosives. Low concentrations of metals (except beryllium) and elevated concentration of RDX (up to 2500 mg/kg) were detected in soil. Investigation result shows concentration of RDX reduces significantly with depth. Beryllium was detected up to 0.89 mg/kg. Contamination exceeds NDEP requirements.

Based on the conclusion that the metals and explosives impacted soils have not impacted the ground water, no remediation of the ground water is required. Groundwater monitoring has been transferred to HWAAP-B12.

A RA of bioremediation was completed in 1999.

IRP STATUS

CONTAMINANTS:
TNT, RDX
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Medium (2B)
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 4 Aug 2000.

HWAAP-B09
101-32 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B09 is an inactive unlined surface impoundment located east of Building 101-2 and measures approximately 100 by 155 by 8 feet. It consists of three interconnected ponds; one smaller pond containing a concrete settling tank and two large ponds used for overflow of liquids. The impoundment was in operation from 1940 to the early 1970's and received large amounts of wastewater containing TNT and RDX. Ground water is estimated to be at approximately 120 feet bgs but has not been sampled at this site. In December 1992 and May 1994 the concrete settling tank was partially filled with water and sludge.

TNT stained soils are visible in the settling ponds and soil sampling confirmed (1988-1992) the contamination of the soil with explosives and metals.

RI work in 1994 included sludge sampling, surface soil and hand auger sampling, and CPT soundings to a depth of 59 feet bgs. One sludge sample, five surface soil samples, five hand auger samples and three CPT soil samples were collected and analyzed for metals and explosives. Low levels of metals (except beryllium) and explosives (except RDX) were detected in the soil. However, the visibly stained soils that are present at the site contained explosives at such high levels that samples could not be shipped for analysis. Up to 230 mg/kg of RDX was detected in the shallow soil exceeding the remediation goal of 64 mg/kg. Up to 0.62 mg/kg of beryllium was detected in soil. Contamination exceeds NDEP requirements.

A RA of bioremediation was completed in 1999.

IRP STATUS

CONTAMINANTS:
TNT, RDX
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 4 Aug 2000.

HWAAP-B10
101-3 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B10 consists of two inactive unlined surface impoundments located north of Building 101-3. Each pit measures approximately 15 by 15 feet and is 2 to 4 feet deep. The impoundments were in operation from 1940 to the early 1970's and received large amounts of wastewater containing TNT and RDX. Ground water is estimated to be at approximately 120 feet bgs but has not been sampled at this site.

Visible evidence of TNT stained soils in the impoundment was noted during site investigations. Soil sampling in 1988-92 has confirmed the contamination of the soil with explosives. RI work in 1994 included surface soil and hand auger sampling, and CPT drilling. Two surface soil samples, two hand auger samples and five CPT soil samples were collected and analyzed for metals and explosives. Metals (except beryllium) were detected at concentrations below the soil remediation criteria. Beryllium was detected at concentrations of 0.55 mg/kg and 0.69 mg/kg in CPT samples from 8 and 18 feet bgs. Explosives (except 1,3,5-TNB at 4.9 mg/kg) were detected at concentrations below the soil remediation criteria. The RA was completed in 1999.

IRP STATUS

CONTAMINANTS:
TNT, RDX
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 4 Aug 2000.

HWAAP-B11A
101-31 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B11a is an inactive unlined surface impoundment on the north side of Building 101-31 and measures 45 by 20 by 3 feet. The impoundment is partially filled with windblown sand and tumbleweeds and is partially eroded. Small piles of dredged soil are located on the sides of the impoundment. The impoundment was in operation from 1940 to the early 1970's and received large amounts of wastewater containing TNT and RDX.

Visible evidence of TNT stained soils in the impoundment was noted during site investigations. Soil sampling taken (1988-92) has confirmed the contamination of the soil with explosives. RI work in 1994 included surface soil and hand auger sampling, and CPT soundings. One surface soil sample, one hand auger sample and two CPT soil samples were collected and analyzed for metals and solvents. Solvents, metals (except beryllium and lead) and explosives were detected below PCGs. Bioremediation was selected as the RA and was completed in 1999.

IRP STATUS

CONTAMINANTS:
Solvents, Metals, Explosives
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 4 Aug 2000.

HWAAP-B11B
101-34 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B11b is an inactive unlined surface impoundment located 40 feet north of Building 101-34 and measures 45 by 13 by 3 feet. The pit walls are partially eroded and the pit is partially filled with windblown sand. Piles of dredged soil are located on the sides of the impoundment. The impoundment was in operation from 1940 to the early 1970's and received large amounts of wastewater containing TNT, RDX and lead-based paint.

No visible evidence of TNT staining was noted during site investigations however dried paint is present in the impoundment. Soil sampling in 1997 confirmed the contamination of the soil with solvents and metals. RI work in 1994 included surface soil and hand auger sampling, and CPT soundings. One surface soil sample, one hand auger sample and one CPT soil sample were collected and analyzed for metals and solvents. Solvent, metals (except beryllium and lead) and explosives were detected below PCGs.

RA was removal of explosive contaminated debris in 1997. The site was reassessed in 1999, no further action was required.

IRP STATUS

CONTAMINANTS:
Solvents, Metals, Explosives
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 6 Dec 1999.

HWAAP-B13
101-29/36 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B13 is an inactive unlined surface impoundment located between buildings 101-29 and 101-36 and south of Building 101-56. The impoundment measures approximately 120 by 45 by 7 feet. The pit is eroded and partially filled with windblown sand. Two discharge pipes enter the impoundment from the west and an additional pipe enters from the south. A concrete settling tank is located southeast of the impoundment with a discharge pipe leading from the west end of the tank into the east of the impoundment. Dredged soil is located on the side of the impoundment. The impoundment was in operation from 1940 to the early 1970's and received large amounts of wastewater containing TNT and RDX.

RI in 1994 included water sampling from the settling tank, surface soil and hand auger sampling, and CPT soundings. Three surface soil samples, three hand auger samples and one CPT soil sample were collected and analyzed for explosives and metals. Elevated concentrations of RDX, and TNT were detected in the soil. Visible evidence of TNT stained soils in and surrounding the impoundment were noted during investigations.

The site reassessed in 1999 using improved sampling and analytical techniques; no further action was required.

IRP STATUS

CONTAMINANTS:
TNT, RDX
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
High (1B)
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 6 Dec 1999.

HWAAP-B15
101-16 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B15 consists of two inactive unlined surface impoundments located near Buildings 101-16 and 101-63. Impoundment HWAAP-B15a measures 75 by 15 feet by 8 feet deep with partially eroded sidewalls. The second smaller pit (HWAAP-B15b) is located adjacent to Building 101-16. Piles of dredged soil are located on the sides of the impoundments.

HWAAP-B15a was in operation from 1940 to the early 1970's and received large amounts of wastewater containing TNT, RDX and possibly lead based paint waste.

Visible evidence of TNT-stained soils in and surrounding the impoundments were noted during site investigations (1998-1992).

RI work in 1994 included surface soil and hand auger sampling, and CPT soundings. Two surface soil samples, two hand auger samples and one CPT soil sample were collected and analyzed for solvents, explosives and metals. Low levels of RDX, TNT and metals (Arsenic, barium, total chromium, and lead) were detected in the soil. Three surface soil samples, three hand auger samples and five CPT soil samples were collected and analyzed for explosives and metals. Elevated concentrations of explosives (TNT, TNB, DNT), and metals (Beryllium) were detected in the soil.

RA by composting was completed in 1999.

IRP STATUS

RRSE RATING: Low (3B)
CONTAMINANTS OF CONCERN:
TNT, RDX, Lead
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 22 March 2000.

HWAAP-B16
101-18 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B16 is an inactive unlined surface impoundment located northwest of the conveyor ramp for Building 101-18 and measures 33 by 60 by 6 feet. The sidewalls of the pit are partially eroded and the pit is partially filled with windblown sand. A discharge pipe enters the impoundment from the south side and a sump is located on the southwest corner. The sump does not appear to be connected to this impoundment. This site was in operation from 1940 to the early 1970's and received large amounts of wastewater containing TNT and RDX.

Visible evidence of TNT stained soils in and surrounding the impoundment were noted during site investigations (1988-1992).

RI work in 1994 included surface soil and hand auger sampling, and CPT sounding. Two surface soil samples, two hand auger samples and two CPT soil samples were collected and analyzed for explosives and metals. Laboratory analysis of surface and subsurface soil detected RDX (1200 mg/kg), 2,4,6-TNT (5600 mg/kg), 1,3,5-TNB (210 mg/kg), 2-amino-DNT (29 mg/kg), and 2,4-DNT (4.0 mg/kg) that exceeded the remediation criteria.

RA by composting was completed in 1999.

IRP STATUS

CONTAMINANTS:
TNT, RDX
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
High (1A)
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document presenting the RI/RA history will be submitted for regulatory approval in FY 2001.

HWAAP-B17A
101-20 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B17a is an inactive unlined surface impoundment connected with HWAAP-B17b and is located 5 feet south of Building 101-20. The pit measures 12 by 12 by 3 feet. The sidewalls of the pit are partially eroded and the pit is partially filled with windblown sand. No piles of dredged soil are visible at this site. This impoundment was in operation from 1940 to the early 1970's and received large amounts of waste-water containing TNT and RDX.

Visible evidence of TNT stained soils in and surrounding the impoundment between B17a and B17b were noted during site investigations (1988-1992).

RI work in 1994 included surface soil and hand auger sampling and CPT sounding. Two surface soil samples, one hand auger samples and three CPT soil samples were collected and analyzed for explosives and metals. Elevated concentration of 1,3,5-TNB (31 mg/kg), 2-Amino-DNT (1.3 mg/kg), lead (130 mg/kg) and total chromium (130 mg/kg) were detected in the soil.

RA by composting was completed in 1999.

IRP STATUS

CONTAMINANTS:
TNT, RDX
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
High (1B)
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 24 April 2000.

HWAAP-B17B
101-20 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B17b is an inactive unlined surface impoundment connected with HWAAP-B17a and is located 100 feet south of Building 101-20 and measures 60 by 21 by 6 feet. The sidewalls of the pit are partially eroded and the pit is partially filled with windblown sand. A discharge pipe enters the impoundment from the north side. A pile of dredged soil is located at the east end of the impoundment. This impoundment was in operation from 1940 to the early 1970's and received large amounts of waste-water containing TNT and RDX. There was no visible evidence of TNT stained soils were observed on the surface between B17a and B17b.

RI work in 1994 included surface soil and hand auger sampling, and CPT soundings. Three surface soil samples, one hand auger sample and two CPT soil samples were collected and analyzed for explosives and metals. Elevated concentrations of 1,3,5-TNB (60 mg/kg) were detected in soil.

RA by composting was completed in 1999.

IRP STATUS

RRSE RATING:
High (1B)
CONTAMINANTS OF CONCERN:
TNT, RDX
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 4 Aug 2000.

HWAAP-B18
101-62 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B18 is an inactive unlined surface impoundment located adjacent to Building 101-62 and located northeast of Building 101-62. The impoundment measures 75 by 21 by 6 feet. The sidewalls of the pit are partially eroded. No discharge pipes were evident but a septic tank is located south of the impoundment. Piles of dredged soils are located on the sides of the impoundment. This impoundment was in operation from 1940 to the early 1970's and received large amounts of wastewater containing TNT and RDX.

Visible evidence of TNT stained soils were seen in the impoundment during earlier investigation but no stained soils were observed during the 1994 investigations. RI work in 1994 included surface soil and hand auger sampling, and CPT soundings. Two surface soil samples, two hand auger sample and nine CPT soil samples were collected and analyzed for explosives and metals.

RA by composting was completed in 1999.

IRP STATUS

CONTAMINANTS:
TNT, RDX
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
High (1B)
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document presenting the RI/RA history will be submitted for regulatory approval in FY 2001.

HWAAP-B19
101-11 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B19 is an inactive unlined surface impoundment located northeast of Building 101-11 and measures 42 by 78 by 6 feet. The sidewalls of the pit are partially eroded and two discharge pipes enter the impoundment. Piles of dredged soils are located on the sides of the impoundment. This impoundment was in operation from 1940 to the early 1970's and received large amounts of wastewater containing TNT and RDX.

Visible evidence of TNT stained soils was seen in the impoundments during earlier investigations but no stained soils were observed during the 1994 investigations. RI work completed in 1994 included surface soil and hand auger sampling, and CPT soundings. Five surface soil samples, three hand auger samples and six CPT soil samples were collected and analyzed for explosives and metals. Lab results indicate explosive and metals were detected at low concentrations.

RA by composting was completed in 1999.

IRP STATUS

CONTAMINANTS:
TNT, RDX
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
High (1B)
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document presenting the RI/RA history will be submitted for regulatory approval in FY 2001.

