

INSTALLATION ACTION PLAN for ANNISTON ARMY DEPOT



FY05 as of January 2004

30% post-consumer material paper



Installation Action Plan For Anniston Army Depot



Anniston, Alabama

FY05 as of January 2004

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Statement of 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 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, Army Environmental Center (AEC), installations, executing agencies, regulatory agencies, and the public, an IAP has been completed for Anniston Army Depot (ANAD). 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 the ANAD by the end of 2008.

This IAP will also fulfill the requirement of the annual site Management Plan as stipulated in the Federal Facility Agreement for ANAD.

The following agencies contributed to the formulation and completion of this document, the IAP.

Alabama Department of Environmental Management (ADEM)

Anniston Army Depot

Army Environmental Center

Engineering and Environment, Inc.

SAIC

U.S. Army Corps of Engineers, Mobile District

US EPA Region 4

Acronyms & Abbreviations

~	approximate
ADEM	Alabama Department of Environmental Management
AEC	(United States) Army Environmental Center
AEDB-R	Army Environmental Database - Restoration
AL	Alabama
ANAD	Anniston Army Depot
ARBCA	ADEM Alabama Risk-Based Correction Action for Underground Storage Tanks
ASA	Ammunition Storage Area
ATSDR	Agency for Toxic Substances and Disease Registry
AWWSB	Anniston Water Works & Sewer Board
CAP	Corrective Action Plan
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CHPPM	(United States Army) Center for Health Promotion and Preventive Medicine
COC	Contaminants of Concern
CRP	Community Relations Plan
CTC	Cost to Complete
cy	cubic yards
DA	Department of Army
DCE	cis-1,2-Dichloroethene
DERA	Defense Environmental Restoration Account
DNAPL	Dense Non-Aqueous Phase Liquids
DoD	Department of Defense
DSERTS	Defense Site Environmental Restoration Tracking System (now AEDB-R)
EcoCOC	Ecological Contaminants of Concern
EPA	(United States) Environmental Protection Agency
ER,A	Environmental Restoration, Army (formally called DERA)
ERP	Emergency Response Plan
ESE	Environmental Science and Engineering, Inc.
ESI	Expanded Site Inspection
FFA	Federal Facility Agreement
FS	Feasibility Study
ft	foot
ft²	square feet
FY	Fiscal Year
gal	gallon
GEO	Groundwater Extraction Optimization
gpd	gallons per day
HRS	Hazard Ranking System
HSWA	Hazardous and Soild Waste Admendments
IAP	Installation Action Plan
IDW	Investigation Derived Waste
IRA	Interim Remedial Action
IRFNA	Inhibited Red Fuming Nitric Acid
IROD	Interim Record of Decision
IRP	Installation Restoration Program
IWTP	Industrial Wastewater Treatment Plant
JEG	Jacob's Engineering Group
K	\$1,000
LTM	Long Term Monitoring
MCL	Maximum Contaminant Level
mg/kg	miligrams per kilogram
MW	Monitoring Well
NAPL	Non-Aquious Phase Liquid

Acronyms & Abbreviations

NE	Not Evaluated
NFA	No Further Action
NIST	National Institute of Standards and Technology
NOV	Notice of Violation
NPDE	National Pollutant Discharge Elimination System
NPL	National Priorities List
NUS	(used in the Contamination Assessment page 2)
OU	Operable Unit
PAH	Polynuclear Aromatic Hydrocarbons
PA	Preliminary Assessment
PCB	Polychlorinated biphenyls
PCP	Pentachlorophenol
PIRP	Public Involvement and Response Plan
POL	Petroleum, Oil & Lubricants
RA	Remedial Action
RA(O)	Remedial Action - Operation
RAB	Restoration Advisory Board
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RDX	type of explosive
REM	Removal
RFA	RCRA Facility Assessment
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RIP	Remedy in Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SAIC	Science Application International Corporation
SARA	Superfund Amendments and Reauthorization Act
SI	Site Inspection
SIA	Southeast Industrial Area
STP	Sewage Treatment Plant
SVOC	Semi-Volatile Organic Compounds
SWMU	Solid Waste Management Unit
TAPP	Technical Assistance for Public Participation
TCE	Trichloroethylene
TI	Technical Impracticability
TNT	Trinitrotoluene
UDMH	Unsymmetrical Dimethylhydrazine
ug/l	microgram per liter
USACE	United States Army Corps of Engineers
USAEHA	United States Army Environmental Hygiene Agency (replaced by USAEC)
USATHMA	United States Army Toxic and Hazardous Material Agency (replaced by USAEC)
UST	Underground Storage Tank
VOC	Volatile Organic Compounds

Summary

STATUS:	NPL Installation, HRS - 51.91, March 31, 1989 Confirmed off-post groundwater contamination		
NUMBER OF AEDB-R SITES:	47		
SITES WITH ACTION:	7		
RIP WITH LTM or RA(O):	14		
RESPONSE COMPLETE SITES:	26		
DIFFERENT SITE TYPES:	3 Burn Areas	1 Contaminated Building	
	1 Contaminated Groundwater	2 Contaminated Sediments	
	7 Disposal Pits/Dry Wells	6 Landfills	
	3 Oil Water Separators	5 Storage Areas	
	5 Surface Impoundments/Lagoons	1 Above Ground Storage Tank	
	5 Underground Storage Tanks	6 Waste Treatment Plants	
	2 Explosive Ordnance Disposal Area		
CONTAMINANTS OF CONCERN:	Industrial wastes including spent solvents, metals, explosives, and petroleum/oil/lubricants		
MEDIA OF CONCERN:	Groundwater, Soil		
COMPLETED REM/IRA/RA:	For Complete list see REM/IRA/RA Section		
	IRA-FY 84	Source Removal at 4 sites	
	IRA-FY 94	Groundwater Treatment at 6 sites	\$2,105.8K
	RA-FY 93	Source Removal at IWTP	\$47.41K
	RA-FY94	Source Removal at SWMU 12	\$350.4K
	RA-FY 96-98	Source Removal at SWMU 12	\$6,557K
CURRENT IRP PHASES (by FY05 funding):	RI/FS at 1 site	IRA at 2 sites	RA at 6 sites
	RA(O) at 4 sites	LTM at 10 sites	
PROJECTED IRP PHASES (by FY05 funding):	RI/FS at 1 site	IRA at 2 sites	RD at 1 sites
	RA at 5 sites	RA(O) at 14 sites	LTM at 13 sites
IDENTIFIED POSSIBLE REM/IRA/ RA:	IRA at ANAD-01, 31		
	RA at ANAD-01, 09, 12, 13, 29, 30		
DURATION:	Year of IRP Inception	1978	
	Year of RA Completion	2008	
	Year of IRP Completion	2033	

Installation Information

SITE DESCRIPTION:

Anniston Army Depot (ANAD) is located in Calhoun County in northeastern Alabama. The depot is 110 miles west of Atlanta, GA and 50 miles east of Birmingham, AL. The city of Anniston is located 10 miles east of the depot. ANAD is surrounded by a series of small communities clustered primarily along the southern and eastern boundaries of the depot and is bordered on the north by the Pelham Range portion of the Fort McClellan Military Reservation. The overall size of the depot is approximately 15,200 acres.

IRP EXECUTING AGENCIES:

INVESTIGATION PHASE: U.S Army Corps of Engineers, Mobile District
ACTION PHASE: U.S Army Corps of Engineers, Mobile District

REGULATORY PARTICIPATION:

FEDERAL: U.S. Environmental Protection Agency, Region IV, Atlanta, Georgia, Federal Facilities Branch
- U.S. Department of Interior, Fish and Wildlife Service, Decatur, Alabama
STATE: Alabama Department of Environmental Management, Special Projects Office, Montgomery, Alabama, Government Facilities Section, Hazardous Waste Branch, Land Division

REGULATORY STATUS:

- NPL installation (Southeast Industrial Area) with an installation-wide Federal Facility Agreement
- Partnering with regulators since April 1997
- RCRA/HSWA/NPDES Permits issued June 1997

MAJOR CHANGES TO IAP FROM PREVIOUS YEAR (FY04):

- SWMU 44 closed out - no impact to ecological or human health was determined
- Reduction in Cost-To-Complete
- Cooperative agreement with AWWSB to fund air stripper at the drinking water plant.

Installation Description

The roughly square-shaped configuration of ANAD encompasses some 15,200 acres. Ammunition storage bunkers within the Ammunition Storage Area (ASA) occupy the majority of the depot. The Southeast Industrial Area (SIA) contains the depot's industrial facilities. Additional areas, primarily along the depot's southern boundary, are allocated for warehouse storage, fuel storage, administrative services, housing, and recreation. ANAD is one of the major employers in the Anniston area. Approximately 2,571 Department of Army (DA) civilians are currently employed by ANAD. In addition to these employees, approximately 566 tenant employees, 871 contractors, and 4 military personnel are located at ANAD. Land use around ANAD is primarily rural, residential, cropland/pasture, and mixed forest.

The U.S. Army began operations at the depot in 1941. Since then, the depot mission has included the storage of munitions and the refurbishment, testing, and decommissioning of combat vehicles and various types of ordnance.

The initial mission for the depot was defined as munitions storage. Construction operations for the depot were formally initiated on February 17, 1941, and the first ammunition storage magazines were completed on October 3, 1941. During World War II, the mission of the depot was expanded to include a combat equipment storage area, where over 1,230,000 tons of equipment were handled.

Over the years, ANAD's mission was further expanded to include the following: overhauling and repairing of ordnance vehicles; fire control and small arms rebuild (gained from the Augusta Arsenal which was closed in 1954); modification of M48A1 tanks and M67 flame throwers; calibration support for the southeastern states; and logistics support for the Lance missile, TOW systems, and the Dragon missile. The bulk of this work was conducted in the SIA.

The present mission of ANAD includes maintaining combat vehicles such as the M-1 Abrams tank, M-60 and M-113 series, as well as towed and self-propelled artillery. It also includes the storage and demilitarization of conventional munitions and storage of chemical surety materials/munitions.

ANAD's mission has required the use of a variety of industrial processes, such as plating, painting, degreasing, sand blasting, paint stripping, steam cleaning, etc. The various activities at ANAD since 1941 contributed to the contaminants of concern (COC). The most wide-spread COCs are industrial wastes, including spent solvents, heavy metals and petroleum/oil/lubricants, as well as explosive contamination.

Construction of a large chemical weapons destruction facility was completed in 2003. It is located in the north-central portion of the ASA. The duration of operation is expected to be approximately seven years.

Because of a Hazard Ranking Score (HRS) of 51.91, the Environmental Protection Agency (EPA) placed the ANAD SIA on the National Priorities List (NPL) on March 31, 1989. A Federal Facility Agreement (FFA) between the EPA Region IV, the Alabama Department of Environmental Management (ADEM) and the Department of Army was signed into effect for ANAD on June 13, 1990. The FFA identifies 44 Solid Waste Management Units (SWMUs) within ANAD, 15 in the ASA and 29 in the SIA. Three additional SWMUs were added making the total 47. The additional sites are underground storage tank sites for which ADEM issued Notices of Violation (NOVs) under their UST regulations. The FFA integrates the Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)/Superfund Amendments and Reauthorization Act (SARA) requirements for the entire depot. The scope of the FFA requires the Army to conduct a remedial investigation/feasibility study (RI/FS) for all applicable SWMUs within ANAD, followed up by the development and implementation of remedial design (RD) and remedial action (RA). The ASA is not on the NPL, but is addressed in the FFA.

ANAD discharges wastewater under a National Pollutant Discharge Elimination System (NPDES) Permit that was originally granted in 1986 and last renewed in 2002. The NPDES permit includes discharges from an Industrial Wastewater Treatment Plant, a Sewage Treatment Plant, and two Groundwater Treatment Units. A RCRA/HSWA Permit was issued to ANAD in 1997.

