INSTALLATION ACTION PLAN
for
VOLUNTEER ARMY AMUNITION PLANT

Fiscal Yeal 2001

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Fiscal Year 2001

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PURPOSE

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year restoration program for the expeditious transfer of all property in an environmentaly sound condition with appropriate land use controls and in accordance with the future reuse. 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 Operable Unit (OU) at the installation and other areas of concern.

In an effort to coordinate planning information between the IRP manager, major army commands (MACOMs), installations, executing agencies, regulatory agencies, and the public, an IAP has been completed for the Volunteer Army Ammunition Plant (VOAAP). 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 VOAAP by the end of 2009.

CONTRIBUTORS TO THIS YEAR'S IAP

NAME	ORGANIZATION
Jill Davis	Tennessee Department of Environment and Conservation -Division of Superfund
Robert Elmore	Volunteer AAP Environmental Engineer & RAB Co-Chair
Ralph Etheridge	U.S. Army Corps of Engineers, Mobile District
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George Gricius	U.S. Army Forces Command
Mike Kelly	Tennessee Department of Environment and Conservation - Division of Superfund
Joe King	Army Environmental Center (AEC)
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VOLUNTEER AAP

PREPARED BY

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APPROVAL

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INFORMATION SHARING

AMC, as well as MSCs and installations believe that it should make its environmental restoration information available openly. This Installation Action Plan was forwarded to the following people:

State Regulator

RAB Chairman

EPA Regulator

ACRONYMS & ABBREVIATIONS

BRAC	Base Realignment and Closure Action
CE	Corps of Engineers
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
DD	Decision Document
DERA	Defense Environmental Restoration Account
DRMO	Defense Reutilization and Marketing Office
DSERTS	Defense Site Environmental Restoration Tracking System
EPA	Environmental Protection Agency
ER,A	Environmental Restoration, Army (formally called DERA)
FFA	Federal Facilities Agreement
FS	Feasibility Study
FY	Fiscal Year
GOCO	Government Owned Contractor Operated
GSA	General Services Agency
IAG	Interagency Agreement
IAP	Installation Action Plan
IRA	Interim Remedial Action
IRP	Installation Restoration Program
LTM	Long Term Monitoring
MCL	Maximum Contaminant Level
NE	Not Evaluated
NFA	No Further Action
NPL	National Priority List
OB/OD	Open Burn/Open Detonation
OSC	Operations Support Command (replaced IOC)
PA	Preliminary Assessment
PCB	Polychlorinated Biphenyls
POL	Petroleum, Oil & Lubricants
PP	Proposed Plan
RA	Remedial Action
RA(C)	Remedial Action - Construction

ACRONYMS & ABBREVIATIONS

RA(O)	Remedial Action - Operation
RAB	Restoration Advisory Board
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
REM	Removal
RI	Remedial Investigation
RIP	Remedy in Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SI	Site Inspection
SWMU	Solid Waste Management Uniit
SVOC	Semi-Volatile Organic Compounds
TCE	Trichloroethylene
TDEC	Tennessee Department of Environment and Conservation
TNT	Trinitrotoluene
TPH	Total Petroleum Hydrocarbons
TRC	Technical Review Committee
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine
USAEC	United States Army Environmental Center
USAEHA	United States Army Environmental Hygiene Agency (replaced by CHPPM)
USATHMA	United States Army Toxic and Hazardous Material Agency (replaced by AEC)
UXO	Unexploded Ordnance
VAAP	Volunteer Army Ammunition Plant
VOAAP	Volunteer Army Ammunition Plant
VOC	Volatile Organic Compounds

SUMMARY

STATUS	Non NPL-IRP Under State Superfund
NUMBER OF DSERTS SITES:	17 DSERTS sites 8 Active 9 Response Complete
DIFFERENT DSERTS SITE TYPES:	1 TNT Production Area — 5 Landfill/Disposal Areas 3 Acid Areas — 3 Storage Areas 1 Spill Site — 1 Burn Area 1 Pistol Range — 2 Facility Areas
CONTAMINANTS OF CONCERN:	Explosives, Metals
MEDIA OF CONCERN:	Soil, Groundwater
COMPLETED REM/IRA/RA:	Remedial - Connecting five off-post residents to public water supply, 1995-96. Sanitary Landfill was closed per a 1996 letter from TDEC. Burning Ground was closed in 1999
CURRENT IRP PHASES:	RC at nine sites — RI/FS at four sites RD/RA at two sites — IRA at two sites
PROJECTED IRP PHASES:	RD at 4 sites — RA (C) at 5 sites RA(O) at 1 site LTM at 1 site
IDENTIFIED POSSIBLE REM/IRA/RA:	IRA/RD/RA at 9 sites including soil remediation
FUNDING:	PRIOR YEAR THROUGH 1999: $ 15,606,000 FY2001: $ 2,882,000 FUTURE REQUIREMENTS 2001+: $ 25,349,000 TOTAL: $ 40,955,000
DURATION:	YEAR OF IRP INCEPTION: 1980 YEAR OF RA COMPLETION EXCLUDING LTM: 2009 YEAR OF IRP COMPLETION INCLUDING LTM: 2020