HWAAP-B21
101-41/42 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B21 is inactive unlined surface impoundment pit located between Buildings 101-41 and 101-44 and east of Building 101-41 and measures 150 by 140 by 8 feet. The impoundment is partially eroded and partially filled with windblown sand. Piles of dredged soils are located on the sides of the impoundment. This impoundment operated from 1940 to the early 1970's and was reported to have received large amounts of wastewater containing TNT and RDX.

RI work in 1994 included surface soil and hand auger sampling, and CPT soundings. Two surface soil samples, two hand auger samples and four CPT soil samples were collected and analyzed for explosives and metals. Elevated concentrations of arsenic (3.10 mg/kg) and beryllium (0.67 mg/kg) were detected in the CPT soil samples. No visible evidence of TNT stained soils is in the impoundments. Soil sampling indicated that the soil is not contaminated with explosives.

The arsenic hit was reevaluated. The reported concentration of 310mg/kg is a transcription error.

IRP STATUS

CONTAMINANTS:
TNT, RDX, Metals
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI, RI/FS, RA
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document presenting the RI/RA history will be submitted for regulatory approval in FY 2001.

HWAAP-B22A
101-44 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B22a is an inactive unlined surface impoundment pit located west of Building 101-44 and northwest of HWAAP-B22b. The pit measures 54 by 42 by 4 feet deep. The impoundment is partially eroded and partially filled with windblown sand. A large pile of dredged soil is located on the north side of the impoundment. This impoundment operated from 1940 to the early 1970's and received large amounts of wastewater containing TNT and RDX.

RI work in 1994 included surface soil and hand auger sampling, and CPT soundings. One surface soil sample, one hand auger sample and two CPT soil samples were collected and analyzed for explosives and metals. Stained soils were observed in the impoundments and soil samples collected from 0'-5' bgs were field screened for explosives. Only low concentration of metals, and no explosives were detected in soil samples taken at greater depth.

There has been no impact to the groundwater from metals or explosives at this site, no remediation of the ground water is recommended. Site reassessed in 1999 using improved sampling and analytical techniques.

IRP STATUS

CONTAMINANTS:
TNT, RDX
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
High (1B)
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document presenting the RI/RA history will be submitted for regulatory approval in FY 2001.

HWAAP-B22B
101-44 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B22b is an inactive unlined surface impoundment pit located northwest of Building 101-44 and east of HWAAP-B22b. The pit measures 45 by 30 by 6 feet. The impoundment is partially eroded and partially filled with windblown sand. A large pile of dredged soil is located on the north side of the impoundment. This impoundment operated from 1940 to the early 1970's and received large amounts of wastewater containing TNT and RDX.

RI work in 1994 included surface soil and hand auger sampling, and CPT soundings. One surface soil sample, one hand auger sample and two CPT soil samples were collected and analyzed for explosives and metals. Only low concentrations of explosives and metals were detected in soil samples collected.

There has been no impact to the groundwater from metals or explosives at this site, no remediation of the groundwater is recommended. The site was reassessed in 1999 with improved sampling and analytical techniques.

IRP STATUS

CONTAMINANTS:
TNT, RDX
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
High (1B)
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document presenting the RI/RA history will be submitted for regulatory approval in FY 2001.

HWAAP-B25
103-7 INERT WASTE IMPOUNDMENT

SITE DESCRIPTION

HWAAP-B25 is an open pit approximately 10'x20'x1', located adjacent to Building 103-7 that operated during the 1960's and early 1970's to receive waste water containing packing plaster, cement and vermiculite from loading inert bombs.

The RI/FS was completed in December 1998 and approval for NFA was received. There was no evidence of a release of metals or explosives to the soil.

PROPOSED PLAN

A Closure Document was approved by NDEP on 29 Mar 2000.

IRP STATUS

CONTAMINANTS:
Inert Materials, Metals
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

HWAAP-B27B
103-8/10 OXIDATION DITCH

SITE DESCRIPTION

HWAAP-B27b is an unlined ditch approximately 3,000 sq. ft. used from the 1950's to the 1970's to contain discharged wastewater from the operations of cleaning ammunition and charge cans. The wastewater was known to contain caustics, paint and sandblasting residues.

Investigation activities completed in 1994 include 2.9 acres of GPR to identify discharge pipes that lead from the operation building to the ditch. Eleven surface and 16 near surface soil samples were collected. Elevated concentration of metals (560 mg/kg of lead, 330 mg/kg of chromium) that were detected in sump sediment exceeded NDEP criteria, 20xTCLP. Sumps were cleaned out and sediment disposed of off-site. Six subsurface soil samples were collected from 5 borings. These samples contained no elevated concentrations of metals and no detected concentrations of explosives.

Mercury was lost in the building and may have been released into the trench. However, sampling in 1999 found no evidence of mercury in the soil samples, except for one isolated location. Mercury impacted soils were removed and disposed of off-site and the oxidation trench was backfied.

There has been no impact to the ground water from metals or explosives at this site, no remediation of the ground water is required.

IRP STATUS

CONTAMINANTS:
Explosives, Lead, hromate, PCB Mercury
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI, Phase I&II RI/FS, RA
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 29 Mar 2000.

HWAAP-B27C
103-20 SURFACE IMPOUNDMENT

SITE DESCRIPTION

HWAAP-B27c is an unlined surface impoundment (approximately 100'x10'x10') and ditch with associated underground piping located west of Building 103-20 used for the discharge of wastewater from a nearby operations of cleaning and sandblasting. The operations were conducted from the 1959's to the 1970's.

Investigation activities completed in 1994 include 5 surface soil samples and 13 subsurface soil samples collected from 5 borings. Elevated concentration of metals (3500 mg/kg of lead, 890 mg/kg of chromium) were detected in soil exceeded NDEP criteria, 20xTCLP. Lead-contaminated soil was excavated, stabilized and placed in an on-site landfill in association with remediation at C01a/b.

There has been no impact to the groundwater from metals or explosives at this site. No remediation of the groundwater is recommended.

IRP STATUS

RRSE RATING: Low (3B)
CONTAMINANTS OF CONCERN: Metals
MEDIA OF CONCERN: Soil
COMPLETED IRP PHASE: PA/SI, RI/FS, RA
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document presenting RI/RA history will be submitted to NDEP in 2001.

HWAAP-B28A
108-20 PO SPILL IMPOUNDMENT

SITE DESCRIPTION

HWAAP-B28a is a lined surface impoundment approximately 200 feet square and 8 feet deep that was designed to contain spills of propylene oxide. The impoundment was never used for its originally proposed purpose, however, it was used for the disposal of ethylene oxide.

Investigation in 1994 included 7 subsurface soil samples from 5 locations for VOCs analyses. The chemicals of concern were detected at low concentrations.

IRP STATUS

CONTAMINANTS:
Ethylene, Oxide, Propylene, VOCs
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI, RI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 22 Nov 1999.

HWAAP-B28B
108-20 PO SPILL IMPOUNDMENT

SITE DESCRIPTION

HWAAP-B28b is a lined surface impoundment approximately 40 feet square and 4 feet deep that was designed to contain spills of propylene oxide. The impoundment was never used.

Investigation in 1994 included 10 soil-gas samples, 3 surface soil samples and 8 subsurface soil samples from 2 borings for VOC & SVOCs analyses. The chemicals of concern were not detected in any of the samples.

IRP STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
None
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI, RI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 22 Nov 1999.

HWAAP-B28C
104-8 EO SPILL IMPOUNDMENT

SITE DESCRIPTION

HWAAP-B28c is an unlined impoundment approximately 150 by 100 feet and is about 8 feet deep and was designed to contain spills of ethylene oxide. The impoundment was reportedly operational in 1988 but has not been used since.

Investigation in 1994 included 10 soil-gas samples and 14 subsurface soil samples from 5 borings for VOC & SVOC analyses. Low concentrations of the chemicals were detected in the subsurface samples.

IRP STATUS

CONTAMINANTS:
Ethylene Oxide
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI, RI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved on 22 Nov 1999.

HWAAP-B28D
104-10 EO SPILL IMPOUNDMENT (BASIN)

SITE DESCRIPTION

HWAAP-B28d is an open evaporation pond about 60 feet in diameter, designed to contain spills of ethylene oxide. The pond was reportedly operational in 1979 but has not been used since.

Investigation in 1994 included 10 soil gas samples and 13 subsurface soil samples collected from 5 borings for VOC & SVOC analyses. Low concentrations of the chemicals of concern were detected in the subsurface soil samples.

IRP STATUS

CONTAMINANTS:
Ethylene Oxide
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI, RI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 22 Nov 1999.

HWAAP-B30
101-16 CATCHMENT PIT (BASIN)

SITE DESCRIPTION

HWAAP-B30 is an inactive unlined surface impoundment pit located northwest of Bldg 101-16 and measures 78 by 30 by 6 feet. The impoundment is partially eroded at the south end. A settling tank is located approximately east of the impoundment at the west side of Bldg 101-16 and appears to be connected to the impoundment by a discharge pipe entering the pit at the southeast corner. Small piles of dredged soils surround the impoundment. This impoundment operated from 1940 to the early 1970's and received large amounts of wastewater containing TNT and RDX.

RI work in 1994 included water sampling from the settling tank, surface soil and hand auger sampling, and CPT soundings. Three surface soil samples, three hand auger samples, seven CPT soil samples and one water sample from the settling tank were collected and analyzed for explosives and metals. The sump water contained elevated levels of VOCs, RDX (240 ppb), 2-Amino-DNT (5.3 ppb), and 4-Amino-DNT (9.8 ppb). Explosives and metals (except beryllium) were detected at low levels in the soil samples taken from surface to a depth of 20' bgs. Stained soils were observed.

The site was reassessed in 1999 using improved sampling and analytical techniques; NFA was required.

IRP STATUS

CONTAMINANTS:
TNT, RDX
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Medium (2B)
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 22 Nov 1999.

HWAAP-B31
101-65 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B31 is an inactive unlined surface impoundment pit located south of Building 101-65 and measures 70 by 32 by 5 feet. The impoundment is heavily eroded and partially filled with windblown sand. A discharge pipe enters the pit from the northeast corner. Small piles of dredged soils surround the impoundment. This impoundment operated from 1940 to the early 1970's and received large amounts of waste water containing TNT and RDX.

RI work in 1994 included surface soil and hand auger sampling, and CPT soundings. Two surface soil samples, two hand auger samples and three CPT soil samples were collected and analyzed for explosives and metals. Low concentrations of explosives and metals were detected in the soil.

The site was reassessed in 1999 with improved sampling and analytical techniques. No further action is required.

IRP STATUS

CONTAMINANTS:
TNT, RDX
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
High (1B)
COMPLETED IRP PHASE:
PA/SI, RI/ FS, RD
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 24 Apr 2000.

HWAAP-B32
101-41 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B32 is an inactive unlined surface impoundment pit located southeast of Building 101-41 and measures 57 by 45 by 3 feet. The impoundment is heavily eroded and partially filled with windblown sand. A discharge pipe enters the pit from the northwest side. Small piles of dredged soils surround the impoundment. This impoundment operated from 1940 to the early 1970's and received large amounts of wastewater containing TNT and RDX.

RI work in 1994 included surface soil and hand auger sampling, and CPT soundings. One surface soil sample, one hand auger sample and three CPT soil samples were collected and analyzed for explosives and metals. Low concentrations of explosives and metals were detected in the soil.

Site soils were treated using a static bioremediation pile for evaluation of technology in 1997.

IRP STATUS

CONTAMINANTS:
TNT, RDX
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI, RI/FS, RA
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document presenting the RI/RA history will be submitted for regulatory approval in FY 2001.

HWAAP-B33
102 PRODUCTION AREA
(102-51 CATCHMENT PIT)

SITE DESCRIPTION

HWAAP-B33 is an inactive unlined surface impoundment located south of Building 102-51 measuring 25 by 25 by 12 feet. The pit shows no signs of use or erosion. The use and operating practices for the pit are unknown.

RI work in 1994 consisted of collecting one surface soil sample, one hand auger sample and one CPT soundings. Five metals were detected in the soil samples but at a low concentration. No explosives were detected in the soil.

IRP STATUS

CONTAMINANTS:
Metals
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Medium (2B)
COMPLETED IRP PHASE:
PA/SI, RI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 29 Mar 2000.

HWAAP-B34
104-3 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-B34, is an unlined surface impoundment (approx. 100'x30'x5'), that is located east of Building 104-3. The pit has been used since 1940s to collect steam blow down from Boiler Plant 104-2 and wastewater containing explosives from 104-3. Groundwater is approx. 160' below surface.

IRP STATUS

CONTAMINANTS:
Explosives
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document presenting the RI/RA history will be submitted for regulatory approval in FY 2001.

HWAAP-C02A
117-3 WADF ROTARY DEACTIVATION FURNANCE

SITE DESCRIPTION

This is an active site, and therefore is not eligible for IRP funds.

HWAAP-C02A is a modern rotary deactivation furnace located in Building 117-3 in the WADF area. This unit was in operation until losing interim status on November 9, 1989. During operations, this furnace received small arms ammunition and detonation fuses.