A partnering team was formed at ANAD in April 1997. This team includes representatives from ANAD, U.S. Army

Installation Description

Corps of Engineers, AEC, ADEM, EPA and Army contractors. This is not a legally binding relationship, but a commitment and an agreement among the parties to work together as a team to achieve mutually beneficial goals.

Contamination Assessment

ANAD has a total of 47 Army Environmental Database - Restoration (AEDB-R) sites including lagoons, storage areas, disposal pits, underground storage tanks, landfills, open burning/open detonation areas and waste treatment areas.

A number of studies have been conducted at ANAD to support the Installation Restoration Program as well as other environmental management programs. These studies, which are listed in Table 1, have yielded a significant amount of information on the extent of contamination both on-depot and off-depot.

A comprehensive groundwater RI is being conducted to assess the nature and extent of groundwater contamination in the area of ANAD's southeast boundary and the migration of contaminants from the SIA, particularly in the deeper groundwater regime. The current study is filling data needs involving the nature of geologic formations, groundwater flow, and groundwater chemistry in the area upgradient of the SIA, the connectivity of the deep groundwater system in the SIA to off post springs, the connectivity of the shallow-to-deeper groundwater system, as well as the degree of attenuation and degradation, of contaminants. The results of this study will be used to established the objectives and extent of groundwater cleanup required.

ANAD's off post monitoring program includes the sampling of wells within and downgradient of the SIA. Locations off post of ANAD are monitored for VOC groundwater contamination. TCE is the most frequently detected VOC and is the primary contaminant of concern. The off post locations are monitored in accordance with requirements of ANAD's Federal Facility Agreement with EPA Region 4 and ADEM and CERCLA. AWWSB and ANAD also analyze samples from Coldwater Spring monthly, which is more frequent than the required quarterly sampling specified in the Safe Drinking Water Act and ADEM Regulations.

There also are a total of 123 wells and springs used by residents for drinking water, agriculture use, or recreational uses along the southern and western boundaries of ANAD. Fifty six of the wells and springs identified are used as the sole source of drinking water and have been sampled over the past three years for contaminants that may have originated within ANAD. The results of 2000, 2001 and 2002 sampling indicated that there were no VOC contaminants detected above MCLs.

Measures are in place to protect current and potential receptors (on and off post) from exposure to contaminants exceeding MCLs. These measures include cleanup of sites where contamination is present, operation of the interim groundwater treatment system at ANAD and an Emergency Response Plan (ERP), which will be implemented for use in the event that private or public water supplies exceed applicable drinking water standards.

Due to recent increases in TCE concentration in some off post wells at Coldwater Spring, the 1996 ERP is being revised. In support of the ERP update, a multi-method trend analysis was performed to predict concentration of TCE in Coldwater Spring 6 months in advance and support related emergency response planning. Seventeen different statistical methods and sampling data from 1995 to 2002 were used in this multi-method trend analyses, consistent with the National Institute of Standards and Technology (NIST) recommendations. As a result, the Army funded \$1.6 million for additional treatment at the Krebs WATER Treatment Plant.

Sites within ANAD were identified where use restrictions and controls were selected as part of the remedy to address risk and exposure to contaminants and to manage the current and future use of the property. These elements of the remedy are identified in Draft Soil RODs SIA and ASA.

A quantitative assessment (the first of several such reports) of industrial wastewater generated at ANAD was performed by the U.S. Army Environmental Hygiene Agency (USAEHA) (now the U.S. Army Center for Health Promotion and Preventive Medicine) in 1966. Parameters that were identified and found to be in need of control included pH, phosphorous, phenolics, cyanide, heavy metals and petroleum, oil and lubricants (POL).

Prior to 1978, USAEHA installed a number of wells to monitor groundwater around the landfill area, the IWTP and the IWTP lagoons. It was determined from the monitoring data that the wastewater from the IWTP lagoons was not degrading groundwater quality. At the same time, it was found that wastes from the landfill area had contaminated the groundwater.

U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) (now the Army Environmental Center) completed an installation assessment of ANAD in April 1978. The assessment was designed to document potential on-depot

Contamination Assessment

sources of contamination and contaminant migration beyond the depot boundaries.

In September 1979, the Mobile District of the U.S. Army Corps of Engineers (USACE) contracted with Environmental Science and Engineering, Inc. (ESE) to investigate solid and hazardous waste disposal facilities at ANAD. The purpose of the investigation was to determine the potential for contamination of groundwater, surface water, and air, and to recommend ways to bring the sites into compliance with state and Federal regulations. The sites included the Z-1 Trenches Area (AEDB-R site designation number ANAD-01), the Z-2 Sanitary Landfill (ANAD-02), and the Abrasive Dust Landfill (ANAD-21). Analyses of groundwater monitoring well samples indicated local groundwater contamination at the Z-1 Trenches Area.

In 1980, USAEHA conducted a study to further evaluate contaminant impact on local groundwater conditions through the analysis of samples from 22 on-depot wells. All 22 wells showed traces of trichloroethene (TCE) (also known as trichloroethylene); the three wells closest to Z-1 Trenches Area also showed methylene chloride. In February 1981, 12 of the wells were re-sampled and analyzed for volatile organics. In addition to the confirmed TCE and methylene chloride, a wide variety of volatile chlorinated hydrocarbons were detected at concentrations exceeding existing human health criteria.

In February 1981, as a result of the previous groundwater studies, USATHMA initiated a survey and assessment of ANAD to determine the extent of contaminant migration and to develop plans for abatement or treatment. The program included a geotechnical evaluation of the SIA and the installation and testing of 41 monitoring wells.

In August 1982, Weston, a DA contractor, initiated a RCRA Corrective Action, which involved the excavation, transportation, and disposal of contaminated waste sludges and soil from the Z-1 Trenches Area, Facility 414 (ANAD-12) and the Building 130 Sump (ANAD-25). From November 1982 through May 1983, a total of 62,000 tons of contaminated sludge and soil were removed and transported to a RCRA-permitted hazardous waste landfill in Emelle, AL. Following confirmatory sampling in the excavation sites, the areas were backfilled, graded, and vegetated.

In 1983, as a result of previous on-depot studies, USATHAMA determined that additional efforts were necessary to identify the sources of contaminants, their rate of migration and potential impact. This work was performed by Battelle's Hazardous Waste Management Office and included the installation of 25 groundwater monitoring wells at 24 locations within the vicinity of the SIA. In addition, three large-diameter wells were installed with five adjacent pilot borings to evaluate the extraction and treatment of groundwater at designated on-depot locations. Battelle concluded that some contaminants were crossing ANAD's boundary and, while their concentrations were low enough to pose no immediate hazard, potential long-range impacts might require remedial action.

From 1984 to 1987, Weston performed several studies of on-depot groundwater contamination and designed a groundwater treatment system for the groundwater collected from beneath Building 114 Metal Plating Shop (ANAD-31). The USACE installed the system. Weston also developed a conceptual design for an SIA-wide groundwater extraction and treatment system.

In 1985-1986, ESE, a DA contractor, performed an investigation of off-depot contamination, with an emphasis on the determination of contaminant migration pathways and transport rates. Thirteen off-depot monitoring wells were installed and sampled. Samples were also collected from nearby Coldwater Spring, the primary drinking water source for Calhoun County. The study concluded that contamination found in Coldwater Spring and some of the off-depot wells did not appear to be directly correlated to on-depot contamination.

In 1987, NUS, a DA contractor, conducted an ANAD RCRA Facility Assessment (RFA) to evaluate the release of hazardous waste or hazardous constituents. The RFA identified 38 SWMUs and evaluated the potential for contaminant release from each of these SWMUs to the environment. The report discussed each identified SWMU in terms of site description, waste characteristics, migration pathways and evidence of release.

Also in 1987, ESE performed an Endangerment Assessment concerning the potential risk to human health and the environment posed by contaminant releases from ANAD. In 1987, ESE produced a supplemental report to this assessment. The supplement provided additional information required for the Agency for Toxic Substances and Disease Registry (ATSDR).

In June 1987, Bionetics Corporation, a DA contractor, performed a photogeologic study in order to identify potential

Contamination Assessment

contaminant pathways leading from ANAD to Coldwater Spring. The study concluded that contaminated groundwater from ANAD could enter the confined aquifer along the Jacksonville Fault and reemerge at Coldwater Spring.

In 1989, ESE performed an ANAD RI/FS. This study presented a comprehensive overview of the past and present contaminant releases and remediation activities for ANAD. Information compiled included a summary of generated wastes, SWMU descriptions, a summary of on-depot soil boring data, a history of groundwater chemistry data for the SIA, a summary of preliminary results of off-depot investigations and the off-depot endangerment assessment.

In 1989, E.C. Jordan, a DA contractor, developed a Groundwater Extraction Optimization (GEO) program for the ANAD SIA. The program included the design of a groundwater extraction and treatment system for each of the three areas of defined groundwater contamination at the SIA (the Trench Area which includes ANAD-01; the Northeast Area which includes ANAD-07, 25, 30 and 31; and the Landfill Area which includes ANAD-12 and 22). The objectives of the program were to capture highly contaminated groundwater near the source and provide additional downgradient contaminant capture to approximately the 25-50 µg/l iso-concentration contour for trichloroethene/dichloroethene. Installation of the groundwater extraction and treatment systems was completed by the USACE in September 1990. The systems included groundwater extraction wells, air strippers for volatile organics and activated carbon filters for the absorption of phenolics. The treated groundwater was discharged to Dry Creek but is now discharged to Choccolocco Creek. In September 1991, an Interim Record of Decision (IROD) was issued for the extraction and treatment systems in the three SIA areas and for the Building 114 system. The IROD refers to the systems as the SIA Groundwater Operable Unit (OU).

After the signing of the FFA in 1990, ANAD began pursuing the investigations in 2 basic study areas: the SIA, which contains the National Priorities List (NPL) site; and the ASA, which is not on the NPL. The SIA was broken into three operable units: the Soils OU, the On-post Groundwater OU, and the Off-post OU. The Off-post OU was to include all groundwater that may be affected by contamination in the SIA.

SOUTHEAST INDUSTRIAL AREA

SOILS AND ONPOST GROUNDWATER OPERABLE UNITS

In 1991, Jacob's Engineering Group (JEG), a DA contractor, initiated a RI/FS in the SIA (29 SWMUs total) for the soils and on post groundwater operable units. The RI/FS was performed in accordance with the requirements of the National Contingency Plan, as required for Superfund sites. The RI report was approved by EPA/ADEM in January 1995. This study indicated that contamination was found in all media at the SIA: surface soil, subsurface soil, sediment, surface water and groundwater. Contaminants are primarily organics, inorganics, pesticides and polychlorinated biphenyls (PCBs). A total of 59 organic compounds and 19 inorganic analytes were measured in groundwater. Halogenated aliphatic hydrocarbons represent the greatest percentage of the organic results. Potential contaminants were detected in wells both on- and off-site.

JEG also performed a GEO Study in conjunction with the SIA RI/FS that they began in 1991. The purpose of the GEO study was to evaluate operation of the existing groundwater extraction and treatment systems. The GEO Study report was finalized in November 1994. Due to equipment malfunctions and an overall lack of monitoring equipment on the systems, additional renovation/upgrade of the groundwater extraction and treatment systems was necessary in order to complete the GEO Study as planned. Plans for this renovation were prepared by the USACE and implemented in FY95. Even after renovation the current extraction system had problems with fouling due to mineralization and bacteria. USACE conducted a Pilot Chemical Processing Study for Extraction System in FY96. The findings of this study were used to develop a long-term solution for groundwater treatment and extraction. A prototype large diameter well was installed in the landfill area in FY96 as part of the groundwater extraction system optimization. This well was designed to eliminate operational problems caused by fouling due to bacteria and mineralization.