INSTALLATION INFORMATION

LOCALE

Volunteer AAP occupies 6,350 acres in eastern Hamilton County, Tennessee, approximately 10 miles northeast of Chattanooga's central business district. Approximately 60 percent (3810 acres) of the total installation area is covered by forest. The remaining 2540 acres consist of improved, semi-improved, and unimproved areas adjacent to administrative and former manufacturing areas. The surrounding areas of Hamilton County and Chattanooga have expanded to include the development of residential, commercial, and industrial areas in the vicinity of VOAAP.

COMMAND ORGANIZATION

MAJOR COMMAND: U.S. Army Materiel Command, Alexandria, VA

SUBCOMMAND: Operational Support Command, Rock Island, IL

INSTALLATION: Volunteer AAP Installation Management Division

INSTALLATION RESTORATION PROGRAM (IRP) EXECUTING AGENCY

U.S. Army Industrial Operations Command, Restoration & Engineering Division.

U.S. Army Corps of Engineers, Mobile District

REGULATOR PARTICIPATION

FEDERAL: U.S. Environmental Protection Agency Region IV

STATE: Tennessee Department of Environment and Conservation (TDEC)

REGULATORY STATUS

- Non-NPL, off-post contamination
- State Superfund site

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

- 940 acres transferred under early transfer authority to Hamilton County and the City of Chattanooga
- Supplemental Site Investigation/ Remedial Investigations were performed at various sites
- The Vanadium Pentoxide Burial Site (VAAP-018) removal action was completed.
- Mustard Agent Spill (VAAP-030) was deemed no further action by TDEC
- An IRA was completed at Mono-House Sumps (as part of VAAP-032)
- An Independent Technical Team was established to provide a technical review of the Groundwater Contamination in the Manufacturing Valley
- Supplemental investigation indicated the need for additional investigation and/or remediation on the VOAAP
- Monitoring wells have been secured, and a maintenance plan is being executed
- Expanded the groundwater monitoring program to include the eastern portion of the property

INSTALLATION DESCRIPTION

Volunteer AAP is a government-owned and contractor-operated (GOCO) facility for the production and storage of trinitrotoluene (TNT). The installation is currently in inactive excess status.

The Corps of Engineers built the original TNT production facility between 1941 and 1943. The plant included 16 TNT batch process lines and related acid facilities (nitric and sulfuric acids). Initial operations began in July 1942 with Hercules Powder Company of Wilmington, Delaware, as the operating contractor. The plant continued production until 1945; by then, over 800,000,000 pounds of TNT had been produced. The plant was then placed in standby status from January 1946 until the spring of 1952. During this period of time, the government maintained the plant.

In the spring of 1952, the plant was reactivated in support of the Korean War. Operation was awarded to the Atlas Powder Company of Wilmington, Delaware. More than 283,000,000 pounds of TNT were produced from 1953 until the plant was shutdown and placed in standby status in 1957. The plant was again reactivated in 1965 as a result of the Vietnam War. Ten of the old TNT batch processing lines were operated until 1969 when the production requirements began to decrease. After 1969, the number of batch processing lines in operation was subsequently reduced until all production using the old batch TNT lines ceased in 1975.

New acid facilities were built between 1970 and 1972, and the modernization of the TNT production facilities was conducted between 1971 and 1975 when six new continuous process lines were built in an area where four of the old batch process lines were previously razed. Only one of the new continuous process lines, however, was ever operated from 1974 until 1977, when the last TNT production occurred. During the period of 1965 to 1977, approximately 1.8 billion pounds of TNT were produced.

In the 1972 Atlas Chemical Industries, the operating contractor, was purchased by ICI Americas Incorporated. ICI Americas, Inc.'s contract expired 31 Dec 1998. The plant is currently in inactive excess status and Tecumseh Professional Associates, Inc. is the new operating contractor.