The unit was closed in 1990 with the approval of the NDEP.

IRP STATUS

CONTAMINANTS:
Lead, Explosives, UXO
MEDIA OF CONCERN:
Soil
RRSE RATING:
NE
COMPLETED IRP PHASE:
PA/SI, RI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

This site is RC under the IRP.

HWAAP-C03
DOCUMENT INCINERATOR

SITE DESCRIPTION

This is an active site, and therefore is not eligible for IRP funds.

HWAAP-C03, an active incinerator, is co-located with the sanitary landfill. It has been in operation since 1975 for burning paper products. The ash is disposed of in the sanitary landfill. This unit will undergo closure under the Air Permit.

IRP STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
None
RRSE RATING:
NE
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

This site is RC under the IRP.

HWAAP-D01 & D02
CONTAINER STORAGE 1 & 2

SITE DESCRIPTION

This is an active site, and therefore is not eligible for IRP funds.

HWAAP-D01 & D02, non-reactive and reactive/explosive hazardous waste storage areas, have been active since 1982. Building 106-22 and 106-23 (Area 1) were used to store non-explosive hazardous wastes pending proper disposal by the Defense Logistics Agency. Building 113-73A and 115-9 (Area 2) were used to store reactive/explosive contaminated waste. These buildings were designated as hazardous waste storage facilities on the installation's RCRA Part B Permit. The Area 1 building is 50 by 200 ft and is in excess of 15 feet high. The Area 2 building is 50 by 100 by 15 ft.

The wastes stored at Area 1 are deactivation furnace ash, empty cresylic acid drums, trichlorofluoroethene, malathion, solvent rags, phosphoric acid, dry cleaning solvent, sodium hydroxide, chromium trioxide, corrosion-preventive compound, paint sludge, empty cyclohexamine drums and PCP dust. The wastes stored at Area 2 are reactive waste.

IRP STATUS

CONTAMINANTS:
Explosives, Metals, Cresylic Acid, TCE
MEDIA OF CONCERN:
Soil
RRSE RATING:
NE
COMPLETED IRP PHASE: PA/SI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

This site is RC under the IRP, and current/ future action will be managed under the Part B Permit.

HWAAP-E01A
WADF WWTP

SITE DESCRIPTION

This is an active site and therefore is not eligible for IRP funds.

HWAAP-E01a, an active treatment unit, has been operated since 1979. It was designed to treat wastewater from the explosives washout processes at the WADF.

IRP STATUS

CONTAMINANTS:
Explosive Compound Residue
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
NE
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

This site is RC under the IRP, and current/ future action will be managed under NPDES.

HWAAP-E01B
WADF SEWAGE EVAP PONDS

SITE DESCRIPTION

This is an active site, and therefore is not eligible for IRP funds.

HWAAP-E01b, an active wastewater treatment unit, receives domestic sewage piped from the Western Area Demilitarization Facility (WADF) into six PVC-lined evaporative ponds. The WADF sewage receives no mechanical treatment, and does not discharge to the groundwater. Domestic sewage is held in each of these 0.6-acre ponds. The largest of the six ponds is 250'x100'. The lagoons have been used for sewage disposal since 1977. This area also receives treated effluent from the wastewater treatment plant which can discharge water with TNT up to 2 ppm under the NPDES permit.

IRP STATUS

CONTAMINANTS:
Domestic Sewage
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
NE
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

This site is RC under the IRP, any current/ future action will be managed under the NPDES permit.

HWAAP-E02
HWAAP STP EVAP/PERC PONDS

SITE DESCRIPTION

This is an active site, and therefore is not eligible for IRP funds.

HWAAP-E02a, E02b, and E02c have been in operation since 1930. The STP was designed to treat 0.4 million gallons per day (MGD) of sewage. The STP consists of two parallel Imhoff tanks with bar screens, an open sludge holding tank, an incomplete dosing siphon, 20 evaporation/percolation ponds, and two unlined sludge drying beds. The fluid flows from the sludge settling tank to the evaporation/percolation ponds, and the effluent percolates to the groundwater.

The USGS, during their Phase II investigation, confirmed that contaminants have leaked from the ponds to the ground water. The groundwater is approximately 90 feet below the surface. Groundwater monitoring wells were installed down gradient of the site.

IRP STATUS

CONTAMINANTS:
Sludge
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
NE
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

This site is RC under the IRP, any current/ future action will be managed under the NPDES permit.

HWAAP-E03
HAWTHORNE SEWAGE EVAP PONDS

SITE DESCRIPTION

This is an active site, and therefore is not eligible for IRP funds.

HWAAP-E03, an active STP, consists of three oxidation-percolation-evaporation lagoons located on the HWAAP southeast of the 112 group. This STP is operated by the town of Hawthorne under an easement issued by the U.S. Army.

The USGS, during their Phase II investigation, confirmed that contaminants have leaked from the ponds to the groundwater. The groundwater is approximately 90 feet below the surface. Groundwater monitoring wells were installed down gradient of the site.

IRP STATUS

CONTAMINANTS:
Nitrates
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
NE
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

This site is RC under the IRP, any current/ future action will be managed under the permit.

HWAAP-F01
TRANSFER STATION, PROP DISPOSAL OFC (PDO)

SITE DESCRIPTION

This is an active site, and therefore is not eligible for IRP funds.

HWAAP-F01, a Property Disposal Office Storage Facility, is located in the 106 Group Area. It is currently active. Thousands of tons of recyclable wood, oil, metals, automobiles, equipment, and other items are returned to commerce or the public each year through this facility, which does not handle hazardous waste.

IRP STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
None
RRSE RATING:
NE
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

This site is RC under the IRP, and any future action will be non-IRP.

HWAAP-G01A
OLD BOMB OB/OD GROUND 1

SITE DESCRIPTION

HWAAP-G01a, a waste treatment site, is adjacent to HWAAP-A06a and is located approximately eight miles southeast of the HWAD industrial facility and one mile northwest of TV Hill. There is significant overlap with A06a and G01a. Together, both cover approximately 50 acres. The site was used from 1940 to the late 1950's to burn and detonate reactive hazardous waste such as mines, warheads, bombs, incendiary devices, miscellaneous ordnance and PEP. The surface of the site had been physically rearranged, and there is one trench measuring 300'x15'x15'. The ground and trench are stained with black ash and rusty-red oxidized TNT residue. Surface flooding could erode into closed cells and move solid waste or leachates downstream to other areas on the alluvial plain surface.

The installation completed and submitted a closure plan for this site to the State of Nevada in March 1985. No physical closure activities have occurred. The State deferred action to higher priority sites located in industrial area where workers are more likely to be exposed and groundwater has been impacted. This site is an isolated location and fenced with 24-hour security.

Soil sampling performed by USAEHA in 1981 identified explosives. Groundwater samples were reportedly clean in the 1981 Survey and Assessment of HWAD report prepared by USATHAMA.

Investigation in 1994 included airborne ground penetrating radar (AGPR) surveying over both A06a and G01a. Forty-four targets were surveyed over a 63 acre area. Also, an Army evaluation team visited the site to determine if the OEW at the site pose an imminent hazard. As result of the evaluation, an imminent threat to human safety was determined and a Risk Assessment Code (RAC) 2 was assigned.

IRP STATUS

RRSE RATING: Medium (2B)
CONTAMINANTS OF CONCERN:
Explosives, UXO, Metals
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

This site is an active RCRA permitted site and is not eligible for IRP funds

HWAAP-H01
FIRE TRAINING PIT

SITE DESCRIPTION

HWAAP-H01 is a concrete slab and foundation of the former movie theater located northwest of Thorne Road and north of the main gate of HWAD. The concrete slab measures 60 by 20 feet and slopes east. It was used for fire training by igniting and extinguishing waste petroleum, oil, and lubricants (POLs) on the slab. A 3ft high retaining wall and earthen berms were used to contain the fuel on the slab. This site was used for fire training for an undetermined period receiving various fuels and crankcase oils. POL staining is evident on the surrounding soils and fuel contamination is visible within the basin. The expansion joints of the slab are degraded, potentially allowing POL to leak into the soils.

RI work in 1994 included surface soil and hand auger sampling, and CPT studies. Two surface soil samples, two hand auger samples and four CPT soil samples were collected around the slab and analyzed for SVOCs, VOCs, pesticides and PCBs, TPH, explosives and metals. Metals, TPH diesel and SVOC and dioxin were detected in the soil samples.

IRP STATUS

RRSE RATING: Low (3B)
CONTAMINANTS OF CONCERN:
TPH, SVOCs, VOCs, PCBs
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Currently, the slab is acting as a cap. Repairs to the concrete slab will be needed to prevent infiltration. The concrete slab was repaired during 2000. A Closure Document presenting the RI/RA history will be submitted for regulatory approval in 2001.

HWAAP-H02
WASTE LUMBER OB PIT

SITE DESCRIPTION

This site is not in DSERTS.

HWAAP-H02 is two unlined v-shaped open trenches in the salvage yard next to PDO. One measures 250 by 30 feet and 20 feet deep. The installation burns unsaleable non-PCP treated wood, scrap wire, and other products in the trench. The fire department uses the burn site for training. The wood scraps are ignited with fuel oil products. The site has been in service since 1970.

IRP STATUS

CONTAMINANTS:
TPH
MEDIA OF CONCERN:
Soil
RRSE RATING:
NA
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

Response Complete

HWAAP-H03
ROAD & GROUNDS WASTE OB PIT

SITE DESCRIPTION

HWAAP-H03 is an unlined pit located southeast of the HWAD Sewage Treatment Plant and measures 160 by 70 by 15 feet and the ends are sloped toward the center. Brush and tree cuttings were disposed of in the pit, soaked in waste fuel and burnt for fire control training. The pit was in operation from about 1975 to 1983 had received varying amounts of fuels, wood products and rubbish.

The 1994 investigation included surface soil and hand auger sampling, and CPT soundings. Two surface soil samples, two hand auger samples and three CPT soil samples were collected in the pit and analyzed for SVOCs, VOCs, pesticides and PCBs, TPH, explosives and metals. Metals, TPH diesel, SVOC and dioxin were detected in the soil samples. Visible evidence of ash and burn residue is on the ground surface.

IRP STATUS

CONTAMINANTS:
TPB
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document presenting the RI/RA history will be submitted for regulatory approval in FY 2001.

HWAAP-I01
NEW BOMB LANDFILL

SITE DESCRIPTION

The site is active and therefore not eligible for IRP funds.

HWAAP-I01 was identified by NDEP. UXO clearance is required prior to characterization of the site. This site will closed under the RCRA Permit.

IRP STATUS

CONTAMINANTS:
Explosives, UXO
MEDIA OF CONCERN:
Soil
RRSE RATING:
NE
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

Response Complete

HWAAP-I03 & I04
104-7 PIT #1 & 104-7 PIT #2

SITE DESCRIPTION

HWAAP-I03 & I04 is a site with two former pits. The use of the pits and the period of operations are not known. The adjacent building's operation is handling explosives. No evidence of the pits remains following a flash flood in 1992.

RI in 1994 included 1.8 acres of GPR and magnetometry surveys, 19 soil gas samples, 7 near surface soil samples, and 8 subsurface. Low concentrations of VOCs were detected in the soil gas and subsurface soil samples. Low level of explosives and diesel were detected in near surface soil samples.

IRP STATUS

CONTAMINANTS:
Solvents, TPH, Metals, Explosives
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA, RI/FS
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 22 Nov 1999.

HWAAP-I05
33-16 LANDFILL

SITE DESCRIPTION

HWAAP-I05 is a covered landfill approximately 200 feet long by 50 feet wide. Use and period of operation of the landfill is not well documented.

Investigation activities in 1994 included 0.3 acres of magnetometry survey to identify metallic anomalies in the landfill area. Five anomalies were detected and investigated in 1997. Since it appears that disposal activities did not occur at this site, closure is recommended.

IRP STATUS

CONTAMINANTS:
TPH (oil/ diesel), Acid
MEDIA OF CONCERN:
Soil
RRSE RATING:
Medium (2B)
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 22 Nov 1999.

HWAAP-I06
SPILL SITE 30-5

SITE DESCRIPTION

HWAAP-I06 is the site of a spill of FS Smoke and petroleum hydrocarbons in August 1988. The spill reportedly occurred when a contractor was processing materials containing FS Smoke. The petroleum hydrocarbons were reportedly spilled from a portable generator. Samples collected at the time of the spill defined four suspected contaminated locations of hydrocarbons.

Investigation in 1994 included 12 surface and 6 near surface soil samples. Low concentrations of TPH were found in the surface soil samples but no TPH was detected in the near surface soil samples.

IRP STATUS

CONTAMINANTS:
TPH, Acids, Metals
MEDIA OF CONCERN:
Soil
RRSE RATING:
NE
COMPLETED IRP PHASE:
PA, RI/FS
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 15 Sept 1999.