Due to extensive EPA/ADEM comments to the draft RI/FS in the SIA, an addendum to the RI/FS work plans was prepared. This addendum was approved by EPA/ADEM in September 1994, and a Phase 2 RI/FS was initiated that same month. The Phase 2 RI investigation included both the soil and groundwater OUs. Fieldwork for Phase 2 RI/FS was conducted by Science Application International Corporation (SAIC), a DA contractor, and was completed in June 1996.

Contamination Assessment

The Phase 2 RI was finalized in May 1998. Results from this study indicate that environmental media, including groundwater, surface water, soil, and sediment has been affected to various degrees by previous activities at ANAD. Groundwater was evaluated only under the residential land use scenario. The groundwater investigation was divided into 4 Sub-Basins: the Industrial Area, the Trench Area, the Northeast Area and the Landfill Area. There is massive contamination, especially by chlorinated hydrocarbons, in localized areas of these Sub-Basins, and there is a presence of dense non-aqueous phase liquids (DNAPLs) in the bedrock and residuum groundwater. The ANAD boundary was selected as the point of compliance. The 12 contaminants of concern at the boundary are aluminum, arsenic, beryllium, chromium, iron, lead, manganese, bis(2-ethylhexyl)phthalate, carbon tetrachloride, chloroform, methylene chloride, and TCE. An IROD for groundwater is awaiting signature; it calls for enhancement of the existing groundwater treatment, along with hot spot treatment. Design of the new groundwater treatment system began in 1999, and operations began in August 2001. The new system addresses recommendations in the Five-Year Review of the existing groundwater treatment system, which is under an IROD.

An ecological risk assessment identified one ecological risk chemical of concern (ecoCOC) (zinc) at one site (ANAD-44). In sediment, cadmium, lead, and 11 polycyclic aromatic hydrocarbon compounds were identified as ecoCOCs at ANAD-44. In soil, five metals (cadmium, chromium, lead, antimony, and zinc) were identified as ecoCOCs at six SWMUs. The Feasibility Study for groundwater was approved as final in January 1999. A Feasibility Study for soil was approved in July 1999. The Final ROD for soils is awaiting signature; it is anticipated to call for excavation and capping of some sites.

A sewer line video inspection of the Industrial Wastewater Treatment plant sewer lines was conducted as part of the SIA RI. Leakage and infiltration estimates as well as recommendations for repairs are documented in the Industrial Sewer Line Upgrade Plan that was finalized in FY97. Repairs began in October 1998 and were completed in 1999.

JEG performed additional soil/sludge sampling in the Facility 414 Old Lagoons (ANAD-12) in January 1994. The report of the findings of this additional sampling was finalized in November 1994. As a result of this additional sampling, a source (sludge) removal action was initiated in the lagoons in FY96. Delineation efforts performed in FY96 showed that the contamination source was approximately 10 times the original estimate of the 1994 JEG report. The soil contamination is considered a source of groundwater contamination. A cost effective, in-situ action was sought. A performance demonstration was conducted in early FY97 using an innovative technology where a ferrous ion solution, a 50% hydrogen peroxide mixture and a proprietary catalyst, was injected to chemically oxidize the contamination. Based on the results of the performance demonstration, a full-scale source removal action began in July 1997. Fieldwork using this process was completed in fall 1999. In 2001, a final report describing the activities and results of this action was completed. The technology was a success except for 1800 cubic yards that remains above the clean-up goals.

COMPREHENSIVE GROUNDWATER OPERABLE UNIT INVESTIGATION

The site associated with this OU was previously considered ANAD-48, Coldwater Spring. ANAD-48 has been deleted and the sites now associated with this OU are the SIA sites that contribute to groundwater contamination, which has the potential to impact Coldwater Spring and other off post groundwater receptors.

JEG initiated a Dye Tracing Study in 1994 to gain an understanding of the direction and distance of contaminated groundwater flow from beneath the SIA. During this study, dye was traced rapidly in a multidirectional pattern from the Trench, Northeast and Landfill Areas to various off-depot locations, including Coldwater Spring.

SAIC conducted quarterly monitoring in 1995 at locations identified as having a hydrological connection to ANAD's contaminated areas according to the 1994 Dye Tracing Study. TCE is the only identified compound that exceeded its associated MCL at two locations. Neither of these locations was used for drinking water purposes. TCE was also detected below the drinking water standards at Coldwater Spring. SAIC drafted an emergency response plan in October 1996 that addresses interim measures that would need to be implemented to provide safe drinking water to the off-post residents in the vicinity of ANAD if contamination is detected above drinking water standards in a drinking water supply.

A more quantitative dye trace study was conducted by SAIC beginning in 1996 due to concerns that the 1994 dye study had not adequately considered background levels of dye in the aquifer. Dye was injected in January 1997 and

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area springs and wells were monitored for 1 year without any dye being detected off post. A final report was submitted to EPA/ADEM in May 1998. The 1998 report contained different conclusions than the 1994 dye study. The 1998 report indicates that no dye was detected off post and the ANAD SIA lacks the features common to karst settings that allow rapid multidirectional flow. The findings of the 1998 dye study report will be part of a RI/FS for the Off post OU. SAIC continued to monitor approximately 40 off post springs and wells after the completion of the initial study. Dye was detected off post in 2 locations in the fall of 1998, one location 6 miles southeast and one location 5 miles due west. The location 5 miles west is a private drinking water well. The private well and other adjacent wells were sampled for VOCs, but none of the wells contained any of those compounds. SAIC continued to monitor the 40 off post springs and wells through August 1999. The final report of the Groundwater Tracer Test Extended Monitoring Report was completed in April 2000.

An off-post groundwater sample was also collected from Mr. T.A. Cooper's well at 59 Murphree Lake Road in Sept 1999. The sample was analyzed for VOCs to monitor any changes in these compounds since the well was first sampled in 1995. The results from this sample indicated elevated levels of TCE and cis-1,2-Dichloroethene (DCE). The concentration of TCE is 109 ppb and DCE is 155 ppb. Based on these sample results, it was determined that confirmatory sampling of the well and sampling of the ponds needed to be conducted. On October 26, 1999, samples were collected by the Army from the well and ponds. Sample results from this event confirmed the elevated TCE and DCE concentrations in the well. In addition, they showed levels of TCE above the drinking water standard in the first pond but below the standard in the fourth pond. This is attributed to water flowing sequentially from the well through the first pond to the last pond located at Highway 202. On October 29, 1999, with Mr. Cooper's permission, the Army removed the spigot from the well and plugged the pipe. The water from the well still flows to the ponds via underground pipes.

Based on these analytical results from Mr. Cooper's well and pond, ANAD in cooperation with ADEM and EPA, developed a plan to conduct a door to door water well and spring inventory in the down gradient direction from the SIA. The inventory was conducted in two phases to determine the presence of all groundwater wells and springs in the area. The first phase included the area east of Turner Road, north of Coldwater School Road, west of Coldwater Road, north of 202 between Coldwater Road and Bynum-Leatherwood Road, and west of Bynum-Leatherwood Road until it intersects with Eulaton Gate Road. This area was determined based on the location of Mr. Cooper's property, the area of past VOCs detections in off-post monitoring wells, and the downgradient, structurally controlled groundwater direction. Thirteen wells on Turner Road that were sole sources of drinking for the property owners were sampled for VOCs. All analytes were below laboratory detection limits.

Phase II of the well and spring inventory began following the conclusion of Phase 1 with a survey to determine well and spring usage in the area south and west of the base. Fifty-seven residents were identified as having groundwater as their sole source of drinking water. The Army did not sample 4 of these homes, because one individual refused access, one individual could not be contacted, and two older individuals moved, leaving their homes unoccupied. All sample results were non detect for VOCs. EPA performed confirmatory sampling for VOCs at most of the residents (some did not want their well sampled again) in August 2000 with all being below detection limits for ANAD's VOCs of concern.

In August 2000, the original 14 off-post monitoring wells, Mr. Cooper's private well, and the 4 new monitoring wells installed on Mr. Cooper's property were sampled for VOCs. Mr. Cooper's supply well remained at 110 ppb for TCE, and monitoring wells MW-8 and 99-X02-B02D on Mr. Cooper's property were just below the drinking water standard of 5 ppb for TCE. VOCs were not detected in any of the other wells.

The Phase I Off-Post Remedial Investigation contract was awarded in May 1999. This contract performed the Jacksonville Fault Study, including geophysics, data integration of all previous work, and monitoring well installation. The final report was submitted to ADEM and EPA in December 2001.

In August 2001, 66 of the 67 private wells sampled in 2000 were re-sampled. One household sampled in 2000 no longer had anyone living on the property. All wells were below the detection limits for VOCs.

Phase II of the investigation began July 2001 with the surface geophysical surveys to locate deep monitoring well locations. This phase of the combined groundwater investigation will include the installation of 12 shallow wells to define the horizontal extent of the TCE plume and 7 deep wells sampling multiple discrete flow zones to define the

Contamination Assessment

vertical and horizontal extent of the TCE plume. One of the deep wells also serves as a down gradient trigger well. Sampling of all new wells and selected existing wells began in March 2002.

AMMUNITION STORAGE AREA (ASA) INVESTIGATION

JEG initiated an Expanded Site Inspection (ESI) in the ASA in 1991 (15 SWMUs total). The ESI report was approved by EPA/ADEM in December 1994. Contamination from VOCs and semi-volatile compounds (SVOCs) was determined not to be a problem at the ASA. Heavy metals, explosives, nitrate/nitrite, total organic carbon and petroleum hydrocarbons were detected in samples of groundwater, soil and sediment from a number of sites. Four SWMUs were determined to be no further action sites during the ESI. Further investigation to confirm and evaluate the potential contamination was recommended at eleven SWMUs. High concentrations of explosives were thought to be present in subsurface soils at ANAD-11.

SAIC initiated preparation of RI/FS work plans for the 11 remaining ASA SWMUs in September, 1993. The plans were finalized by EPA/ADEM in December 1994.

A preliminary investigation was conducted at ANAD-11 due to unconfirmed reports that there were TNT levels in the soil at this site in excess of >60%. This preliminary investigation was conducted by the USACE in FY97 to confirm the high explosives levels in order to perform the investigation in a safe manner. (Note: Soil concentrations in excess of 10% are considered explosive). This investigation indicated that the concentrations were less than 10%.

SAIC began the ASA RI fieldwork in 1997 and completed it in 1998. A Draft RI report was delivered in May 1999. It was determined that an additional ecological risk assessment was needed to adequately characterize 9 of the sites, in accordance with EPA, Region 4 guidance. The Final ASA RI was delivered in August 2001, and the Final Feasibility Study and Proposed Plan was delivered in March 2002. The Draft ROD is under review and awaiting signature.

UNDERGROUND STORAGE TANK INVESTIGATIONS

In July 1991, February 1992 and June 1993, ANAD received Notices of Violation (NOVs) from ADEM for underground storage tank (UST) releases. Three sites required Secondary Investigations due to leaking petroleum products. The tanks at these sites were removed. The SI for Building 385 conducted in FY95 determined that no further investigative or corrective actions were required. A Corrective Action Plan (CAP) was written for Building 410 and Building 6 in FY 96. These CAPs called for free product removal and natural attenuation for soil and groundwater. The free product removal began in FY96 for Building 410 and FY 97 for Building 6. Baseline soil and groundwater monitoring was conducted and quarterly monitoring began in FY 96 as required by the CAPs. Bi-Annual monitoring continues. In 1999, development of alternate corrective actions were performed based on the new ADEM Alabama Risk-Based Correction Action (ARBCA) for Underground Storage Tanks guidance. The results of this action were completed in January 2002.