The area now known as the CFI lease area was initially used by the Army for nitric and sulfuric acid production from 1942 to 1945 and from 1952 to 1957. In 1962 the CFI lease area was established when the Army leased that land to CF Industries, Inc. (CFI). CFI used the leased 824-acre site for the commercial production of ammonium nitrate fertilizer, urea, and related products. At the start of the Vietnam War in 1965, the Army reclaimed the use of all the existing acid production equipment in the CFI area to increase its nitric acid production and sulfuric acid concentration capacity. CFI constructed a new acid plant adjacent to the ammonia plant they had previously built for their commercial ammonium nitrate production, and simultaneously operated the old acid plants to produce nitric acid and concentrated sulfuric acid for VOAAP. Commercial production by CFI continued until 1982 when all operations were

INSTALLATION DESCRIPTION

terminated for economic reasons. During 1985 and 1986 all of the CFI production areas were dismantled for salvage. CFI no longer leases the property. However, former Army acid production facilities were not dismantled until 1997.

On 01 November 1991, VOAAP received a notification of Environmental Protection Agency's (EPA) intention to issue an Order and Agreement pursuant to Section 106 of CERCLA. After subsequent negotiations and correspondence between Army representatives and EPA, EPA Region IV decided not to issue the Order. EPA Region IV has expressed interest in work being conducted at VOAAP; however, in a meeting on 20 February 1996 EPA Region IV stated that because VOAAP would not likely be an NPL, they would leave remediation entirely to the State.

In March 1997 VOAAP was advised that the lead regulatory agency would be TDEC's Division of Superfund. Since that time, the State has begun to review documents and provide constructive comments in an informal partnering spirit in the absence of an interagency agreement. VOAAP solicited interest in forming a RAB in September 1997. The public petitioned to form a RAB and the first RAB meeting was held on 19 February 1998.

As mentioned earlier, the Army determined that VOAAP was excess to its needs in 1997. In Congress, legislation was passed to allow transfer approximately 1,033 acres to Hamilton County/City of Chattanooga. The General Services Administration (GSA), which is the disposal agency for the Army, is acting as the executing agency for all property transfer actions. 940 acres was sold to Hamilton County and the City of Chattanooga for $7.5 million via negotiated sale under early transfer authority in September 2000.

CONTAMINATION ASSESSMENT

The Installation Restoration Program (IRP) at VOAAP was initiated with the completion of the Installation Assessment of Volunteer Army Ammunition Plant, USATHAMA, 1978. Numerous additional investigations have been conducted and are listed in the Previous Studies section.

TNT-related contaminants have been found in soils, sediments, and groundwater at or near the TNT manufacturing facilities. TNT-related contamination has also been documented in a down gradient well at the new landfill/burning ground area. Contaminants (As, Pb, PCBs, PAHs and explosives) have been detected in soils near former processing facilities. Off-post contamination has been observed in residential wells and springs in the Waconda Bay area. Bottled water was furnished to offsite residents for approximately one year (1995-96). In 1996-97, a total of 28 wells were identified and sampled from a residential survey in this area. Results indicated that four wells were contaminated, and three of those residents opted to be connected to the public water supply. Two residences with drinking water wells in the vicinity that had not been tested were also connected to water at their request Groundwater uses identified from the survey include heat pumps, gardening, and drinking water supply.

The Site Investigation, Remedial Investigation and Feasibility Studies were performed on the installation as a whole, not by specific DSERTS sites. This resulted in one Draft Site Investigation (SI) report, one Draft Remedial Investigation (RI) report, and one Draft Feasibility Study (FS) completed for the installation. The draft SI Report was submitted to both EPA Region 4 and the State of Tennessee for review and comment in December 1994. The draft RI Report was submitted for review in June 1995 and the draft FS was submitted in July 1997. Questions arose over the administration of the cleanup work as being under RCRA or Superfund and whether under EPA or TDEC oversight. TDEC's Superfund Division became the lead regulatory agency in 1997. The State and EPA Region 4, in cooperation with the Army, are in the process of amending the draft SI, RI, and FS. VOAAP, through the Corps of Engineers (CE), initiated a contract in March 1998 to complete base wide decision documents and supplemental SI/RI/FS work.

PREVIOUS STUDIES

U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), Installation Assessment of Volunteer Army Ammunition Plant, Records Evaluation Report No. 123, 1979.

U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), A study of Landfill Leachates at Volunteer Army Ammunition Plant, 1979.

U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), Environmental Contamination Survey of Volunteer Army Ammunition Plant: Confirmatory Phase, 1984.