HWAAP-I11
BUILDING 49-9 PIT/LANDFILL

SITE DESCRIPTION

HWAAP-I11 is an open pit landfill used to dispose of paint, paint solvents and their containers. The pit is approximately 40 by 15 by 4 ft. The period of use of the pit is not well documented.

RI work in 1994 included a 0.2 acre magnetometry survey to assess other buried containers; one 50 foot CPT sounding to define the optimum depth for subsurface sampling; collection of 10 soil gas samples, two surface soil samples and 8 subsurface soil samples from one boring drilled to a maximum depth of 30 feet. No additional buried containers were identified from the magnetometry survey. One soil gas sample collected from within the pit contained a high concentration of VOCs. Both surface and subsurface soil samples contained concentrations of VOCs with elevated concentrations of lead (2500 mg/kg) in the surface soil samples. Excavation, stabilization and placement of treated soil in an on-site landfill were accomplished in conjunction with remediation of C01a/b in 2000.

IRP STATUS

RRSE RATING: High (1B)
CONTAMINANTS OF CONCERN:
Lead, Solvents
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA, RI, RD, RA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document will be submitted to NDEP in 2001.

HWAAP-I13
BUILDING 10 DISCHARGE/LANDFILL

SITE DESCRIPTION

HWAAP-I13 is a former discharge pit where petroleum hydrocarbons and paint residue were reportedly disposed from a sheet metal shop. The period of operations of the pit is not known. The site is presently filled to grade. The chemicals of concern include petroleum hydrocarbons, solvents, metals and PCBs from cutting oil.

RI in 1994 included 0.01 acres of GPR on a 2 foot grid identifying the former pit boundaries. One CPT sounding was advanced to 60 feet to define the optimum depth for subsurface sampling. Five subsurface soil samples were collected from one boring to a maximum depth of 60 feet for metals, VOCs, PCBs. Low concentrations of VOCs were detected in the subsurface soil samples.

IRP STATUS

CONTAMINANTS:
Lead, TPH, PCBs, Solvents
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA, RI/FS
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 22 Nov 1999.

HWAAP-I14
BUILDING 49 OIL SPILL SITE

SITE DESCRIPTION

HWAAP-I14 is a spill site of diesel fuel and oil contaminated water released from a blow down incident in 1991 from a compressor. Based on visible staining, the spill appears to be limited to a 10 by 10-foot area.

RI in 1994 included collecting 9 near surface soil samples.

IRP STATUS

CONTAMINANTS:
Lead, TPH, PCBs, Solvents
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA, RI/FS
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document presenting the RI/RA history will be submitted for regulatory approval in FY 2001.

HWAAP-I15
101-42 CATCHMENT PIT

SITE DESCRIPTION

HWAAP-I15 is a site with two catchment pits reportedly used to contain explosive contaminated wastewater from Bldg 101-42. The two pits are connected by a pipe buried in a low weir. The upper and lower pits are 70 by 45 feet and 120 by 70 feet respectively. The operating period of the building was from 1940 to the early 1970's.

RI in 1994 included line locating to determine the pathway of the contaminated wastewater from the building to the pits. Data collection included 20 soil gas samples, 12 surface soil samples and 1 CPT sounding to assess the optimal depth to collect subsurface soil samples. No subsurface soil samples were collected. The surface soil samples were found to contain up to 1500 mg/kg of explosives.

The soil from this site was combined with the soil from B20 in a pilot study of windrow composting. The soil was remediated and the pits were backfilled with clean soil. The RA was completed in 1997.

IRP STATUS

RRSE RATING: Low (3B)
CONTAMINANTS OF CONCERN:
Explosives, Solvents, Metals
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
PA, RI/FS, RA (soil)
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A closure document was signed by NDEP on 4 Aug 2000.

HWAAP-I17
104-10 LANDFILL

SITE DESCRIPTION

HWAAP-I17 is a landfill area about 90 by 30 feet. The area contains piles of debris that contain concrete, lumber, metal pipe, sheet metal and rebar. The period of use and activities are not well documented.

RI in 1994 included soil gas survey of the adjacent HWAAP-B28d site. No detection of VOCs was found in the soil gas samples.

IRP STATUS

CONTAMINANTS:
ethylene oxide
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA, RI/FS
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 13 Oct 1999.

HWAAP-I18
104-2 HYDROCARBON SPILL

SITE DESCRIPTION

HWAAP-I18 is a hydrocarbon spill site first identified as stained soil during a 1991 inspection. The date of the spill event is not known. The chemical of concern is TPH. The source of the TPH product is not known.

RI in 1994 included 0.2 acres of GPR survey on 10 foot grid to assess the potential for underground storage tanks. Twenty-eight near surface soil samples were collected and two CPT sounding borings were drilled to assess the optimal depth to collect subsurface samples. The near surface soil samples contained up to 1,600 mg/kg of TPH. No PCBs were detected.

IRP STATUS

RRSE RATING: Low (3B)
CONTAMINANTS OF CONCERN:
TPH
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
PA, RI
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document presenting the RI/RA history will be submitted for regulatory approval in 2001.

HWAAP-I19
NAVY BEACH TEST RANGE

SITE DESCRIPTION

This site is currently not eligible for IRP funds.

HWAAP-I19 is a water impact area, located at the southern point of Walker Lake, it was utilized in the 1950s by China Lake Naval Weapons Center personnel for testing large quantities of incendiary weapons. This impact range is closely associated with A10, K01 and K02.

Safety is the primary risk as these sites. These sites will be addressed under the Range Rule.

IRP STATUS

CONTAMINANTS:
Explosives, UXO
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
NE
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

Response Complete

HWAAP-J02
115 GROUP BURN AREA/LANDFILL

SITE DESCRIPTION

HWAAP-J02 is both a burn area and landfill with a burial trench. The burn area that is about 500 by 350 feet was apparently used to dispose of material by open burning and then buried. The period of use and activities at the site is not well documented. The chemicals of concern are petroleum hydrocarbons and solvents that were probably used to ignite the material and explosives, in that they may have been present in the material that was burned.

RI in 1994 included 4.4 acres of magnetometry survey to assess buried metallic debris in the burn area. Several distinct anomalies were found. Seven soil-gas samples were collected but no detection of chemicals of concern was found in these samples. Fifteen near surface soil samples were collected and 9 subsurface soil samples from 3 borings drilled to a maximum depth of 23 feet were collected by drilling. Based on the finding and evaluation, no significant concentrations of the chemicals of concern were found in the near surface or subsurface samples.

IRP STATUS

CONTAMINANTS:
Possible Solvents
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA, RI/FS
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 13 Oct 1999.

HWAAP-J04
107 AREA DRUM STORAGE/LANDFILL

SITE DESCRIPTION

HWAAP-J04 is an open air drum storage area once used to store drums of aluminum powder. The aluminum powder was used to manufacture explosives. The site is about 3,200 by 800 feet with clustered areas of 90 by 30 feet where drums were stored. The chemicals of concern are metals and explosives. The period that drums were stored at the site is not known. No drums are presently stored in the area.

RI in 1994 included 38 composite surface soil samples. Aluminum was detected in one soil sample at 84,000 mg/kg, exceeding the closure goal of 80,000 mg/kg, and two samples detected arsenic at 31 mg/kg and 51 mg/kg, exceeding the closure goad of 30 mg/kg for arsenic. All other metals were detected at concentration below their respective closure goals. Explosives were detected below the laboratory limits.

IRP STATUS

CONTAMINANTS:
Lead, Cadmium
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 22 Nov 1999.

HWAAP-J05
DOCK 1 LANDFILL

SITE DESCRIPTION

HWAAP-J05 is a suspected landfill about 1,500 by 250 feet with a maximum 6 foot depth, adjacent to a loading dock. The landfill operations is not known, however it is believed that it may have been used to dispose of packing material and other waste generated at the dock by open burning and burial. The period of operations of the landfill is also not known.

RI in 1994 included collection and analysis of 10 soil gas samples, 10 surface soil samples and 10 subsurface soil samples collected from 3 borings drilled to a maximum depth of 30 feet each. No VOCs or BTEX concentrations were detected in the soil gas survey. No TPH-d concentrations were detected in the near surface and subsurface soil samples. Metals except arsenic were detected in all of the soil samples collected at concentrations below the proposed closure goals. Arsenic was detected in one sample at depth of 31 feet bgs at concentration of 87 mg/kg exceeding the closure goal of 30 mg/kg.

IRP STATUS

CONTAMINANTS:
Tear Gas, Metals, Solvents, Petrolum Hydrocarbons
MEDIA OF CONCERN: Soil
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA, RI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 13 Oct 1999.

HWAAP-J06
DOCK 2 LANDFILL

SITE DESCRIPTION

HWAAP-J06 is a suspected landfill about 1000 by 1000 feet, adjacent to a loading dock. The landfill operations is not known, however it is believed that it may have been used to dispose of packing material and other waste generated at the dock by open burning and burial. The period of operations of the landfill is also not known.

RI in 1994 included 10 soil gas samples, 10 surface soil samples and 9 subsurface soil samples collected from 3 borings drilled to a maximum depth of 21 feet each. Low concentrations of TPH and VOCs were detected in the subsurface samples.

IRP STATUS

CONTAMINANTS:
Metals, Petroleum Hydrocarbons, Solvents
MEDIA OF CONCERN: Soil
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA, RI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 13 Oct 1999.

HWAAP-J07
DOCK 3 LANDFILL

SITE DESCRIPTION

HWAAP-J07 is a former landfill that has been filled and covered. Its location is adjacent to Dock 3, north of the intersection of 1st Avenue and 2nd Avenue South, and east of Group 50. The site was identified from aerial photographs that show bulldozer scarring and an old pit area. The site covers approximately 12 acres. Several low mounds of soil are present in the south and central portions of the area and scattered debris is seen throughout the area. No documentation is available on the area's use as a landfill. No evidence of hazardous waste disposal was observed at the site. RI in 1994 included a magnetometry and electro magnetometry survey covering 24.6 acres on both the east and west sides of HWAAP-J7, soil gas survey at 10 locations, collection of 10 surface soil samples, subsurface sampling at 5 locations with 3-4 samples per location for a total of 19 samples. No VOCs were detected in the soil gas samples. Low levels of BTEX, metals and VOCs were detected in the surface and subsurface soils. No TPH was detected.

IRP STATUS

CONTAMINANTS:
Metals, Volatile & Petroleum Hydrocarbons
MEDIA OF CONCERN: Soil
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA, RI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 13 Oct 1999.

HWAAP-J08
DOCK 4 LANDFILL

SITE DESCRIPTION

HWAAP-J08 is a possible landfill adjacent to Dock 4 located north of the intersection of Pamlico Road and East Road, west of Group 9. The site was identified by NDEP as a possible landfill due to the standard practice of waste disposal at all docks. No documentation is available on the area's use as a landfill. No evidence of hazardous waste disposal was observed at the site. Potential contaminants at the site are metals, volatile and petroleum hydrocarbons.

RI in 1994 included a soil gas survey at 10 locations, collection of 10 surface soil samples, and CPT subsurface samples at 3 locations at maximum depths of 26 feet with 2-3 samples per location. No VOCs were detected in the soil gas samples. Low levels of metals and 1.2 mg/kg TPH-diesel were detected in the surface and subsurface soils.

IRP STATUS

CONTAMINANTS:
Metals, Volatile & Petroluem Hydrocarbons
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA, RI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 13 Oct 1999.

HWAAP-J09
DOCK 5 LANDFILL

SITE DESCRIPTION

HWAAP-J09 is a possible landfill adjacent to Dock 5, north of HWAAP-A5. The site was identified by NDEP as a possible landfill due to the standard practice of waste disposal at all docks. No documentation is available on the area's use as a landfill. At Dock 5 there is no evidence of open burning or waste disposal. The area west of the dock showed evidence of bulldozer scarring and a small pile of soil was observed. No evidence of hazardous waste disposal was observed at the site.

RI work in 1994 included a soil gas survey at 10 locations, collection of 11 surface soil samples, and 3 subsurface soil samples to maximum depths of 14 feet at 2 locations. No VOCs or BTEX were detected in the soil samples. Low levels of metals and TPH diesel were detected in the surface and subsurface soils.

IRP STATUS

RRSE RATING: Low (3B)
CONTAMINANTS OF CONCERN:
Metals, Volatile & Petroleum Hydrocarbons
MEDIA OF CONCERN: Soil
COMPLETED IRP PHASE:
PA, RI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 13 Oct 1999.

HWAAP-J10
DOCK 6 LANDFILL

SITE DESCRIPTION

HWAAP J10 is a possible landfill adjacent to Dock 6, south of Group 21. The site was identified by NDEP as a possible landfill due to the standard practice of waste disposal at all docks. No documentation is available on the area's use as a landfill. At Dock 6 there is evidence of open burning of dunnage materials in the form of nails, charred wood fragments and metal strapping. No debris or evidence of hazardous waste disposal was observed at the site.