GENERAL INFORMATION

A monitoring well inventory was conducted in FY96 by Vista Technologies and SAIC in order to locate, field verify construction specification and survey the over 300 monitoring wells that have been installed at ANAD for CERCLA, RCRA and UST investigations. Recommendations for retaining, replacing, redeveloping, repairing or abandonment of the wells was provided in the Monitoring Well Inventory Well Assessment Report finalized in FY 97. Recommendations were implemented and documented in the Monitoring Well Rehabilitation Report, USACE, dated September 1997.

A Public Involvement and Response Plan (PIRP) was drafted by JEG in 1991. This PIRP outlined efforts to include the public in the IRP. An update of this plan, the Community Relations Plan (CRP) Update, was initiated in FY97 by QST Environmental (formerly ESE) to include environmental justice issues, as well as information concerning Restoration Advisory Boards (RABs) and Technical Assistance for Public Participation (TAPP). The CRP was finalized in May 1998. As an additional document to the CRP, a Community Involvement Plan (CIP) Addendum was prepared to reflect current community interest. The CIP is scheduled for public release in 2004.

Previous Studies

	Title	AUTHOR	DATE
1	Installation Assessment of Anniston Army Depot, Report No. 119.	U.S. Army Toxic and Hazardous Materials Agency	April-78
2	Anniston Army Depot RCRA Studies	Environmental Science and Engineering, Inc.	March-81
3	Geophysical and Geohydrologic Investigation of Anniston Army Depot	TECHNOS, Inc.	September-81
4	Groundwater Assessment of the Southeast Industrial Area	Battelle Pacific Northwest Laboratories	October-82
5	Remedial Action of Hazardous Waste Sites	Roy F. Weston	January-84
6	Source Identification, Contaminant Transport Simulation and Remedial Action Analysis	Battelle Pacific Northwest Laboratories	June-84
7	Solid Waste Management Units at Anniston Depot, Office of the Commander	Anniston Army Depot	1985
8	Offpost Investigation at Anniston Army Depot, Summary of Preliminary Results	Environmental Science and Engineering, Inc.	December-86
9	RCRA Facility Assessment Report	NUS Corporation	February-87
10	Feasibility Study for Anniston Army Depot, Endangerment Assessment — ATSDR Submittal	Environmental Science and Engineering, Inc.	February-88
11	Feasibility Study for Anniston Army Depot, Endangerment Assessment	Environmental Science and Engineering, Inc.	February-88
12	Remedial Investigation, Anniston Army Depot, Volumes 1-4.	Environmental Science and Engineering, Inc.	January-98
13	Feasibility Study for Anniston Army Depot	Environmental Science and Engineering, Inc.	January-98
14	Groundwater Extraction Optimization, Anniston Army Depot	E.C. Jordan	April-89
15	Federal Facility Agreement Between U.S. Environmental Protection Agency Region IV, Alabama Department of Environmental Management and the United States Department of Army for the Anniston Army Depot		Signed June 13, 1990
16	U.S. Army Installation Restoration Program, Superfund Interim Record of Decision, Anniston Army Depot, Alabama Groundwater Operable Unit		September-91
17	Groundwater Extraction System Optimization Study, Final Report	Jacobs Engineering Group	May-93
18	Dye Tracing Study, Southeast Industrial Area	Ewers Water Consultants	June-94
19	Expanded Site Inspection Report, Ammunition Storage Area	Jacobs Engineering Group	November-94
20	SWMU #12 Supplemental Investigation	Jacobs Engineering Group	October-94
21	Remedial Investigation Report	Jacobs Engineering Group	January-95
22	Revised Final Chemical Data Report No. 1 - First Quarter, Off-Post Groundwater Monitoring and Emergency Response Plan.	Science Applications International Corp.	June-95
23	Final Chemical Data Report No. 2 - First Quarter, Off-Post Groundwater Monitoring and Emergency Response Plan.	Science Applications International Corp.	June-95
24	Revised Final Chemical Data Report No.3 - First Quarter, Off-Post Groundwater Monitoring and Emergency Response Plan.	Science Applications International Corp.	September-95

Previous Studies

	Title	AUTHOR	DATE
26	Corrective Action Plan, Building 410	Ecology and Environment, Inc.	November-95
27	Revised Final Chemical Data Report No.4 - First Quarter, Off-Post Groundwater Monitoring and Emergency Response Plan.	Science Applications International Corp.	December-95
28	Corrective Action Plan, Building 6, Site 1 and 2	Ecology and Environment, Inc.	March-96
29	Revised Final Emergency Response Plan, Off-Post Groundwater Monitoring and Emergency Response Plan.	Science Applications International Corp.	October-96
30	Final Monitoring Well Inventory Well Assessment Report	Vista Technologies, Inc.	January-97
31	Industrial Sewer Line System Upgrade Plan	Science Applications International Corp.	February-97
32	Expanded Site Inspection for TNT Washout Facility Leaching Beds (SWMU 11)	U. S. Army Corps of Engineers, Mobile District	September-97
33	Monitoring Well Rehabilitation Report	U. S. Army Corps of Engineers, Mobile District	September-97
34	Report of Findings for the Groundwater Tracer Test - Southeast Industrial Area	Science Applications International Corp.	May-98
35	Final Southeast Industrial Area Phase 2 Remedial Investigation.	Science Applications International Corp.	May-98
36	Final Community Relations Plan Update.	QST Environmental, Inc.	May-98
37	Final Southeast Industrial Area Groundwater Operable Unit Feasibility Study.	Science Applications International Corp.	November-98
38	Geophysical Investigation, Southeast Industrial Area	Argonne National Laboratory	May-99
39	Final Southeast Industrial Area Feasibility Study of Seven Solid Waste Management Units.	Science Applications International Corp.	July-99
40	Final Proposed Plan for the Clean-Up of Groundwater within the Southeast Industrial Area	Science Applications International Corp.	September-99
41	Final Anniston AD Remedial Action On-Post Soil Operation Unit Proposed Plan	Science Applications International Corp.	July-00
42	Final Ammunition Storage Area Remedial Investigation Report.	Science Applications International Corp.	August-02
43	Final Phase I of the Off-Post Remedial Investigation.	Science Applications International Corp.	December-02
44	Final Anniston AD Ammunition Storage Area FS	Science Applications International Corp.	March-02
45	Final Anniston AD Ammunition Storage Area Proposed Plan	Science Applications International Corp.	March-02

SITE Z-1 TRENCHES AREA

SITE DESCRIPTION

The Z-1 Trenches Area consisted of a series of seven excavated trenches approximately 10 to 15 feet in depth, located within a 2-acre area north of the vehicle test track. The waste pits were used from 1971 to 1981 for the disposal of various containerized chemical wastes. As the result of a 1979 RCRA Corrective/Removal Action, the trenches were excavated and contaminated soils and wastes were transported off-depot for disposal. Confirmatory soil sample analysis indicated a maximum concentration of 25 milligrams per kilogram (mg/kg) total organics remaining in the trenches after excavation. Based upon the soil analyses, ADEM granted approval for closure.

The Phase I RI shows that a 1983 removal action was successful in removing soil as a contaminant source. Contamination reached groundwater before the 1983 removal. A pump and treat system began operation in 1990 under an IROD. Groundwater samples taken in 1995 detected solvents at levels that indicated a high probability of NAPL.

In 2003 it was decided that all groundwater actions and monitoring for the installation will be addressed under this site. The Comprehensive (formally 'Combined') Groundwater OU includes previously studied (on and offpost) groundwater OUs. The SWMUs that are considered source areas for groundwater contamination are ANAD-01, 12, 25, 29 and 30. Investigations have shown that chlorinated solvents have migrated offpost and impacted the municipal drinking water source (Coldwater Spring) for the Anniston/Calhoun County system (~60,000 people). Air strippers are expected to be installed in FY04 (FY03 funds). Air stripper operations will be funded by Anniston Waterworks and Sewer Board.

An adjacent commercial catfish pond property is currently being considered for purchase by the Army to better control groundwater contamination migration.

PROPOSED PLAN

It is anticipated that the final ROD for the Comprehensive Groundwater OU may call for further enhancement of the groundwater treatment systems and will include consideration of a Technical Impracticability Waiver.

As part of the demonstration process associated with applying for the TI waiver for complete aquifer restoration, two pilot studies will be conducted to evaluate technologies that might nonetheless be applicable. One study may will be directed at containing contaminated groundwater flow. The second will focus on mass removal at the source area.

A comprehensive RI/FS is necessary to complete the determination of the impact of onsite groundwater contamination to offsite human and ecological receptors.

Purchase adjacent commercial catfish farm property (funded in FY04) to enhance the remediation options, and better control groundwater flow.

STATUS

RRSE RATING:

High Risk

CONTAMINANTS OF CONCERN:

Metals, VOCs, SVOCs

MEDIA OF CONCERN:

Groundwater

COMPLETED IRP PHASE:

PA/SI, IRA

CURRENT IRP PHASE:

RIFS, IRA

FUTURE IRP PHASE:

RI/FS, IRA, RD, RA, RA(O)

SITE Z-2 SANITARY LANDFILL

SITE DESCRIPTION

The sanitary landfill, located northeast of the vehicle test track, was in operation from 1970 until the mid-1980s for the disposal of solid waste generated at the depot. The landfill, approximately 20 acres in size, was a permitted solid waste landfill (nonhazardous) and was periodically inspected by ADEM.

A 2-acre portion of the landfill was officially closed in 1993 in compliance with an ADEM Solid Waste Closure Plan. This site is included in the Southeast Industrial Area Onpost Groundwater Operable Unit. LTM and continued maintenance is required as part of the ADEM Solid Waste Closure Plan. The remainder of the landfill was capped prior to ADEM-required closure, but it is anticipated that this cap will need enhancement to meet current standards.

Groundwater in the area is contaminated; however, the contamination is not believed to be from this site.

STATUS**RRSE RATING:**

Medium Risk

CONTAMINANTS OF CONCERN:

SVOCs, Metals

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI, RI/FS, IRA

CURRENT IRP PHASE:

RIP with LTM

FUTURE IRP PHASE:

RIP with LTM

PROPOSED PLAN

The cap will be repaired and maintained in accordance with best management practices. Post-closure groundwater monitoring will continue.

OLD AND NEW INDUSTRIAL WASTEWATER TREATMENT

SITE DESCRIPTION

The old, industrial wastewater treatment plant (IWTP) was located at the site of the new IWTP in the northeast section of the SIA (Building 505). The old plant was in operation from 1976 to 1981. The old IWTP was used for processing industrial wastewater from various operations in the SIA. Wastes were contained in four, native clay-lined lagoons. The clay-lined lagoons were replaced with concrete-lined lagoons at the same locations in 1978. The treated wastewater was discharged either directly to Dry Creek or to the sanitary sewer system where it received final treatment in the sewage treatment plant (STP).

This site is included in the Southeast Industrial Area Onpost Groundwater and Soil Operable Units.

No further action (industrial use) is recommended in the draft soils ROD. ROD approval is expected in 2004.

STATUS

RRSE RATING:

Medium Risk

CONTAMINANTS OF CONCERN:

VOCs, SVOCs, Metals

MEDIA OF CONCERN:

Groundwater

COMPLETED IRP PHASE:

PA/SI, RI/FS (on-post GW)

CURRENT IRP PHASE:

RC - 2002

SINKHOLE (NEAR EASTERN BOUNDARY)

SITE DESCRIPTION

The “sinkhole” is located in a remote area along the ASA’s eastern boundary. This feature is a depression, approximately 0.6 acres in size and contains water. The area was used periodically between 1942 to 1978 for the disposal of various construction debris and miscellaneous wastes. Most of the debris has been removed from the sinkhole over the years. VOCs, SVOCs and lead have been detected in groundwater.