RI in 1994 included a soil gas survey at 16 locations, collection of 10 surface soil samples, and 12 subsurface soil samples to maximum depths of 25 feet at 3 locations. No TPH-d detected in near surface & subsurface samples. Low levels of VOCs were detected in the soil gas samples and the subsurface soils. Low levels of metals were detected in the surface and subsurface soils.

IRP STATUS

CONTAMINANTS:
Metals, Volatile & Petroleum Hydrocarbons
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI, RI/FS, RA
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 13 Oct 1999.

HWAAP-J11
103-16 LANDFILL/PILE

SITE DESCRIPTION

HWAAP-J11 is a 12-acre landfill. The period of use and activities at the site are not documented.

HWAAP-J11 and J15 is the same site.

RI in 1994 a survey of 15.4 acres with magnetometry and GPR on a 20 foot grid. The initial survey of the 500 square landfill showed magnetic anomalies along the perimeter of the survey. The survey was therefore expanded to clearly identify the anomalies. Based on this data, it appears that the site includes 17 geophysical anomalies over a 12-acre area. Twenty-one near surface soil samples were collected in areas of VOC soil gas concentrations and geophysical anomalies. Low concentrations of metals and VOCs were detected in these surface soil samples. CPT soundings were conducted in 4 borings to maximum depths of 25 feet each, to assess the optimal depth to collect subsurface soil samples. No subsurface soil samples were collected.

Depth to ground water is expected at about 100 feet. No explosives were detected.

IRP STATUS

RRSE RATING: Low (3B)
CONTAMINANTS OF CONCERN:
Metals, VOCs
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 4 Aug 2000.

HWAAP-J12
LANDSCAPE LANDFILL

SITE DESCRIPTION

HWAAP-J12 is an inactive landfill used to dispose of landscape debris such as branches, brush and trees. Landfill was in use from the 1940's to the 1970's. Activities at the site include burning and burial of the debris.

RI in 1994 completed activities included a survey of 45 acres with Magnetometry and GPR on a 20-foot grid within a 17.4 acre area of airborne GPR survey. Preliminary interpretations of these surveys indicate numerous anomalies of buried metallic objects and disturbed excavations over 37 acres. No VOCs were detected in any of the 10 soil gas samples collected. Four CPT soundings to a depth of 25 feet each were advanced to determine the optimum depth to collect subsurface soil samples. Depth to groundwater is 102 ft bgs.

IRP STATUS

RRSE RATING: Low (3B)
CONTAMINANTS OF CONCERN:
Metals
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document presenting the RI/RA history will be submitted for regulatory approval in 2001.

HWAAP-J13
WADF SOUTH DUMP

SITE DESCRIPTION

HWAAP J13 is a landfill dump located south of WADF and covers an area of 7500 square feet. It was identified from aerial photographs. It served as a borrow area for surrounding building construction as well as a temporary storage site for materials used during construction of Building 117-10. The site contains one 55 gallon drum, several soil piles and scattered blocks and fragments of concrete and rubble. No evidence of hazardous waste disposal except for the drum was noted.

RI in 1994 included soil gas surveying at 9 locations, hand auger sampling at 5 locations at 2 or 5 foot intervals, and collecting 7 subsurface samples from 3 borings at maximum depths of 29 feet. The soil gas survey detected no contaminants. Low concentration of VOCs, TPH-d, BTEX, and metals were detected in the subsurface soil samples. No PCB was detected.

IRP STATUS

CONTAMINANTS:
Metals, Volatile & Petromeum Hydrocarbons
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA, RI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 22 Nov 1999.

HWAAP-J15
103-16 LANDFILL

SITE DESCRIPTION

HWAAP-J11 is a 12-acre landfill. The period of use and activities at the site are not documented.

HWAAP-J11 and J15 is the same site.

RI in 1994 a survey of 15.4 acres with magnetometry and GPR on a 20 foot grid. The initial survey of the 500 square landfill showed magnetic anomalies along the perimeter of the survey. The survey was therefore expanded to clearly identify the anomalies. Based on this data, it appears that the site includes 17 geophysical anomalies over a 12-acre area. Twenty-one near surface soil samples were collected in areas of VOC soil gas concentrations and geophysical anomalies. Low concentrations of metals and VOCs were detected in these surface soil samples. CPT soundings were conducted in 4 borings to maximum depths of 25 feet each, to assess the optimal depth to collect subsurface soil samples. No subsurface soil samples were collected.

Depth to ground water is expected at about 100 feet. No explosives were detected.

IRP STATUS

RRSE RATING: Low (3B)
CONTAMINANTS OF CONCERN:
Explosives, Metals
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A decision document was approved by NDEP 4 August 2000.

HWAAP-J16
111-113 GROUP BURN AREA/LANDFILL

SITE DESCRIPTION

HWAAP-J16 is an open burn/landfill area. The surface contained banding steel and other scrap. The period of operations and activities at the site are not known, however, inspections have documented dark burned areas and disturbed ground.

RI work in 1994 completed activities included 6.1 acres of magnetometry survey on a 20 foot grid. This survey delineated several buried metallic objects. Fourteen soil gas samples and 20 near surface soil samples were collected near the anomalies. Preliminary data evaluation indicates no elevated chemicals of concern in the near surface. Five subsurface soil samples were collected from 5 borings at depths up to 13.5 feet based on 2 CPT soundings to a depth of 30 feet each. Evaluation of the sample data do not show elevated concentrations of the chemicals of concern, except for one lead concentration, which was at a depth of two feet bgs that does not pose a threat to human health or the environment; therefore, no remediation of soils is necessary.

IRP STATUS

CONTAMINANTS:
Metals, Explosives, Petroleum Hydrocarbons
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA, RI/FS
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 13 Oct 1999.

HWAAP-J17
THORNE DRUM AREA

SITE DESCRIPTION

HWAAP-J17 a former open air drum area, was located from aerial photographs located 5000 feet north of the HWAD installation boundary on land maintained by the U.S. Bureau of Land Management. The site covers an area of about 13 acres and contains a shallow excavated trench about 60 feet long and a loading ramp constructed of earth. The site was a former temporary habitation site but the nature of the activities area not precisely known. It was inhabited for several years and then abandoned in the early 1970's. The trench is thought to be a sewage disposal trench. The debris at the site includes a variety of material unrelated to HWAD and other debris including cardboard tubes for packing rockets, decomposing fiber drums originally used to hold aluminum powder and metal collars. Other unknown debris are present. The depth to groundwater is approximately 100 feet bgs.

RI in 1994 included collection of 8 surface soil samples. Low levels of metals were detected. BTEX and TPH-d were not detected.

IRP STATUS

CONTAMINANTS:
Metals, Petroleum Hydrocarbons
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 22 Apr 2000.

HWAAP-J21
BLDG 97 OLD DOCK AREA

SITE DESCRIPTION

HWAAP J21 consists of a 600-foot long trench and a round unlined pit about 30 feet in diameter. The site is located parallel to West Road south of the Group 50 magazine. The trench is oriented east-west and is about 50 feet wide and 6 to 8 feet deep and interior vegetated with brush. A paved wooden-shored ramp rises to a concrete "dock" near the center of the south shoulder of the trench which suggests that the trench was excavated to allow vehicles to be loaded or unloaded at the dock. The type and duration of operations at the trench are unknown. Some transite sheeting is present. The pit is located southwest of the trench and a thick concrete slab with a 6 foot deep pit resembling a vehicle maintenance "grease pit" is located north of the pit.

RI in 1994 consisted of collecting 8 surface soil samples. TPH-diesel was detected in 2 samples up to 2.4 mg/kg. SVOCs were below laboratory detection limit. BTEX screening levels were less than 50 mg/kg. The only metal found in excess of PRG was lead detected at 690 mg/kg in one surface soil sample.

IRP STATUS

CONTAMINANTS: Metals, Asbestos, Petroleum Hydrocarbons
MEDIA OF CONCERN: Soil
RRSE RATING: Low (3B)
COMPLETED IRP PHASE: PA/SI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 22 Nov 1999.

HWAAP-J22
50 GROUP PITS

SITE DESCRIPTION

HWAAP J22 consists of a large open area that contains numerous small pits with five or six of the pits being larger and deeper up to 15 and 20 feet in diameter. The site is located southwest of Group 50 and may have been used as a camp or settlement prior to or during construction of HWAAP in 1928. The duration and type of operation performed in this area is unknown. The pits are littered with fragments of pottery, rusted metal parts, glass bottles, household debris and transite roofing material. An empty, corroded 55-gallon drum was located in the largest pits.

RI in 1994 included 10 hand auger samples at five locations with samples collected at 2 and 5 foot depths except one location was at 2 foot depths. No contamination of BTEX, VOCs or TPH-diesel was detected in the soil samples.

This area has been determined to be a site of historical interest by the Nevada State Historical Preservation Office, with the concurrence of the Federal Facilities Bureau of NDEP.

IRP STATUS

CONTAMINANTS: Asbestos, Metals, Petroleum Hydrocarbons
MEDIA OF CONCERN: Soil
RRSE RATING: Low (3B)
COMPLETED IRP PHASE: PA/SI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 22 Nov 1999.

HWAAP-J23
TRENCH AT DUSTY ACRES AREA

SITE DESCRIPTION

HWAAP-J23 is a backfilled former trench area used for disposal of railroad maintenance debris, tires, oil cans iron and asphalt. The period of operations is not documented, however the trenches appear on aerial photographs from the mid-1950's until the early 1980's. The boundaries of the trenches were not defined.

RI in 1994 completed activities includes 11.5 acres of GPR and magnetometry surveys on a 20 foot grid. These surveys delineate the former trench, and at least one other anomaly of possible buried debris. Ten soil gas samples and 9 near surface soil samples were collected with no-detect results. In addition, 6 subsurface soil samples in 2 borings up to depths of 19.5 feet were collected in the areas of the geophysical anomalies. Final evaluation shows no concentrations of the chemicals of concern in these samples.

IRP STATUS

CONTAMINANTS:
Metals, Volatile & Petroleum Hydrocarbons
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA, RI/FS
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 23 Mar 2000.

HWAAP-J24
TRENCH NEAR 50-60

SITE DESCRIPTION

HWAAP-J24 is a 450-foot long trench located adjacent to an old loading dock, south of Highway 95 near 2nd Avenue South. The trench area forms a wide depression covering about 600 feet square and has a concrete loading dock structure built along the west side of the depression and the foundation of a former wooden building located adjacent to the dock. This site served as a staging area during the early construction of the depot. Concrete aggregate is scattered on the ground. No evidence of hazardous waste disposal was observed.

RI work in 1994 included collection of five surface soil samples. Low levels of metals were detected. Lead was detected at concentrations ranging from 8.8 to 20 mg/kg.

IRP STATUS

CONTAMINANTS:
Possible Metals, Asbestos
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 22 Nov 1999.

HWAAP-J25
THORNE AREA LANDFILL

SITE DESCRIPTION

HWAAP-J25 is former landfill that contains drums, mines, bombshells and other debris. The period of operations and the boundaries of the landfill are not known.

RI in 1994 included 17.5 acres GPR and magnetometry surveys on a 20 foot grid. These surveys defined an area 500 by 150 feet believed to be the boundaries of the landfill. Soil samples had no concentrations of explosives or VOCs and none appear to have been released.

IRP STATUS

CONTAMINANTS:
Asbestos, Possible UXO, Explosives, Metals
MEDIA OF CONCERN:
Soil
RRSE RATING:
High (3B)
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 24 Apr 2000.

HWAAP-J26
LANDFILL-TURN TABLE AREA

SITE DESCRIPTION

HWAAP-J26 is described as the building foundations in the Camp Jumbo area. Camp Jumbo was reportedly a housing area for civilian employees of HWAD during WWII and had been a CCC Camp before the war. The materials of concern are dispersed fragments of white, fibrous pipe insulation material that is suspected to contain asbestos material. The asbestos was removed in 1997.

IRP STATUS

RRSE RATING: NE
CONTAMINANTS OF CONCERN:
Asbestos
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 4 Aug 2000.

HWAAP-J27
LANDFILL CAMP JUMBO AREA

SITE DESCRIPTION

HWAAP J27 is located north of the Schweer Housing area. Information describing the boundaries and activities is not well documented. Camp Jumbo was reported to be a civilian housing area during World War II and had been a CCC Camp before the war. Reportedly four underground storage tanks existed at the site but have been removed. Building foundations are present in the area but no evidence of disposal of hazardous materials was observed. No investigations have been performed at the site, none are required by the NDEP.

IRP STATUS

CONTAMINANTS:
Asbestos
MEDIA OF CONCERN:
Soil
RRSE RATING:
NE
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document was approved by NDEP on 4 Aug 2000.

HWAAP-K01
WALKER LAKE TEST RANGE

SITE DESCRIPTION

A firing range on the southeastern portion of Walker Lake used for the testing rockets, depth charges, and other unidentified munitions. There were five impact areas. Period of operations began during World War II and ended in the 1970s. The receding lake waters continuously expose UXO and fragments. The source includes the Walker Lake Test Range Disposal Pits (HWAAP-K02). UXOs have been located outside the installation property boundary and Walker Lake. The amount of material fired into the lake or buried in the pits is unknown.

The base makes quarterly sweeps for UXOs as ordered by NDEP. In 1994, an Army evaluation team visited the site to determine if the UXO at the site pose an imminent hazard. As result of the evaluation, an imminent threat to human safety was determined to exist. A Risk Assessment Code (RAC) 1 was assigned. In 1995, USACHPPM performed a study to determine if past ordnance testing activities at Walker Lake have adversely impacted the surface water, sediments, and fish of Walker Lake. The study indicated that no explosive or metals associated with munitions were detected in any of media sampled.

This impact range is closely associated with I19, A10, and K02.

Safety is the primary risk as these sites. These sites will be addressed under the Range Rule.

IRP STATUS

CONTAMINANTS:
Explosives, UXO, Metals
MEDIA OF CONCERN:
Soil, groundwater
RRSE RATING:
NE
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

Response Complete

HWAAP-K02 & A10
WALKER LAKE TEST RANGE

SITE DESCRIPTION

HWAAP-K02 and HWAAP-A10 are one and the same. A closed firing range on the southeastern portion of Walker Lake was used for the testing or mortars, rockets, and depth charges. There were five impact areas. Period of operations began during World War II and ended in the 1970s. The receding lake waters continuously expose UXO and fragments. The source includes the Walker Lake Test Range (HWAAP-K01). UXOs have been located outside the installation property boundary and Walker Lake. The amount of material fired into the lake is unknown. The base makes quarterly sweeps for UXOs as ordered by NDEP. In 1994, an Army evaluation team visited the site to determine if the UXO at the site pose an imminent hazard. As result of the evaluation, an imminent threat to human safety was determined to exist. A Risk Assessment Code (RAC) 1 was assigned. In 1995, USACHPPM performed a study to determine if past ordnance testing activities at Walker Lake have adversely impacted the surface water, sediments, and fish of Walker Lake. The study indicated that no explosive or metals associated with munitions were detected in any of media sampled.

This impact range is closely associated with I19, and K01.

Safety is the primary risk as these sites. These sites will be addressed under the Range Rule.

IRP STATUS

CONTAMINANTS:
Explosives, UXO, Metals
MEDIA OF CONCERN:
Soil, groundwater
RRSE RATING:
NE
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

Response Complete

HWAAP-K03C
UST AT BUILDING 106-10

SITE DESCRIPTION

Site HWAAP-K03 has been broken up into 7 sub-sites (a-g) for easier tracking.

A former underground storage tank (UST) site located about 1 mile northeast of the HWAD main gate, north of Fuse Road. A 75-gallon UST containing diesel fuel #2 was in operation from about 1946 to 1991 when it was removed.

A sample was taken in the center of the excavation and detected TPH-diesel contamination in the soil during the tank removal at 2,600 mg/kg at a depth of 5-feet. A subsequent investigation of the backfilled tank pit detected no concentrations of TPH-diesel below the tank. The estimated depth to ground water at this site is 21 ft. bgs. A Decision Document for closure was approved by NDEP October 1996.

IRP STATUS

CONTAMINANTS:
#2 Fuel Oil
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

No further action is required by the IRP.

HWAAP-K03E
UST AT BUILDING 20-21

SITE DESCRIPTION

Site HWAAP-K03 has been broken up into 7 sub-sites (a-g) for easier tracking.

A former underground storage tanks (UST) site located approximately 10 miles southeast of Hawthorne on Pamlico Road. The two tanks located at Building 20-21 have been removed. Ground water is estimated to be at a depth of 300-ft. bgs.

The first tank at this site is considered closed.

The second, a 275-gallon UST, contained diesel fuel #2 from about 1946 to 1991 when it was removed. The highest level of TPH-diesel detected in the soil was over 13,000 mg/kg at a depth of 7 feet.

A Decision document for site closure was approved by NDEP in October 1996.

IRP STATUS

CONTAMINANTS:
#2 Fuel Oil
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA, RI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

No further action is required by the IRP.

HWAAP-K03F
UST AT BUILDING 94

SITE DESCRIPTION

Site HWAAP-K03 has been broken up into 7 sub-sites (a-g) for easier tracking.

These 3 USTs site were located at Building 94, between Sand Road and Sage Road along 3rd Avenue. Ground water at one site is estimated to be about 100 ft. bgs.

Tanks were removed and all contaminated soil relocated to Building 70 UST site in 1997 and is currently undergoing long-term bioventing.

The third tank, a 300-gallon steel tank contained diesel fuel from about 1942 to 1992, when it was removed. 3,000 mg/kg TPH-diesel was detected in the soils of the tank pit. Subsequent investigation detected 260 mg/kg TPH-diesel at 15 ft. bgs but non-detect at 30 ft. bgs.

IRP STATUS

CONTAMINANTS:
#2 Fuel Oil
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA, RI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

A Closure Document will be submitted in FY2001.

HWAAP-K03G
UST AT CAMP JUMBO

SITE DESCRIPTION

Site HWAAP-K03 has been broken up into 7 sub-sites (a-g) for easier tracking.

A former underground storage tanks (UST) site located approximately 1 mile west of the HWAD main gate on U.S. Highway 95. Five USTs were in operation from about 1931 to 1991 and leaked petroleum for a number of years. Ground water at this site is estimated to be about 300 ft. bgs.

All USTs were removed and are considered closed. Closure was accomplished in 1996.. The highest level of TPH-diesel found in the soil during the tank removal was over 6,000 mg/kg at a depth of 8-feet. Additional soil borings and sampling to 30 feet did not detect any TPH-diesel.

A Decision document for site closure was approved by NDEP in October 1996.

IRP STATUS

CONTAMINANTS:
#2 Fuel Oil
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Low (3B)
COMPLETED IRP PHASE:
PA, RI
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

No further action is required by the IRP.

HWAAP-K04
ABOVEGROUND STORAGE TANKS AT BLDG 70

SITE DESCRIPTION

This DSERTS site was set up for the removal of the above ground storage tanks from HWAAP-J03 at Bldg 70. The two tanks were metal with a concrete base and had lead based paint on the outside and two-three feet of concrete on the inside of the tanks. The tanks contained diesel fuel and were known to have leaked.

The tanks were removed in April 1997. All future actions will be handled under HWAAP-J03.

IRP STATUS

CONTAMINANTS:
Diesel Fuel
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
NE
COMPLETED IRP PHASE:
PA, RI, RA
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

PROPOSED PLAN

No further action is required by the IRP.

SCHEDULE

The following is the schedule of IRP work completed to date and planned through completion of all restoration work.

IRP Start at Hawthorne Army Depot:	1995

PAST MILESTONES

RIFS	
RI/FS K03 UST Sites	Sep 95
RI Group A SWMUs	Apr 95
RI Group B SWMU's Closure Report for 17 sites	Feb 96
RI Work Plan Completed Old Bomb Disposal Sites	May 96
RI Group A SWMUs, Additional Inv.	Apr 97
RI Group B SWMUs	Jan 99
RI Building 70	Sep 95
RD	
RD UST Sites	Jan 97
RD West 101 Production Area	Feb 98
RA	
RA UST Sites	Aug 98
RA West 101 Production Area Started	Sep 98
LTM	
LTM Base Wide Started	Dec 97

SCHEDULE

NO FURTHER ACTION / RC SITES

The following sites currently require no further action by the Installation Restoration Program:

HWAAP-A03 Coal Ash Landfill
HWAAP-A04 Babbit Closed Landfill
HWAAP-A05 Mustard Gas Disposal (RI DSERTS)
HWAAP-A06A Old Bomb Disposal Area 1
HWAAP-A09A Ammo Can Piles
HWAAP-A09B Battery Disposal Area
HWAAP-A10 Walker Lake Test Range
HWAAP-A11 Mag 18-5 Disposal Pit (RAC DSERTS)
HWAAP-B01 WADF Impoundment #1
HWAAP-B02 & B03 WADF Impoundment #2 & #3
HWAAP-B05 101-15 Impoundment
HWAAP-B06 101-13 Impoundment
HWAAP-B07 101-1 Catchment Pit
HWAAP-B08 101-1 South Catchment Pit
HWAAP-B09 101-32 Catchment Pit
HWAAP-B10 101-3 Catchment Pit
HWAAP-B11A 101-31 Catchment Pit
HWAAP-B11B 101-34 Catchment Pit
HWAAP-B13 101-29/36 Catchment Pit
HWAAP-B15 101-16 Catchment Pit
HWAAP-B16 101-18 Catchment Pit
HWAAP-B17A 101-20 Catchment Pit
HWAAP-B17B 101-20 Catchment Pit
HWAAP-B18 101-62 Catchment Pit
HWAAP-B19 101-11 Catchment Pit
HWAAP-B21 101-41/42 Catchment Pit
HWAAP-B22A 101-44 Catchment Pit
HWAAP-B22B 101-44 Catchment Pit
HWAAP-B25 103-7 Inert Waste Impoundment
HWAAP-B27B 103-8/10 Oxidation Ditch
HWAAP-B27C 103-20 Surface Impoundment
HWAAP-B28A 108-20 PO Spill Impoundment
HWAAP-B28B 108-20 PO Spill Impoundment
HWAAP-B28C 108-20 EO Spill Impoundment
HWAAP-B28D 108-20 EO Spill Impoundment
HWAAP-B30 101-16 PO Catchment Pit
HWAAP-B31 101-65 Catchment Pit
HWAAP-B32 101-41 PO Catchment Pit
HWAAP-B33 102 Production Area (102-51 Catchment Pit)
HWAAP-B34 104-3 Catchment Pit
HWAAP-C02A 117-3 WADF Rotary Deactivation Furnace
HWAAP-C03 Document Incinerator
HWAAP-D01 D02 Container Storage 1 & 2
HWAAP-E01A WADF WWTP
HWAAP-E01B WADF Sewage EVAP Ponds
HWAAP-E02 STP EVAP/Perc Ponds
HWAAP-E03 Hawthorne Sewage EVAP Ponds
HWAAP-F01 Transfer Prop Dosposal OFC
HWAAP-G01A Old Bomb OB/OD Ground 1
HWAAP-H01 Fire Training Pit
HWAAP-H02 Waste Lumber OB Pit
HWAAP-H03 Road & Grounds Waste OB Pit
HWAAP-I01 New Bomb Landfill
HWAAP-I03 & I04 104-7 Pit #1 & 104-7 Pit #2
HWAAP-I05 33-16 Landfill
HWAAP-I06 Spill Site 30-5
HWAAP-I11 Building 49-9 Pit/Landfill
HWAAP-I13 Building 10 Discharge/landfill
HWAAP-I14 Building 49 OIL Spill Site
HWAAP-I15 101-42 Catchment Pit
HWAAP-I17 104-10 Landfill
HWAAP-I18 104 Hydrocarbon Spill
HWAAP-I19 Navy Beach Test Range
HWAAP-J02 115 Group Burn Area/landfill
HWAAP-J04 107 Area Drum Storage/Landfill
HWAAP-J05 Dock 1 Landfill
HWAAP-J06 Dock 2 Landfill
HWAAP-J07 Dock 3 Landfill
HWAAP-J08 Dock 4 Landfill
HWAAP-J09 Dock 5 Landfill
HWAAP-J10 Dock 6 Landfill
HWAAP-J11 103-16 Landfill/Pile
HWAAP-J12 Landscape Landfill

SCHEDULE

NO FURTHER ACTION / RC SITES contd...