This site is included in the Ammunition Storage Area Operable Unit.

A draft ROD was completed in spring 2002 and calls for monitored natural attenuation and land use controls.

PROPOSED PLAN

Finalize the ROD (expected in FY04). Additional groundwater samples will be collected; additional wells may be needed (funded in FY04) to monitor natural attenuation. Land use controls are expected to be included in the final remedy.

STATUS

RRSE RATING:

Medium Risk

CONTAMINANT:

VOCs, Lead

MEDIA OF CONCERN:

Groundwater

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

RIP with RA(O)

FUTURE IRP PHASE:

RIP with RA(O)

NA FILLED VALVE DISPOSAL PIT

SITE DESCRIPTION

Approximately 10,000 sodium-filled tank engine valves were reportedly buried at the depot in 1947. The tank valves each contained approximately 1 ounce of elemental sodium, yielding a total of 625 pounds of sodium.

This site is included in the Southeast Industrial Area Onpost Groundwater and Soil Operable Units.

The RI shows that there is no risk to human health or the environment from residual contamination at this site. No further action is recommended in the ROD. ROD approval is expected in 2004.

STATUS**RRSE RATING:**

Medium Risk

CONTAMINANTS OF CONCERN:

Sodium, Metals

MEDIA OF CONCERN:

Groundwater, Soil

COMPLETED IRP PHASE:

PA/SI, RI

CURRENT IRP PHASE:

RC - 2001

CHEMICAL WASTE DISPOSAL PIT

SITE DESCRIPTION

The Chemical Waste Disposal Pit is located in the northeast area of the SIA, across from Building 512. A variety of chemical wastes were reportedly dumped into a small pit in this area during a 6-month period in 1960. The exact location and dimensions of the pit are unknown. The area was also, reportedly, the site of three separate spills of paint stripper from a 1,000-gallon tank car.

This site is included in the Southeast Industrial Area Onpost Groundwater and Soil Operable Units and the Combined Groundwater Operable Unit.

The RI identifies lead at this site posing a human health risk (industrial use) for soils. The RI states that soil contamination does not provide a significant source for the groundwater contamination. Groundwater contamination is suspected to have resulted from reported bulk spills migrating to the groundwater. Part of the area has been capped with concrete for installation use (non-IRP funds).

STATUS**RRSE RATING:**

High Risk

CONTAMINANTS OF CONCERN:

Metals

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI, RI/FS (on-post GW)

CURRENT IRP PHASE:

RD, RA (funded in FY03)

FUTURE IRP PHASE:

RIP with LTM

PROPOSED PLAN

The Soil ROD calls for soil removal (~10cy) and disposal. No additional remedial action is expected. Land use controls will be implemented as part of the final remedy.

Continue to monitor cover and signs.

Groundwater monitoring will continue as required by the 1991 IROD (funded under ANAD-01).

ACID DISPOSAL PIT

SITE DESCRIPTION

The acid disposal pit is located in a highly restricted, remote area in the northeastern section of the depot. It is believed to have been used from 1959 to 1961 for the disposal of various chemicals, possibly in drums, before the Facility 414 Old Lagoons (ANAD-12) were constructed. The pit was of concrete construction and has been filled in with sand that was previously used for cleaning metal parts. Elevated levels of VOCs, SVOCs, metals and explosives were detected in the groundwater.

This site is included in the Ammunition Storage Area Operable Unit.

A draft ROD was completed in spring 2002 and calls for monitored natural attenuation and land use controls.

STATUS**RRSE RATING:**

Low Risk

CONTAMINANTS OF CONCERN:

Metals, VOCs, SVOCs, Explosives

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

RD, RA (funded in FY04)

FUTURE IRP PHASE:

RIP with LTM

PROPOSED PLAN

Finalize the ROD (expected in FY04). Additional groundwater samples will be collected; additional wells may be needed (funded in FY04) to monitor natural attenuation. Land use controls are expected to be the final remedy.

CALCIUM HYPOCHLORITE BURIAL PIT

SITE DESCRIPTION

The calcium hypochlorite pit was used in 1974 for the disposal of 400 containers of calcium hypochlorite, each containing approximately 100 pounds. The pit is located approximately 500 feet southwest of the vehicle test track, between the Facility 414 Old Lagoons (ANAD-12) and the A-Block Lagoon (ANAD-22). A USAEHA report noted that several containers had ruptured during burial and had caused a fire when the hypochlorite came into contact with scrap dunnage. The pit is currently covered with fill and heavily vegetated.

This site is included in the ASA Soils Operable Unit.

The 1998 Phase II RI identifies lead contamination in soils posing a human health (industrial use) and ecological risk.

STATUS

RRSE RATING:

High Risk

CONTAMINANTS OF CONCERN:

Lead, Cadmium, Zinc

MEDIA OF CONCERN:

Soil

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

RD (funded in FY03)

FUTURE IRP PHASE:

RA, LTM

PROPOSED PLAN

The Soil ROD requires excavation, transportation and disposal of ~100cy of soil and capping (~2,500ft²) of this site. The design is expected to be completed in FY04. The removal and capping is expected to be completed in FY05. Land use controls will be implemented as part of the final remedy.

Continue to monitor and repair the cover as needed.

TNT WASHOUT FACILITY SEDIMENTATION TANK

SITE DESCRIPTION

The sedimentation tank is part of the TNT washout Facility located in a restricted area of the central portion of the ASA. The facility consists of a large metal building (Building 172) and a wastewater sedimentation tank. The facility was used from 1948 until the mid 1950s for washing explosives from demilitarized munitions. The slurry from washout operations discharged from the building to the sedimentation tank. The overflow from this tank then discharged through a pipe under the road and into the TNT leaching beds (ANAD-11). The unit closed in the mid 1950s except for occasional use through the late 1960s. Metals and explosives were detected in the groundwater.

This site is included in the Ammunition Storage Area Operable Unit.

A draft ROD was completed in spring 2002 and calls for monitored natural attenuation and land use controls.

STATUS

RRSE RATING:

Medium Risk

CONTAMINANTS OF CONCERN:

TNT, RDX, Metals

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

RD, RA (funded in FY03)

FUTURE IRP PHASE:

RIP with LTM

PROPOSED PLAN

Finalize the ROD (expected in FY04). Additional groundwater samples will be collected; additional wells may be needed (funded in FY04) to monitor natural attenuation. Land use controls are expected to be the final remedy.

ANAD-11 TNT LEACHING BEDS

SITE DESCRIPTION

The TNT leaching beds are located across the road from ANAD-10. The overflow from the sedimentation tank of ANAD-10 discharged through a clay pipe into the leaching beds. The beds occupied an area of ~0.75 acres. From 1948 until the mid 1950s, the leaching beds treated explosives, washout wastewater. From the mid 1950s through the late 1960s, the beds were apparently used occasionally for disposal of wash water from pelletizing system filters. In April 1978, an unknown quantity of octol pink water was discharged to the beds. The beds have not been used since April 1978. In 1985, the area was graded and capped with 2 to 5 feet of native clay. Metals and explosives were detected in the groundwater.

This site is included in the Ammunition Storage Area Operable Unit.

A draft ROD was completed in spring 2002 and calls for monitored natural attenuation and land use controls.

STATUS

RRSE RATING:

Medium Risk

CONTAMINANTS OF CONCERN:

TNT, RDX, Metals

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

RD, RA (funded in FY03)

FUTURE IRP PHASE:

RIP with LTM

PROPOSED PLAN

Finalize the ROD (expected in FY04). Additional groundwater samples will be collected; additional wells may be needed (funded in FY04) to monitor natural attenuation. Land use controls are expected to be the final remedy.

FACILITY 414 (OLD LAGOONS)

SITE DESCRIPTION

The Facility 414 Old Lagoons consist of a series of three unlined industrial waste lagoons. These lagoons were used from approximately 1960 until 1978 for the storage of abrasive dust waste and a variety of concentrated liquid chemical wastes generated in the shop area. In August 1978, the lagoons were emptied by pumping the liquid wastes to the A-Block Lagoon (ANAD-22). Approximately 1,100 to 1,300 cy of sludge were removed from the lagoons and stockpiled on-site. The lagoons were then backfilled with clay. The waste sludge was removed for off-depot disposal along with the waste from the Z-1 Trenches Area (ANAD-01) as the result of a 1979 RCRA Corrective/ Removal Action. A pump and treat system began operations in 1990 to treat source areas.

A removal action (Fenton's reagent) for TCE-contaminated soil and groundwater is complete. The objective of the removal actions was to treat or reduce chemical concentrations believed to be contributing to exceedance of the health-based concentrations limits in groundwater. The metals-contaminated soil at the site is considered an ecological risk, and some lead-contaminated soil poses a risk to the industrial worker. Groundwater samples taken in 2002 detected solvents at levels that indicated a high probability of NAPL.

A draft ROD for soil was completed in fall 2000.

Groundwater contamination associated with this site and all groundwater actions will be addressed under ANAD-01.

PROPOSED PLAN

Finalize ROD for soils that calls for excavation and disposal of approximately 320cy of soil, and a cover 81,000ft² will be constructed to remove the soil ecological risk. The soil removal design is expected to be completed in FY04. The soil removal is expected to be completed in FY05. Land use controls will be implemented as part of the final remedy.

It is anticipated that the ROD for the Combined Groundwater OU will call for further enhancement of the groundwater treatment systems and will include consideration of a Technical Impracticability Waiver.

STATUS

RRSE RATING:

High Risk

CONTAMINANTS OF CONCERN:

TCE, Lead, Cadmium, Zinc

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI, 4 IRAs, RI/FS

CURRENT IRP PHASE:

RD (funded in FY04)

FUTURE IRP PHASE:

RA, LTM

ACID CHEMICAL WASTE PIT

SITE DESCRIPTION

The SIA Acid Chemical Waste Pit is located in a “sandy cut in a hillside” near the SIA Old STP. The pit was reportedly used for the disposal of “tank-truck quantities” of unspecified chemical wastes of unknown origin from either the late 1940s to the late 1960s or from 1957 to 1972.

This site is included in the Soils Operable Unit.

The 1998 Phase II RI shows that soil contamination at this site poses an unacceptable risk to industrial workers. This site is not considered to pose an ecological risk. There is no completed pathway to groundwater.

PROPOSED PLAN

The Soils ROD is anticipated to require capping (2,168ft²) of this site. The soil removal design is expected to be completed in FY04. The soil removal is expected to be completed in FY05. Land use controls will be implemented as part of the final remedy.

Monitor and repair the cover as needed.

STATUS

RRSE RATING:

High Risk

CONTAMINANTS OF CONCERN:

Antimony, Lead

MEDIA OF CONCERN:

Soil

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

RD (funded in FY04)

FUTURE IRP PHASE:

RA, LTM

LAUNDRY WASTE LEACHING FACILITY

SITE DESCRIPTION

This facility, located east of ANAD-10, was used from 1948 to 1973 to wash clothing of workers who handled explosives. The facility consisted of a laundry building, an above ground settling basin, and a below grade settling pond. The washwater (which contained soap, lye, and associated explosives) flowed to the above-grade settling basin where heavy solids were removed, and then flowed to the settling pond. Water from the settling pond discharged to a nearby stream. No risk is posed for human health or ecological receptors.

This site is included in the Ammunition Storage Area Operable Unit.

A draft ROD was completed in spring 2002 and calls for no further action.

PROPOSED PLAN

Finalize the ROD (expected in FY04), and abandon 1 well.