HWAAP-J13 WADF South Dump
HWAAP-J15 103-16 landfill
HWAAP-J16 111-113 Group Burn Area/Landfill
HWAAP-J17 Thorne Drum Area
HWAAP-J21 Bldg 97 Old Dock Area
HWAAP-J22 50 Group Pits
HWAAP-J23 Trench at Dusty Acres Area
HWAAP-J24 Trench Near 50-60
HWAAP-J25 Thorne Area Landfill
HWAAP-J26 Landfill - Turn Table Area
HWAAP-J27 Landfill Camp Jumbo Area
HWAAP-K01 Walker Lake Test Range
HWAAP-K02 & A10 Walker Lake Test Range
HWAAP-K03C UST at Building 106-10
HWAAP-K03E UST at Building 20-21
HWAAP-K03F UST at Building 94
HWAAP-K03G UST at Camp Jumbo
HWAAP-K04 Aboveground Storage Tanks at Building 70

Hawthorne Army Depot IRP Schedule

(Based on current funding constraints)

Current Phase Future Phase

DSERTS #	PHASE	FY01	FY02	FY03	FY04	FY05	FY06	FY07+
HWAAP-A06B	RI/FS							Future
	RD							Future
	RA							Future
	LTM	Current	Current	Current	Current	Current	Current	Current
HWAAP-A06C	RI/FS							Future
	RD							Future
	RA							Future
	LTM	Current	Current	Current	Current	Current	Current	Current
HWAAP-A06D	RI/FS							Future
	RD							Future
	RA							Future
	LTM	Current	Current	Current	Current	Current	Current	Current
HWAAP-A06E	RI/FS							Future
	RD							Future
	RA							Future
	LTM	Current	Current	Current	Current	Current	Current	Current
HWAAP-A07	RI/FS						Future	
HWAAP-A08	LTM	Current						
HWAAP-B04	RA	Current	Current	Current	Current			Future
	LTM	Current	Current	Current	Current	Current		Future
HWAAP-B12	LTM	Current	Current	Current	Current			
HWAAP-B20	RI/FS							
	RD						Future	
	RA						Future	
HWAAP-B23	LTM	Current						
HWAAP-B24	RD				Future			
	RA				Future	Future		
HWAAP-B26	RD					Future		
	RA					Future		
HWAAP-B27A	RD					Future		
	RA					Future		
HWAAP-B29	RA	Current	Current	Current	Current			
	LTM	Current	Current	Current	Current	Current	Current	Current
HWAAP-C04	RI/FS							Future
	LTM	Current	Current	Current	Current	Current	Current	Current

DSERTS #	PHASE	FY01	FY02	FY03	FY04	FY05	FY06	FY07+
HWAAP-C05	RI/FS							
	LTM							
HWAAP-G01B	RI/FS							
	LTM							
HWAAP-G01C	RI/FS							
	LTM							
HWAAP-H04	LTM							
HWAAP-H05	LTM							
HWAAP-I02	IRA							
	RD							
	RA							
	LTM							
HWAAP-I07	RD							
	RA							
HWAAP-I08	RD							
	RA							
HWAAP-I09/10	RA							
	LTM							
HWAAP-I22	LTM							
HWAAP-I23	LTM							
HWAAP-J03	LTM							
HWAAP-J14	RD							
	RA							
HWAAP-J28	RD							
	RA							
HWAAP-J29	RD							
	RA							
HWAAP-K03	LTO							
HWAAP-K05	LTO							

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

Site, 4. Installation Phase Summary Report 11/27/00

Installation: HAWTHORNE AD
Programs: BRAC I, BRAC II, BRAC III, BRAC IV, IRP

Subprograms: Compliance, Restoration, UXO
Installation count for Programs: 1

NPL Options: Delisted, No, Proposed, Yes

Installations count for Programs and NPL: 1
Site count for Programs and NPL: 123

Phase / Status / Sites

PA				SI			
C	**U**	**F**	**RC**	**C**	**U**	**F**	**RC**
123	0	0	3	117	0	0	27

RI / FS				RD		
C	**U**	**F**	**RC**	**C**	**U**	**F**
88	2	0	24	33	2	9

RA(C)				RA(O)			
C	**U**	**F**	**RC**	**C**	**U**	**F**	**RC**
52	5	11	48	3	1	0	3

LTM			
C	**U**	**F**	**N**
1	18	4	92

Remedy / Status / Sites (Actions)

IRA

C	U	F
9 (9)	1 (1)	1 (1)

FRA

C	U	F
51 (51)	4 (4)	12 (12)

RIP Total: 1

RC Total: 105

Reporting Period End Date: 09/30/2000

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

Site, 9. RISK INSTALLATION ACTION PLAN REPORT 11/27/2000

Installation: HAWTHORNE AD
Major Comma AMC

SubCommand: OSC
Program Optio IRP, BRAC I, BRAC II, BRAC III, BRAC IV

Subprogram O Compliance, Restoration, UXO

Site	RRSE	Media Evaluated	Phase (s) Completed	Phase (s) Underway	Phase (s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	RIP Date	RC Date
HWAAP-A03	3B	SL	PA						N		199810
			RAC								
			RI								
			SI								
HWAAP-A04	1B	GW	PA						N		200009
		SL	RAC								
			RD								
			RI								
			SI								
HWAAP-A05	3B	GW	PA	RI							200506
			SI								
HWAAP-A06A	2B	GW	PA			1					199209
		SL	SI								
HWAAP-A06B	1B	SL	PA						U		199310
			SI								
HWAAP-A06C	2B	SL	PA						U		198808
			SI								
HWAAP-A06D	1B	SL	PA						U		199410
			SI								
HWAAP-A06E	1B	SL	PA						U		198809
			SI								
HWAAP-A07	NE		PA						N		198808
			SI								
HWAAP-A08	2B	GW	PA			1			U		199812
		SL	RI								
			SI								
HWAAP-A09A	3B	SL	PA						N		199810
			RAC								
			RI								
			SI								
HWAAP-A09B	3B	SL	PA						N		199803
			RAC								
			SI								
HWAAP-A10	NE		PA						N		199709
			SI								
HWAAP-A11	3B	SL	PA	RAC					N		200103
			RD								
			SI								
HWAAP-B01	NE		PA						N		198808
			SI								
HWAAP-B02	NE		PA						N		198808
			SI								
HWAAP-B03	NE		PA						N		198808
			SI								
HWAAP-B04	2B	GW	PA	RAC					F		200509
		SL	RD								
			RI								
			SI								
HWAAP-B05	2B	GW	PA						N		199911
		SL	RAC								
			RD								
			RI								
			SI								
HWAAP-B06	2B	GW	PA						N		199909
		SL	RAC								
			RD								
			RI								
			SI								
HWAAP-B07	3B	SL	PA						N		199909
			RAC								
			SI								
HWAAP-B08	2B	SL	PA						N		199909
			RAC								
			RD								
			RI								
			SI								
HWAAP-B09	3B	GW	PA						N		199909
		SL	RAC								
			RD								
			RI								
			SI								
HWAAP-B10	3B	SL	PA						N		199909
			RAC								
			RD								
			RI								
			SI								

Site	RRSE	Media Evaluated	Phase (s) Completed	Phase (s) Underway	Phase (s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	RIP Date	RC Date
HWAAP-B11A	3B	SL	PA						N		199909
			RAC								
			RD								
			RI								
			SI								
HWAAP-B11B	3B	SL	PA						N		199909
			RAC								
			RD								
			RI								
			SI								
HWAAP-B12	2B	SL	PA						U		199909
			RAC								
			RD								
			RI								
			SI								
HWAAP-B13	1B	SL	PA						N		199909
			RAC								
			RD								
			RI								
			SI								
HWAAP-B15	3B	SL	PA						N		199810
			RAC								
			RD								
			RI								
			SI								
HWAAP-B16	1B	SL	PA						N		199909
			RAC								
			RD								
			RI								
			SI								
HWAAP-B17A	1B	SL	PA						N		199909
			RAC								
			RD								
			RI								
			SI								
HWAAP-B17B	1B	SL	PA						N		199909
			RAC								
			RD								
			RI								
			SI								
HWAAP-B18	1B	SL	PA						N		199909
			RAC								
			RD								
			RI								
			SI								
HWAAP-B19	1B	SL	PA						N		199909
			RAC								
			RD								
			RI								
			SI								
HWAAP-B20	1B	SL	PA						N		199709
			RAC								
			RD								
			RI								
			SI								
HWAAP-B21	3B	SL	PA						N		199912
			RAC								
			RI								
			SI								
HWAAP-B22A	1B	SL	PA						N		199909
			RAC								
			RD								
			RI								
			SI								
HWAAP-B22B	1B	SL	PA						N		199909
			RAC								
			RD								
			RI								
			SI								
HWAAP-B23	1B	SL	PA						U		199909
			RAC								
			RD								
			RI								
			SI								
HWAAP-B24	1B	SL	PA		RAC				N		200509
			RI		RD						
			SI								
HWAAP-B25	3B	SL	PA								199912
			RI								
			SI								
HWAAP-B26	3B	SL	PA		RAC				N		200509
			RI		RD						
			SI								
HWAAP-B27A	2B	SL	PA		RAC				N		200606
			RI		RD						
			SI								

Site	RRSE	Media Evaluated	Phase (s) Completed	Phase (s) Underway	Phase (s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	RIP Date	RC Date
HWAAP-B27B	3B	SL	PA						N		200009
			RAC								
			RD								
			RI								
			SI								
HWAAP-B27C	3B	SL	PA						N		200009
			RAC								
			RD								
			RI								
			SI								
HWAAP-B28A	3B	SL	PA						N		199810
			RAC								
			RI								
			SI								
HWAAP-B28B	3B	SL	PA						N		199810
			RAC								
			RI								
			SI								
HWAAP-B28C	3B	SL	PA						N		199810
			RAC								
			RI								
			SI								
HWAAP-B28D	3B	SL	PA						N		199810
			RAC								
			RI								
			SI								
HWAAP-B29	1B	GW	PA	RAC					F		200506
		SL	RD								
			RI								
			SI								
HWAAP-B30	2B	SL	PA						N		199909
			RAC								
			RD								
			RI								
			SI								
HWAAP-B31	1B	SL	PA						N		199909
			RAC								
			RD								
			RI								
			SI								
HWAAP-B32	3B	SL	PA						N		199709
			RAC								
			RD								
			RI								
			SI								
HWAAP-B33	2B	SL	PA						N		199810
			RAC								
			RI								
			SI								
HWAAP-B34	3A	SL	PA						N		199812
			RI								
			SI								
HWAAP-C01A	2B	SL	PA	RAC					N		200010
			RD								
			RI								
			SI								
HWAAP-C02A	NE		PA						N		198808
			SI								
HWAAP-C03	NE		PA						N		198808
			SI								
HWAAP-C04	3B	SL	PA						U		198808
			SI								
HWAAP-C05	3B	SL	PA						U		198812
			SI								
HWAAP-D01	NE		PA						N		198808
			SI								
HWAAP-D02	NE		PA						N		198808
			SI								
HWAAP-E01A	NE		PA						N		198808
			SI								
HWAAP-E01B	NE		PA						N		198808
			SI								
HWAAP-E02	NE		PA						N		198808
			SI								
HWAAP-E03	NE		PA						N		198808
			SI								
HWAAP-F01	NE		PA						N		198808
			SI								
HWAAP-G01A	2B	GW	PA						N		198909
		SL	SI								
HWAAP-G01B	1B	SL	PA						U		198901
			SI								
HWAAP-G01C	1B	SL	PA						U		198901
			SI								
HWAAP-H01	3B	SL	PA								200006
			RAC								
			RI								
			SI								

Site	RRSE	Media Evaluated	Phase (s) Completed	Phase (s) Underway	Phase (s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	RIP Date	RC Date
HWAAP-H03	3B	SL	PA						N		199812
			RI								
			SI								
HWAAP-H04	2B	GW	PA			1			U		199812
		SL	RI								
HWAAP-H05	2B	SL	PA			1			U		199912
			RI								
HWAAP-I01	NE		PA						N		199709
HWAAP-I02	3B	SL	PA	RI	RAC			1	F		200609
			SI		RD						
HWAAP-I03	3B	SL	PA			1			N		199812
			RI								
			SI								
HWAAP-I04	3B	SL	PA			1			N		199812
			RI								
			SI								
HWAAP-I05	2B	SL	PA						N		199812
			RI								
			SI								
HWAAP-I06	NE		PA						N		199812
			RI								
			SI								
HWAAP-I07	3B	SL	PA		RAC				N		200909
			RI		RD						
			SI								
HWAAP-I08	3B	SL	PA		RAC				N		200809
			RI		RD						
			SI								
HWAAP-I09	3B	SL	PA	RD	RAC		1		F		200612
			RI								
			SI								
HWAAP-I10	3B	SL	PA	RD	RAC						200712
			RI								
			SI								
HWAAP-I11	1B	SL	PA	RAC					N		200109
			RD								
			RI								
			SI								
HWAAP-I13	3B	SL	PA						N		199812
			RI								
			SI								
HWAAP-I14	2B	SL	PA						N	199811	199903
			RAC								
			RAO								
			RI								
			SI								
HWAAP-I15	3B	GW	PA						N		199709
		SL	RAC								
			RD								
			RI								
			SI								
HWAAP-I17	3B	SL	PA						N		199812
			RI								
			SI								
HWAAP-I18	3B	SL	PA								200006
			RAC								
			RD								
			RI								
			SI								
HWAAP-I19	NE		PA						N		199709
HWAAP-I22	3B	SL	PA						U		199701
			SI								
HWAAP-I23	3B	SL	PA						U		199701
			SI								
HWAAP-J02	3B	SL	PA						N		199812
			RI								
			SI								
HWAAP-J03	3B	SL	PA						U		199909
			RI								
			SI								
HWAAP-J04	3B	SL	PA						N		199909
			RI								
			SI								
HWAAP-J05	3B	SL	PA						N	199812	199903
			RAC								
			RAO								
			RI								
			SI								
HWAAP-J06	3B	SL	PA						N	199812	199903
			RAC								
			RAO								
			RI								
			SI								
HWAAP-J07	3B	SL	PA						N		199810
			RAC								
			RI								
			SI								