STATUS

RRSE RATING:

Low Risk

CONTAMINANTS OF CONCERN:

None

MEDIA OF CONCERN:

None

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

RIP with LTM

FUTURE IRP PHASE:

RC

PROPELLANT DISPOSAL FACILITY

SITE DESCRIPTION

This facility, located in the northwest portion of the ASA, consists of a one acre open field that was used for burning propellants from Lance missiles. The unit was in service from approximately 1968 to 1978 and is currently inactive and overgrown with brush. Two small burning pits are located within the area. The burning pits and troughs that fed the pits were divided into two units: one used to dispose of unsymmetrical dimethylhydrazine (UDMH) and the other used to dispose of inhibited red fuming nitric acid (IRFNA). Both diesel fuel and natural gas were used to ignite the propellants. Based on the ASA RI, completed in Aug 2001, no risk is posed for human health or ecological receptors.

This site included in the Ammunition Storage Area Operable Unit.

A draft ROD was completed in spring 2002 and calls for no further action.

STATUS

RRSE RATING:

Medium Risk

CONTAMINANTS OF CONCERN:

None

MEDIA OF CONCERN:

None

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

RIP with LTM

FUTURE IRP PHASE:

RC

PROPOSED PLAN

Finalize the ROD (expected in FY04), and abandon 2 wells.

BURNING GROUND (NW SIDE OF DEPOT)**SITE DESCRIPTION**

The burning ground, located in the northwest portion of the ASA, is an open burning area that has been in operation for over forty years. The area used for burning covers approximately 6 acres and contains multiple burning beds where wastes (up to 2,000 pounds per bed of ignitable materials including scrap explosives, explosive-contaminated material and demilitarized ammunition) are spread and ignited. Salvageable materials are removed to the salvage yard and the ash is handled as a hazardous waste. In the past, explosives and explosive-contaminated materials were ignited with fuel oil. Currently, the wastes are ignited with electrical ignition.

This site is included in the Ammunition Storage Area Operable Unit.

This is an active RCRA site. When the decision is made to close this site, the closure will be conducted as required by the RCRA Corrective Action Plan.

STATUS**RRSE RATING:**

NE

CONTAMINANTS OF CONCERN:

TNT, RDX

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI

CURRENT IRP PHASE:

RC - 1994

DEMOLITION PIT (NORTHWEST SIDE OF DEPOT)**SITE DESCRIPTION**

The demolition pit is an open detonation area located in a valley in the northwestern section of the ASA. The pit is used for destruction of high explosive items including cartridges and projectiles of various calibers, bombs, rockets warheads and mines. The pit area covers approximately 5 acres and contains 22 detonation sites. Items are detonated anywhere from ground level to a depth of 14 feet depending on amount of explosive and location at the demolition pit. The area is currently active.

This site is included in the Ammunition Storage Area Operable Unit.

This is an active RCRA site. When the decision is made to close this site, the closure will be conducted as required by the RCRA Corrective Action Plan.

STATUS**RRSE RATING:**

NE

CONTAMINANTS OF CONCERN:

Explosives, Propellants

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI

CURRENT IRP PHASE:

RC - 1994

OLD SEWAGE TREATMENT PLANT (WEST AREA)

SITE DESCRIPTION

The old STP, located in the south-central portion of the depot, was used from 1942 to 1982 to treat domestic sewage wastes from the west area of the depot. The plant is now inactive. The area was subsequently used as a fire fighter training area, but those activities have also ceased. A Phase II RI/FS showed no risk and no need for action.

This site is included in the Ammunition Storage Area Operable Unit.

A draft ROD was completed in spring 2002 and calls for no further action.

Finalize ROD (expected in FY04).

STATUS

RRSE RATING:

Low Risk

CONTAMINANTS OF CONCERN:

POL

MEDIA OF CONCERN:

Soil, Groundwater, Surface water,
Sediment

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

RC - 2002

SIA OLD & NEW SEWAGE TREATMENT PLANT

SITE DESCRIPTION

The SIA Old STP is located approximately 600 feet southeast of the vehicle test track. It was in use at the depot from 1942 until 1982 when the SIA New STP became operational. The new plant was constructed at the same location as the SIA Old STP and incorporated some of the older facilities. Approximately 435,000 gallons per day (gpd) of domestic sewage wastes and pre-treated industrial wastewater from the phenol and steam-cleaning wastewater treatment systems were processed at the plant.

The Phase II RI, completed in 1998, shows that there are no compounds reaching groundwater at concentrations exceeding MCLs or risk-based concentrations. Surface soil is not considered a human health or ecological risk.

No further action (industrial use) is recommended in the draft ROD. ROD approval is expected in 2004.

STATUS

RRSE RATING:

Medium Risk

CONTAMINANTS OF CONCERN:

Metals

MEDIA OF CONCERN:

Soil

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

RC - 2001

ABRASIVE DUST LANDFILL

SITE DESCRIPTION

The Abrasive Dust Landfill is a small open area that was used for the disposal of abrasive dust waste from sandblasting operations from approximately 1977 to 1981. The abrasive dust wastes dumped in this area consisted of sand, steel shot, glass, walnut hulls, paint flakes, and metallic chips. The open dumping of abrasive dust waste in this area was discontinued in 1981.

The Phase II RI shows that there is a risk under the construction land use scenario for subsurface soils.

No further action (industrial use) is recommended in the draft ROD. ROD approval is expected in 2004.

STATUS

RRSE RATING:

Medium Risk

CONTAMINANTS OF CONCERN:

Metals

MEDIA OF CONCERN:

Groundwater, Soil

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

RC - 2001

A-BLOCK LAGOON (FACILITY 514)

SITE DESCRIPTION

The A-Block lagoon was a lined surface impoundment, approximately 1 acre in size. It was located approximately 600 feet southwest of the vehicle test track just inside the ASA in the southeastern part of the depot. The lagoon was constructed in the summer of 1978 to be used for the temporary storage of liquid wastes pumped from the old lagoons (Facility 414 Old Lagoons, ANAD-12), as well as for various other chemical wastes until the upgraded IWTP was completed in 1981. As a result of a 1979 RCRA Corrective/Removal Action, a remediation contractor removed and disposed of the lagoon wastes. During closure, the lagoon was emptied, the membrane liner and contaminated soils were removed, and the area backfilled and re-graded. A pump and treat system began operations in 1990 to treat source areas for VOCs.

This site is included in the Southeast Industrial Area Onpost Groundwater OU.

The Phase II RI shows the subsurface soil provides a relatively small contribution to organic contamination in the groundwater. It is anticipated that the groundwater contamination is from activities prior to the removal of the industrial wastes, or from ANAD-12, which is located in the Landfill Area Sub-Basin.

Groundwater monitoring in this area is completed under a Combined Groundwater Monitoring program.

STATUS

RRSE RATING:

High Risk

CONTAMINANTS OF CONCERN:

VOCs, SVOCs, Metals

MEDIA OF CONCERN:

Groundwater

COMPLETED IRP PHASE:

PA/SI, IRA, RI/FS

CURRENT IRP PHASE:

RC - 2001

ASBESTOS WASTE DISPOSAL TRENCH

SITE DESCRIPTION

The Asbestos Waste Disposal Trench was used during 1980 to 1981 for the disposal of insulation containing asbestos. It was a shallow trench located within the Abrasive Dust Landfill (ANAD-21). The wastes were wrapped in double plastic bags prior to disposal in the trench. After use of the trench was discontinued, the trench was backfilled with area soils.

The Phase II RI shows that there is a risk under the construction land use scenario for subsurface soils.

No further action (industrial use) is recommended in the ROD. ROD approval is expected in 2004.

STATUS

RRSE RATING:

Medium Risk

CONTAMINANTS OF CONCERN:

Metals, Asbestos

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

RC - 2001

OLD SANITARY LANDFILL

SITE DESCRIPTION

The Old Sanitary Landfill is reportedly located immediately adjacent to the southwestern corner of the vehicle test track in the southeastern corner of ANAD. The landfill was operated from 1942 until 1970 when a new landfill was constructed. The Old Landfill area has since been covered over with clean fill.

This site is included in the Southeast Industrial Area Onpost Groundwater and Soil Operable Units.

No further action (industrial use) is recommended in draft ROD. ROD approval is expected in 2004.

STATUS

RRSE RATING:

High Risk

CONTAMINANTS OF CONCERN:

Metals, SVOCs, VOCs

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

RC - 2001

BUILDING 130 SUMP

SITE DESCRIPTION

The Building 130 sump was an 8,000 gallon concrete underground sump used for the temporary storage of various chemical wastes generated from Building 130 operations. All wastes from Building 130 (mainly paint stripping sludges and degreasing sludges) were drained into the sump prior to discharge or disposal. The reported dates of operation of this unit are from 1943 until 1975. As a result of the 1979 RCRA Corrective/Removal Action, the sump was emptied, with the removed wastes being transported to an off-depot hazardous waste disposal facility.

The Phase II RI, completed in 1998, shows that the 1983 removal action was successful in removing soil as a groundwater contaminant source. VOC contamination reached groundwater before the 1983 removal. Based on the dissolved contaminant concentrations, free product is present in the groundwater at this site.

The RI/FS was completed to determine impact of onsite groundwater contamination to offsite human and ecological receptors. These studies showed that chlorinated solvents have migrated offpost and impacted the municipal drinking water source (Coldwater Spring) for the Anniston/Calhoun County system (~60,000 people).

It is anticipated that the ROD for the Combined Groundwater OU will call for further enhancement of the groundwater treatment systems and will include consideration of a Technical Impracticability Waiver.

This site is included in the Groundwater Operable Unit. Groundwater contamination associated with this site and all groundwater actions will be addressed under ANAD-01.

STATUS

RRSE RATING:

High Risk

CONTAMINANTS OF CONCERN:

VOCs, SVOCs, Metals

MEDIA OF CONCERN:

Groundwater

COMPLETED IRP PHASE:

PA/SI, IRA, RI/FS

CURRENT IRP PHASE:

RC - 2003

NORTH AND SOUTH TNT BURIAL PIT

SITE DESCRIPTION

Wastes containing TNT may have been buried in two small burial pits located in the north-central section of the depot near the installation boundary. The pit areas are well vegetated and show no evidence that a site even existed except for a few posted signs indicating a “closed landfill.”

Low levels of metals were detected in soil in ANAD-26. Metals above risk based screening levels were detected in the groundwater at ANAD-27.

This site is included in the Ammunition Storage Area Operable Unit.

A draft ROD was completed in spring 2002 and calls for institutional controls at ANAD-26 and monitored natural attenuation at ANAD-27.

STATUS

RRSE RATING:

Low Risk

CONTAMINANTS OF CONCERN:

TNT

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

LTM

FUTURE IRP PHASE:

ANAD-26=RC, ANAD-27=LTM

PROPOSED PLAN

Finalize the ROD (expected in FY04). Additional groundwater samples will be collected; additional wells may be needed (funded in FY04) downgradient to monitor natural attenuation. Land use controls are expected to be the final remedy at ANAD-27.

ANAD-26- abandon 3 wells.

WASTE WOOD LANDFILL

SITE DESCRIPTION

The Waste Wood Landfill, located adjacent to Building 512 Annex, was used for the disposal of various waste woods, including railroad ties, telephone poles, and wooden pallets. According to the Phase II RI, the landfill is reported to be approximately 15 feet thick and was built up by filling in a low-lying area. The landfill has been covered and graded with 2-3 feet of clean fill.

No further action (industrial use) is recommended in the draft soils ROD. ROD approval is expected in 2004.

STATUS

RRSE RATING:

High Risk

CONTAMINANTS OF CONCERN:

Metals, PCP

MEDIA OF CONCERN:

Groundwater, Soil

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

RC - 2001

OLD LUMBER DISPOSAL YARD (NEAR BLDG 573)

SITE DESCRIPTION

The Old Lumber Disposal Yard was located immediately south of the Eulaton gate of the SIA just north of what is now Building 513. It was used for both the disposal of wood by burning with waste oil and as a stockpile of wood available for the public. The area covered less than 1 acre and was in use from the mid-1940s through the mid-1970s. In 1997, the site was excavated (non-IRP) in order to construct a warehouse. Waste wood removed in the excavation was disposed of off-site. Most of the area is now covered with concrete and a metal structure.

This site is included in the Southeast Industrial Area Onpost Groundwater and Soils Operable Units and the Groundwater Operable Unit.

The Phase II RI, completed in 1998, states that there is a human health risk associated with lead in the remaining soils at the site and that the subsurface soil is not presently contributing to groundwater contamination.

VOC above MCLs contamination reached groundwater in the past and has persisted. Groundwater samples taken in 2002 detected solvents at levels that indicated a high probability of NAPL.

STATUS

RRSE RATING:

High Risk

CONTAMINANTS OF CONCERN:

VOCs, SVOCs, PCP, Lead

MEDIA OF CONCERN:

Soil

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

RD (funded in FY04)

FUTURE IRP PHASE:

RA, LTM

PROPOSED PLAN

Approximately 125cy of lead-contaminated soil will be excavated and disposed of as hazardous waste. The soil removal design is expected to be completed in FY04. The soil removal is expected to be completed in FY05. Land use controls will be implemented as part of the final remedy.

Groundwater contamination associated with this site and all groundwater actions will be addressed under ANAD-01.

It is anticipated that the ROD for the Combined Groundwater OU will call for further enhancement of the groundwater treatment systems and will include consideration of a Technical Impracticability Waiver.

NORTHEAST LAGOON AREA

SITE DESCRIPTION

The Northeast Lagoon Area was a site where various surface impoundments and liquid disposal pits were used for waste disposal until the early 1960s. It is an approximate 1-acre area located adjacent to Building 513 in the northeastern section of the SIA. It is believed that the Northeast Lagoon Area was used as a primary disposal area for chlorinated solvents from the early 1950s to the early 1960s. The area has since been filled in and is now used as a gravel parking lot. A pump and treat system began operations in 1990.

This site is included in the Southeast Industrial Area Onpost Groundwater and Soils Operable Units and the Groundwater Operable Unit.

The Phase II RI states that there are human health risks associated with lead in the soils and that the subsurface soil is not presently contributing to groundwater contamination. VOC contamination reached groundwater in the past and has persisted. Groundwater samples taken in 2002 detected solvents at levels that indicated a high probability of NAPL.

STATUS**RRSE RATING:**

High Risk

CONTAMINANTS OF CONCERN:

VOCs, SVOC, Lead

MEDIA OF CONCERN:

Soil

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

RD (funded in FY04)

FUTURE IRP PHASE:

RA, LTM

PROPOSED PLAN

Approximately 125cy of lead-contaminated soil will be excavated and disposed of as hazardous waste. The soil removal design is expected to be completed in FY04. The soil removal is expected to be completed in FY05. Land use controls will be implemented as part of the final remedy.

Groundwater contamination associated with this site and all groundwater actions will be addressed under ANAD-01.

It is anticipated that the ROD for the Combined Groundwater OU will call for further enhancement of the groundwater treatment systems and will include consideration of a Technical Impracticability Waiver.

METAL PLATING SHOP BUILDING 114

SITE DESCRIPTION

Operations in Building 114 include cleaning, treating, and plating of metal. A French drain system surrounds the building and drains into an adjacent collection sump. The water (350,000gal/day) is collected and pumped to a treatment site. As a result of past activities, extensive chromium and volatile organic chemical (VOC) contamination in soil and groundwater has occurred in the vicinity of Building 114. Consequently, it is necessary to treat the sump water using an air stripping system (VOC removal). The air stripper was installed in 1990.

This site is included in the Southeast Industrial Area Onpost Groundwater and the Groundwater Operable Unit.

The surface soil is not a human health or ecological risk because the site is covered with pavement. The subsurface soil is not a significant source of groundwater contamination.

STATUS**RRSE RATING:**

Medium Risk

CONTAMINANTS OF CONCERN:

Metals (chromium), VOCs

MEDIA OF CONCERN:

Groundwater

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

IRA

FUTURE IRP PHASE:

IRA, LTM

PROPOSED PLAN

The draft 2nd IROD for on-post groundwater requires enhanced groundwater treatment and monitoring for the Northeast Area Sub-Basin. It is anticipated that the ROD for the Combined Groundwater OU will call for further enhancement of the groundwater treatment systems and will include consideration of a Technical Impracticability Waiver.

Continue to operate the groundwater sump to collect water.

HAZARDOUS WASTE STORAGE BLD 512

SITE DESCRIPTION

Both the new and old Hazardous Waste Storage Buildings (Buildings 512 and 466, respectively) are located in the northern portion of the SIA. These buildings are steel frame and panel buildings with a concrete floor, and are used for storage of drums containing hazardous wastes.

No evidence of contamination was found during the PA/SI, therefore no further response is planned.

This is a operating RCRA unit and will be addressed in the RCRA Corrective Action Plan.

STATUS**RRSE RATING:**

NE

CONTAMINANTS OF CONCERN:

Misc. Hazardous Waste

MEDIA OF CONCERN:

Soil

COMPLETED IRP PHASE:

PA/SI, RI

CURRENT IRP PHASE:

RC - 1997

CHEMICAL STORAGE IGLOOS (TOTAL 41)

SITE DESCRIPTION

There are 41 earth-covered, reinforced concrete, storage igloos within the ASA which are used for the storage of chemical munitions (M55 rockets) which have been designated as hazardous wastes.

This site is included in the Ammunition Storage Area Operable Unit.

No evidence of contamination was found during the PA/SI, therefore, no further response is planned.

This is an active RCRA site. When the decision is made to close this site, the closure will be conducted as required by the RCRA Corrective Action Plan.

STATUS**RRSE RATING:**

NE

CONTAMINANTS OF CONCERN:

Chemical Agents

MEDIA OF CONCERN:

Soil

COMPLETED IRP PHASE:

PA/SI

CURRENT IRP PHASE:

RC - 1994

DEACTIVATION FURNACE

SITE DESCRIPTION

The deactivation furnace was located in the northwest corner of the ASA. The furnace was used to deactivate small munitions. Particulate emissions from the furnace were collected in a baghouse where the dust was drummed and stored as a hazardous waste. A leaking, 1,000-gallon underground diesel fuel tank located beside the furnace building was removed and the surrounding contaminated soils remediated. An air emission permit application was submitted to ADEM and then withdrawn. The site was never granted a RCRA permit or operated as a RCRA unit.

The equipment was removed in 1999 and the building received RCRA closure and was removed in 2000. The groundwater, surface and subsurface soils are being investigated as a CERLCA site. Lead in the surface soil poses a human health risk for the industrial worker. Metals above risk-based screening levels were detected in the groundwater.

This site is included in the Ammunition Storage Area Operable Unit.

A draft ROD was completed in spring 2002 and calls for excavation of contaminated soils and monitored natural attenuation.

PROPOSED PLAN

Finalize the ROD (expected in FY04), excavate ~50cy of soil (funded in FY04) and monitor to confirm that contaminated groundwater is not migrating.

STATUS**RRSE RATING:**

Medium Risk

CONTAMINANTS OF CONCERN:

Metals

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

RD, RA (funded in FY04)

FUTURE IRP PHASE:

RA(O)

ANAD-36 DRILL AND TRANSFER SYSTEM SITE (TXC DEMIL SITE)

SITE DESCRIPTION

The Drill and Transfer System Site is centrally located along the northern boundary of the depot. The site contained a glove-box that was used to transfer chemical agent from leaking munitions into one ton containers for secure storage. The transfer was completed in the glove box under negative pressure. Exhaust air was charcoal filtered and monitored.

This site is included in the Ammunition Storage Area Operable Unit.

No evidence of contamination was found during the PA/SI, therefore no further response is planned.

STATUS

RRSE RATING:

NE

CONTAMINANTS OF CONCERN:

Chemical agents

MEDIA OF CONCERN:

Soil

COMPLETED IRP PHASE:

PA/SI

CURRENT IRP PHASE:

RC - 1994

ANAD-37 VEHICLE WASH RACK (BLDG 45)

SITE DESCRIPTION

The vehicle wash rack is located in the south-central portion of the depot. The wash rack consists of two bays, one for general washing of depot vehicles and the other for steam cleaning operations. Wastewaters are collected through floor drains, pumped through an oil/water separator and routed to the industrial wastewater treatment plant.

This site is included in the Ammunition Storage Area Operable Unit.

A draft ROD was completed in spring 2002 that calls for no further action.

Finalize ROD (expected in FY04).

STATUS

RRSE RATING:

Medium Risk

CONTAMINANTS OF CONCERN:

POL

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI, RI

CURRENT IRP PHASE:

RC - 2002

ABRASIVE DUST COLLECTORS

SITE DESCRIPTION

Buildings 105, 106, 114, 117, 129, 130, 147, 409, 413, 433, and 434. Approximately 50 Abrasive Dust Collectors (baghouses) are operating in various buildings located throughout the SIA. The baghouses are used to collect particulate emissions from various industrial operations. Dusts collected are stored in drums or roll-off containers. The collected dusts are transported from the individual, building, storage areas to a central transfer/storage area, from which they are ultimately transported to an off-depot disposal facility.

The RI states that the surface soil at this site is not a human health or ecological risk. There is no significant groundwater or subsurface contamination.

No further action is recommended in the ROD. ROD approval is expected in 2004.

STATUS

RRSE RATING:

Medium Risk

CONTAMINANTS OF CONCERN:

Lead

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI, RI

CURRENT IRP PHASE:

RC - 2001

ANAD-39 DYNAMOMETER WASTEWATER TREATMENT SYSTEM (BLDG 410)

SITE DESCRIPTION

The Dynamometer Wastewater Treatment System (Building 410) is used for treatment of any wastewaters generated during the testing of new engines for various military vehicles (primarily tanks). Wastewaters are pumped through an oil-water separator where waste oil is collected and drummed for removal and disposal. The wastewaters are then routed to the IWTP.

No further action is recommended in the ROD. ROD approval is expected in 2004.

STATUS

RRSE RATING:

Low Risk

CONTAMINANTS OF CONCERN:

POL

MEDIA OF CONCERN:

Soil

COMPLETED IRP PHASE:

PA/SI, RI

CURRENT IRP PHASE:

RC - 2001

OIL WATER SEPARATOR (BLDG 501)

SITE DESCRIPTION

The Oil Water Separator located in Building 501 is a below-ground, concrete tank used to treat wastewaters generated by steam cleaning operations in Building 503. Waste oils are separated from steam cleaning wastewater and pumped into drums for temporary storage prior to final disposal. Separated wastewaters are routed to the IWTP for further treatment.

This site is included in the Southeast Industrial Area Onpost Groundwater and Soil Operable Units.

No further action is recommended in the ROD. ROD approval is expected in 2004.

STATUS**RRSE RATING:**

Medium Risk

CONTAMINANTS OF CONCERN:

Sodium, POL

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI, RI

CURRENT IRP PHASE:

RC - 2001

ANAD-41 STEAM
CLEANING BUILDINGS (BLDG 129, 130, 409, 421, 503)**SITE DESCRIPTION**

Steam cleaning operations are found in Buildings 129, 130, 409, 421, and 503. Wastewaters, from these operations, are collected in floor drains that empty into solids screening devices (except Building 421 and 409 that have settling basins). The wastewaters are pumped to the IWTP for further treatment.

This site is included in the Southeast Industrial Area Onpost Groundwater and Soil Operable Units.

No further action (industrial use) is recommended in ROD. ROD approval is expected in 2004.