Site	RRSE	Media Evaluated	Phase (s) Completed	Phase (s) Underway	Phase (s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	RIP Date	RC Date
HWAAP-J08	3B	SL	PA						N		199810
			RAC								
			RI								
			SI								
HWAAP-J09	3B	SL	PA						N		199810
			RAC								
			RI								
			SI								
HWAAP-J10	3B	SL	PA						N		199810
			RAC								
			RI								
			SI								
HWAAP-J11	3B	SL	PA			1					199912
			RI								
			SI								
HWAAP-J12	3B	SL	PA			1			C		199812
			RI								
			SI								
HWAAP-J13	3B	SL	PA						N		199810
			RAC								
			RI								
			SI								
HWAAP-J14	2B	SL	PA		RAC				N		200509
			RI		RD						
			SI								
HWAAP-J15	3B	SL	PA			1			U		199912
			RI								
			SI								
HWAAP-J16	3B	SL	PA						N		199812
			RI								
			SI								
HWAAP-J17	3B	SL	PA						N		199810
			RAC								
			RI								
			SI								
HWAAP-J21	3B	SL	PA						N		199810
			RAC								
			RI								
			SI								
HWAAP-J22	3B	SL	PA						N		199810
			RAC								
			RI								
			SI								
HWAAP-J23	3B	SL	PA						N		199812
			RI								
			SI								
HWAAP-J24	3B	SL	PA						N		199810
			RAC								
			RI								
			SI								
HWAAP-J25	3B	SL	PA						N		199902
			RI								
			SI								
HWAAP-J26	NE		PA						N		199709
			RI								
			SI								
HWAAP-J27	NE		PA						N		199709
			RI								
			SI								
HWAAP-J28	3B	SL	PA		RAC				N		200509
			RI		RD						
			SI								
HWAAP-J29	3B	SL	PA		RAC				N		200509
			RI		RD						
			SI								
HWAAP-K01	NE		PA						N		199709
HWAAP-K02	NE		PA						N		199709
			SI								
HWAAP-K03	3B	SL	PA	RAO						200001	201509
			RAC								
			RD								
			RI								
			SI								
HWAAP-K04	NE		PA						N		199706
			RAC								
HWAAP-K05	3B	GW	PA						U		199909
			RI								
			SI								

RRSE - Relative Risk Site Evaluation; Risk Category - 1=High, 2=Medium, 3=Low;

Legal Agreement - A = with agreement, B = without agreement; C = Complete, U = Underway, F = Future, N = Not Applicable

Reporting Period End Date: 09/30/2000

REM/IRA/RA ASSESSMENT

PAST REM/IRA/RA

RCRA Facility Investigation of one hundred and one SWMUs plus seven UST sites was conducted between 1993-97. Corrective action is recommended at 75 sites with an emphasis on low cost, bioremediation technology where appropriate. RI/FS is recommended at 12 sites.

* HWAAP-K03 closed 3 UST sites using fate and transport modeling to prove contamination would not spread.

* HWAAP-K03 - bioventing at Building 13 in place and operational.

* HWAAP-K04 - aboveground tanks were removed in FY97.

* HWAAP-K05 - enhanced intrinsic bioremediation in place in FY97.

* HWAAP-J03 - Building 70 bioventing system installed FY97.

* HWAAP-A03, A09a, A09b, B07, B10, B15, B28a-b, B33, I14, J04, J05, J06, J07, J08, J09, J10, J13, J17, J21, J22, J24, J26, and J27 require actions such as regrading, filling in hole and surface cleanup. 1997, $45,681.00 CPP SAF 56-96 (not IRP dollars)

* HWAAP-K03 - bioventing to be installed at 101-25 and 103-6.

* HWAAP-A04, A11, B06, B07, B08, B09, B10, B11a, B11b, B13, B14, B16, B17a, B17b, B18, B19, B22a, B22b, B23, B27b, B27c, B30, B31, C01a/b, H01, I11, J14 and J28 are response complete.

CURRENT REM/IRA/RA

* HWAAP-B04, B23, and B29 were awarded in 1999 and 2000.

FUTURE REM/IRA/RA

* RA at HWAAP-, B04, B20, B24, B26, B27A, B29, I02, I07, I08, I09/10, J29
* IRA at HWAAP-I02

PRIOR YEAR FUNDING

FY93

RI/FS	5,110.0K
TOTAL:	**5,110.0K**

FY94

RI/FS	5,317.0K
TOTAL:	**5,317.0K**

FY95

RI/FS	305.0K
TOTAL:	**305.0K**

FY96

RI/FS	220.0K
RD	55.0K
RA	378.0K
TOTAL:	**653.0K**

FY97

RI/FS	366.0K
RA	20.0K
TOTAL:	**386.0K**

FY98

RD	75.0K
RA	3,250.0K
LTM	468.0K
TOTAL:	**3,793.0K**

FY99

RI/FS	500.0K
RD	329.0K
RA	1,289.0K
RA(O)	36.0K
LTM	514.0K
TOTAL:	**2,668.0K**

FY00

RD	32.0K
RA	3,534.0K
LTO	24.0K
LTM	399.0K
TOTAL:	**3,989.0K**

TOTAL PRIOR YEAR FUNDS **22,221,000 K**

HAWTHORNE CONSTRAINED FY01 CTC

DSERTS #	SITE TITLE	PHASE	FY01	FY02	FY03	FY04	FY05	FY06	FY07+	PHASE TOTALS	SITE TOTAL	DESCRIPTION OF WORK
HWAAP-A06B	Old Bomb Disposal Area 2	RI/FS							233	233		
		RD							16	16		
		RA							332	332		
		LTM	1	1	1	1	6	1	9	20	601	Part of Installation wide LTM Program and 5 year reviews
HWAAP-A06C	Old Bomb Disposal Area 3	RI/FS							233	233		
		RD							16	16		
		RA							332	332		
		LTM	1	1	1	1	6	1	9	20	601	Part of Installation wide LTM Program and 5 year reviews
HWAAP-A06D	Old Bomb Disposal Area 4	RI/FS							233	233		
		RD							16	16		
		RA							332	332		
		LTM	1	1	1	1	6	1	9	20	601	Part of Installation wide LTM Program and 5 year reviews
HWAAP-A06E	Old Bomb Disposal Area 5	RI/FS							233	233		
		RD							16	16		
		RA							332	332		
		LTM	1	1	1	1	6	1	9	20	601	Part of Installation wide LTM Program and 5 year reviews
HWAAP-A07	Naval Inshore OPS TNG CNTR	RI						100		100	100	site sampling and possible fence
HWAAP-A08	Construction Debris Landfill	LTM	10							10	10	LTM, closure documents, well abandonment
HWAAP-B04	101-44 Impoundment	RA	300	300	606	294			844	2344		Soil excavation and bioremediation ~25,000cy
		LTM	6	6	6	6	25		951	1000	3344	LTM, 2 additional wells, 5 year review
HWAAP-B12	101-10 Catchment Pit	LTM	120	120	120	120	125			605	605	LTM for 101 Area ~10 wells, 5 year review
HWAAP-B20	101-41 Catchment Pit	RI/FS										PY S&R
		RD						15		15		in-situ groundwater treatment
		RA						120		120	135	in-situ groundwater treatment
HWAAP-B23	103-30 Catchment Pit	LTM	18							18	18	LTM
HWAAP-B24	102-52 Acid Pit	RD				6				6		composting
		RA				77	68			145	151	composting
HWAAP-B26	103-6 POL Pit	RD					20			20		source removal & land farming
		RA					200			200	220	source removal & land farming
HWAAP-B27A	103-16 Ordnance Washout Impoundment (Catchment Pit)	RD					50			50		shallow (~1 foot) excavation & bioremediation
		RA					498			498	548	shallow (~1 foot) excavation & bioremediation (combined with J14)
HWAAP-B29	103-41 Ordnance Washout Impoundment (Unlined Ponds)	RA	1172	894	664	917			1523	5170		bioremediation of explosive comtaminated soil ~20,000cy
		LTM	65	65	65	65	64	70	1604	1998	7168	LTM with 5 year reviews

HAWTHORNE CONSTRAINED FY01 CTC

DSERTS #	SITE TITLE	PHASE	FY01	FY02	FY03	FY04	FY05	FY06	FY07+	PHASE TOTALS	SITE TOTAL	DESCRIPTION OF WORK
HWAAP-C04	Old Bomb Popping Furnace 1	RI/FS							349	349		
		LTM	1	1	1	1	6	1	9	20	369	Part of Installation wide LTM Program and 5 year reviews
HWAAP-C05	Old Bomb Popping Furnace 2	RI/FS							349	349		
		LTM	1	1	1	1	6	1	9	20	369	Part of Installation wide LTM Program and 5 year reviews
HWAAP-G01B	Old Bomb OB/OD Ground 2	RI/FS							349	349		
		LTM	1	1	1	1	6	1	9	20	369	Part of Installation wide LTM Program and 5 year reviews
HWAAP-G01C	Old Bomb OB/OD Ground 3 (D Area)	RI/FS							349	349		
		LTM	1	1	1	1	6	1	9	20	369	Part of Installation wide LTM Program and 5 year reviews
HWAAP-H04	Navyside Landfill	LTM	30	30	30	30				120	120	LTM, Decision Doc
HWAAP-H05	Old Depot Laundry Washout	LTM	35	30	30	30				125	125	LTM, Risk Assessment for CHPPM
HWAAP-I02	110 Group Open Burning Pit	IRA					500			500		excavation and composting pilot study
		RD					380			380		excavation and composting ~30,000cy
		RA					393	3407		3800		excavation and composting ~30,000cy
		LTM	9	9	9	9	9	45	45	135	4815	LTM
HWAAP-I07	101-44 Landfill	RD							10	10		excavation and composting ~4,000cy, decision doc
		RA							45	45	55	excavation and composting ~4,000cy
HWAAP-I08	Building 70 Pit/Landfill	RD							10	10		excavation and composting ~4,000cy, decision doc
		RA							45	45	55	excavation and composting ~4,000cy
HWAAP-I09 & I10	Building 49-10 Pit Landfill #1 & #2											
		RA					365	117	317	799		excavation and disposal
		LTM	60	60	60	60	60	60	240	600	1399	LTM
HWAAP-I22	Old Bomb Open Burning Pit	RI/FS							349	349		
		LTM	1	1	1	1	6	1	9	20	369	Part of Installation wide LTM Program and 5 year reviews
HWAAP-I23	Olb Bomb/Rocket Metal Landfill	RI/FS							349	349		Part of Installation wide LTM Program and 5 year reviews
		LTM	1	1	1	1	6	1	9	20	369	
HWAAP-J03	Building 70 Diesel Fuel Leak	LTO	16	16	16	16	16	16		96	96	bioventing monitoring
HWAAP-J14	103-6 Trench	RD					18			18		excavation & composting ~1,600cy, decision doc
		RA					180			180	198	excavation & composting ~1,600cy (combined with B27A)
HWAAP-J28	108-3 Catchment Pits	RD					5			5		removal of IDW, clean settling tank, backfill
		RA					12			12	17	removal of IDW, clean settling tank, backfill
HWWAP-J29	Building 103-5 Landfill	RD					5			5		excavation & composting ~10cy, decision doc
		RA					10			10	15	excavation & composting ~10cy (combined with B27A)
HWAAP-K03	UST at Building 101-25, 103-6, 13	LTO	50	50	24	24	24	24	96	292	292	biovent system K03A, K03B, K03D
HWAAP-K05	LUST Site at Bldg 117-3	LTO	100	50	12	12	12	12	48	246	246	biovent system
	FISCAL YEAR TOTALS IN THOUSANDS OF DOLLARS		**$ 2,001**	**$ 1,640**	**$ 1,652**	**$ 1,676**	**$ 3,099**	**$ 3,996**	**$ 9,705**	**$ 24,350**	**$ 24,350**	
		POM	**2001**	**1640**	**1652**	**1676**	**3099**	**3996**	**180**			
		Difference	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 9,525**			

COMMUNITY INVOLVEMENT

There is no RAB established at Hawthorne Army Depot. HWAD has solicited community participation in establishment of the restoration advisory board (RAB). This has included; open house for the general public, statewide TV coverage of HWAD's IRP, public notices in the local newspapers, presentations to community clubs and high schools, and a public out reach through the local library. HWAD will continue to solicit community involvement. The Nevada Division of Environmental Protection is a full partner in HWAD's IRP and is supportive of our efforts to form a RAB for the Depot. They also recognize the difficulties of recruiting RAB members in a rural location such as Hawthorne.

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

Installation, 7. RAB REPORT

11/27/2000

Command: AMC **SubCommand:** OSC
Installation: HAWTHORNE AD

RAB Established Date: **Reason RAB Not Establish:** The community has expressed
RAB Adjourned Date: **Reason RAB Adjourned:** no sufficient, sustained interest in a RAB.

TRC Date:

RAB Community Members: **Total RAB Community Members:**

RAB Government Members: **Total RAB Government Members:**

RAB Activities:

RAB Advice

TAPP Application Approval Date:
TAPP Project Title: 09/30/2000
TAPP Project Description:

Award Number	Purchase Order Award Date	Completion Date