STATUS**RRSE RATING:**

Medium Risk

CONTAMINANTS OF CONCERN:

Metals, VOCs, SVOCs

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI, RI

CURRENT IRP PHASE:

RC - 2001

PAINT BOOTHS (BLDG 129, 130, 143, 409, 433)**SITE DESCRIPTION**

Paint Booths located in Buildings 129, 130, 143, 409 and 433 are used for spray painting on various mechanical parts. Some of the paint booths utilize water curtains to collect overspray while other booths utilize a dry filter system. Waste spray paint sludge from the curtains is drummed and disposed of as a hazardous waste, while the remaining liquid is further treated at the IWTP. The dry filters are disposed of as either hazardous or non-hazardous waste, depending on the paint. Various solvents are used to clean the spray painting and waste handling equipment.

No further action (industrial use) is recommended in the ROD. ROD approval is expected in 2004.

STATUS**RRSE RATING:**

Low Risk

CONTAMINANTS OF CONCERN:

Solvents

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI, RI

CURRENT IRP PHASE:

RC - 2001

CYANIDE PRETREATMENT SYSTEM (BLDG 506)**SITE DESCRIPTION**

The Cyanide Pretreatment System, built in 1974, is used to treat cyanide containing wastes generated in Building 114. Treated wastewaters are discharged to the IWTP.

This site is included in the Southeast Industrial Area Onpost Groundwater and Soil Operable Units.

The RI states that the surface soil is not a human health or ecological risks. The subsurface soil is not a significant source of groundwater contamination. Groundwater contamination is anticipated from sources other than this site, or from past operations.

No further action (industrial use) is recommended in ROD. ROD approval is expected in 2004.

STATUS**RRSE RATING:**

Medium Risk

CONTAMINANTS OF CONCERN:

Metals, VOCs, SVOCs

MEDIA OF CONCERN:

Groundwater

COMPLETED IRP PHASE:

PA/SI, RI

CURRENT IRP PHASE:

RC - 2001

ANAD-44 DRY CREEK

SITE DESCRIPTION

Dry Creek is the principal conduit for surface water drainage from the SIA. The creek originally flowed through what is now the industrial section of the SIA but was diverted in 1941 to its present course along the eastern boundary of the SIA. The creek then flows south-southeast past a series of off-depot commercial catfish ponds and into Choccolocco Creek. Groundwater from beneath the SIA is believed to recharge portions of the creek, but based on limited sampling does not appear to represent a pathway for contamination transport, however, monitoring of surface water will confirm.

The sediment does not pose a human health or ecological risk.

Non-IRP funds will be used to stabilize the stream bank.

STATUS

RRSE RATING:

High Risk

CONTAMINANTS OF CONCERN:

PAHs, Metals, SVOCs

MEDIA OF CONCERN:

Surface Water, Sediment

COMPLETED IRP PHASE:

PA/SI, RI/FS, RD, RA

CURRENT IRP PHASE:

RIP with LTM

FUTURE IRP PHASE:

RIP with LTM

PROPOSED PLAN

No further action is proposed based on the 1998 RI and associated Risk Assessment.

LEAKING USTs AT BUILDING 410

SITE DESCRIPTION

Use of the USTs at Building 410 was discontinued in the 1980s due to a leak. The tanks were removed in 1993. A secondary investigation was completed in 1994. The site is currently covered with concrete. Free product was detected in 3 wells.

Free product recovery was conducted from 1995 to 2003.

STATUS

RRSE RATING:

High Risk

CONTAMINANTS OF CONCERN:

POL

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI, RI/FS, RA

CURRENT IRP PHASE:

RIP with RA(O)

FUTURE IRP PHASE:

RIP with RA(O)

PROPOSED PLAN

When the free product is removed (2003) and the Alabama Risk Based Corrective Action Assessment is complete (expected in FY04), no further action is expected for the residual soil contamination under the concrete.

Based on elevated levels of VOCs the groundwater monitoring will continue.

LEAKING USTs AT BUILDING 6

SITE DESCRIPTION

Use of the multiple USTs at Building 6 was discontinued in the 1980s. The tanks were removed and a secondary investigation was completed in 1994.

A Corrective Action Plan (CAP) was submitted (1995) to ADEM. A draft Alabama Risk Based Corrective Action Assessment was submitted in 2002. A second phase of sampling was completed in 2003 and resubmitted to ADEM. Approval from ADEM is pending.

Note: Three 'new' USTs were installed at this site to be used as a service station.

STATUS

RRSE RATING:

High Risk

CONTAMINANTS OF CONCERN:

POL

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI, RI/FS, RA

CURRENT IRP PHASE:

RIP with RA(O)

FUTURE IRP PHASE:

RIP with RA(O)

PROPOSED PLAN

Complete the Alabama Risk Based Corrective Action process to establish site-specific cleanup levels. Monitored natural attenuation for soils and groundwater is being evaluated.

LEAKING UST AT BUILDING 385

SITE DESCRIPTION

An abandoned UST was removed and closed at building 385 in FY94. Alabama Department of Environmental Management required a secondary Investigation that was completed in FY96. The SI recommended no further action.

This site is included in the Ammunition Storage Area Operable Unit.

No further action is needed.

STATUS**RRSE RATING:**

NE

CONTAMINANTS OF CONCERN:

POL

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI

CURRENT IRP PHASE:

RC - 1996

MUNITION RULE SITES AT ANNISTON ARMY DEPOT

ANAD-001-R-01	RECOILLESS RIFLE RANGE
ANAD-002-R-01	PISTOL RANGE

Schedule

PAST MILESTONES

<u>IRP Phase</u>	<u>Completion Date</u>
IRP Installation Assessment	Apr 78
RCRA Subtitle C Corrective Action	Jan 84
Building 114 Groundwater Extraction and Treatment System Installation	Jun 86
RCRA Facility Assessment (RFA)	Feb 87
RI/FS (Non-NPL)	Jan 89
Groundwater Extraction System Installation	Apr 89
SIA NPL Listing	Mar 89
Federal Facility Agreement (FFA) Signed	Jun 90
GW Operable Unit Interim ROD signed	Sep 91
Building 114 Chromium Treatment Installation	May 92
SIA Groundwater Extraction Optimization Study	Jul 92
ASA Expanded Site Inspection (ESI)	Sep 92
Old IWTP Source Removal	Jan 93
Dye Tracing Study	Nov 93
Facility 414 Removal Action	Dec 93
SIA Phase 1 RI	Jan 95
Phase 2 RI/FS	Jul 99
Proposed Plan for On Post Groundwater OU	Sep 99
Proposed Plan for On Post Soil OU	Jul 00
Proposed Plan for Ammunition Storage Area	Mar 02

PROJECTED MILESTONES

Projected Completion Date of IRP Excluding Long-Term Monitoring and Operations and Maintenance: 2008

Projected Date for Petitioning the EPA for Removal From NPL: June 2032

NO FURTHER ACTION SITES (RC/ NO FUNDING)

ANAD-03/04	Old And New Industrial Wastewater Treatment	200206
ANAD-06	Valve Disposal Pit	200109
ANAD-16	Burning ground	199410
ANAD-17	Demolition Pit	199410
ANAD-18	Old Sewage Treatment Plant	200206
ANAD-19/20	SIA Old & New Sewage Treatment Plant	200109
ANAD-21	Abrasive Dust Landfill	200109
ANAD-22	A-Block Lagoon	200109
ANAD-23	Asbestos Waste Disposal Trench	200109
ANAD-24	Old Sanitary Landfill	200109
ANAD-25	Building 130 Sump	200308
ANAD-28	Waste Wood Landfill	200109
ANAD-32/33	Hazardous Waste Storage Building 512	199709
ANAD-34	Chemical Storage Igloos	199410
ANAD-36	Drill and Transfer System Site	199410
ANAD-37	Vehicle Washrack	200206
ANAD-38	Abrasive Dust Collectors	200109
ANAD-39	Dynamometer Wastewater Treatment System	200109
ANAD-40	Oil Water Separator	200109
ANAD-41	Steam Cleaning Buildings	200109
ANAD-42	Paint Booths	200109
ANAD-43	Cyanide Pretreatment System	200109
ANAD-47	Building 385 UST	199603

ANNISTON ARMY DEPOT IRP SCHEDULE

(Based on current funding constraints)

#	TITLE	PHASE	FY05	FY06	FY07	FY08	FY09	FY10+
ANAD-01	Site Z-1 Trenches Area	RI/FS						
		IRA						
		RD						
		RA						
		RA(O)						
ANAD-02	Site Z-2 Sanitary Landfill	LTM						
ANAD-05	Sinkhole	RA(O)						
ANAD-07	Chemical Waste Disposal Pit	LTM						
ANAD-08	Acid Disposal Pit	LTM						
ANAD-09	Calcium Hypochlorite Burial Pit	RA						
		LTM						
ANAD-10	TNT Washout Facility Sedimentation Tank	RD						
ANAD-11	TNT Leaching Beds	LTM						
ANAD-12	Facility 414 (Old Lagoons)	RA						
		LTM						
ANAD-13	Acid Chemical Waste Pit	RA						
		LTM						
ANAD-14	Laundry Waste Leaching Facility	LTM						
ANAD-15	Propellant Disposal Facility	LTM						
ANAD-26	North TNT Burial Pit	LTM						
ANAD-27	South TNT Burial Pit	LTM						
ANAD-29	Old Lumber Disposal Yard, (Near Bldg 573)	RA						
		LTM						
ANAD-30	Northeast Lagoon Area	RA						
		LTM						
ANAD-31	Metal Plating Shop (Building 114)	IRA						
		LTM						
ANAD-35	Deactivation Furnace	RA(O)						
ANAD-44	Dry Creek	LTM						
ANAD-45	Leaking UST at Bldg 410	RA(O)						
ANAD-46	Leaking UST at Bldg 6	RA(O)						

REM/IRA/RA Assessment

Past REM/IRA/RA

- ANAD-01 Soil removal FY82
- ANAD-01/12/22/25 RCRA Subtitle C Corrective Action (soil removal) completed FY83
- ANAD-01/12/22/25/30/31 Groundwater Interim Action ROD completed FY90
- ANAD-01/12/22/25/30/31 Groundwater Interim Action ROD Renovation/Upgrade of Extraction and Treatment Systems, FY95
- ANAD-02 Capping FY92
- ANAD-03 Source Removal, completed FY93
- ANAD-12 Soil Removal Action FY94; In-situ soil treatment FY96; Chemical Oxidation FY99
- ANAD-29 Removal FY97
- ANAD-31 GW Chromium Treatment, completed FY92
- ANAD-45 In-situ groundwater treatment, free product recovery, natural attenuation setup FY96
- ANAD-46 Free product recovery, natural attenuation setup FY97

Current REM/IRA/RA

- ANAD-01/12/25/29/30 RCRA Subtitle C Corrective Action, Long-Term Monitoring
- ANAD-01/12/25/29/30, Groundwater Interim Action ROD, Operation & Maintenance
- ANAD 8,10,11,35 Natural Attenuation
- ANAD-31 Air Stripper O&M
- ANAD-35 Soil Removal/ Disposal

Future REM/IRA/RA

IRA at ANAD-01, 31

RA at ANAD-01, 09, 12, 13, 29, 30

Community Involvement

The Technical Review Committee was converted into a Restoration Advisory Board (RAB) in May 1998. The RAB is made up of local officials, members of environmental groups and members of the local community. The RAB meets quarterly and discusses ongoing work in the Installation Restoration Program. The RAB has also played an active role in public meetings for the On-Post Groundwater OU Proposed Plan and the Combined Groundwater RI, including the private well and spring inventory.

The RAB has been informed about the availability of the Technical Assistance for Public Participation (TAPP) program. The RAB is considering taking advantage of TAPP.