U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), Contamination Survey of Volunteer Army Ammunition Plant, Chattanooga, Tennessee, Final Technical Report, 1984.

U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), Archives Search (Part I) and Limited Sampling and Analysis (Part II) at the CF Industries, Inc. Lease Area on Volunteer Army Ammunition Plant, 1985.

U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), RATTS - Volunteer Army Ammunition Plant Feasibility Study Draft Final Report, 1987.

U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), Public Involvement and Response Plan for Volunteer Army Ammunition Plant, January, 1989.

U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), Final Draft Report of Remedial Investigations, Volunteer Army Ammunition Plant, 1987.

U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), Remedial Investigation/Feasibility Study Volunteer Army Ammunition Plant, Addendum Follow-up Report, 1990.

U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), Remedial Investigation/Feasibility Study Addendum, Background Soil Study for the CF Industries, Inc., Volunteer Army Ammunition Plant, 1990.

U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), Residential Well Sampling at Volunteer Army Ammunition Plant, 1992.

U.S. Army Environmental Center, Quality Assurance Project Plan, Remedial Investigation/Feasibility Study and Site Investigation, Volunteer Army Ammunition Plant, 1993.

U.S. Army Environmental Center, Interim Report: Preliminary Site Reconnaissance Activities, Volunteer Army Ammunition Plant, 1993.

PREVIOUS STUDIES

U.S. Army Environmental Center, Technical and Sampling Plan for SI and RI/FS at Volunteer Army Ammunition Plant, Draft Addendum II, 1994.

U.S. Army Environmental Center, Technical and Sampling Plan for SI and RI/FS at Volunteer Army Ammunition Plant, Draft Addendum I, 1994.

U.S. Army Environmental Center, Technical and Sampling Plan for SI and RI/FS at Volunteer Army Ammunition Plant, 1994.

ICI Americas, Inc., Closure/Post Closure Plan, Sanitary Landfill, Volunteer Army Ammunition Plant, 1994

U.S. Army Environmental Center, Site Investigation Report, Draft Volunteer Army Ammunition Plant, 1994.

U.S. Army Environmental Center, Remedial Investigation Report, Draft, Volunteer Army Ammunition Plant, 1995.

U.S. Army Environmental Center, Feasibility Study, Draft Final, Volunteer Army Ammunition Plant, 1997.

U.S. Army Corps of Engineers, Mobile District, Closure Plan Explosive Waste Burning Unit, 1997.

ICI Americas, Inc., Remediation Plan, Explosive Waste Burning Unit, Volunteer Army Ammunition Plant, 1998.

U.S. Army Corps of Engineers, Mobile District, Field Sampling Plan Addenda - Supplemental Site Investigations/ Remedial Investigations at Various Sites, 1998.

U.S. Army Industrial Operations Command Environmental Baseline Survey, Volunteer Army Ammunition Plant. (Tecumseh) Professional Associates, Inc. Nov 12 1999. Vista Technologies (Vista) 11/0/90.

GSA - Proposed Volunteer Army Ammunition Plant Final Environmental Impact Statment (FEIS) Potomac - Hudson Engineering, Inc.

Survey of Volunteer Army Ammunition Plant Property, Arcadis, Geraty, Miller

Letter, Tennessee Historical Commission Future Archaeological Surveys of the Volunteer Army Ammunition Plant Projects, January, 1991.

Letter, Tennessee Historical Commission, Future SHPO Review of Volunteer Army Ammunition Plant Projects, January, 1991.

PREVIOUS STUDIES

USATHAMA - Historical Installation Assessment Volunteer Army Ammunition Plant (Aerial Photography) The Biometrics Corporation, TS-PIC-84001, December 1984.

Historic American Building Survey/Historic American Engineers Records, National Park Service Historic Properties Report Volunteer Army Ammunition Plant, August 1985.

ICI Americas Incorporated, Historic Resource Survey of Volunteer Army Ammunition Plant, U.S. Army Corps of Engineers, Mobile District, January, 1990.

Report of Findings for Supplemental Site Investigations at Various Sites, Volunteer Army Ammunition Plant, IT Corporation, February 2000.

Residential Well Survey Letter Report for Areas South and West of Volunteer Army Ammunition Plant, Chattanooga, TN, IT Corporation, February 2000.

VAAP-01
OLD EAST ACID AREA

SITE DESCRIPTION

The VAAP-01 site encompasses approximately 18 acres east of the central TNT production facilities on the western half of VOAAP. The East Acid Area was operated intermittently during the various periods of mobilization from 1941 to 1970. The area consisted of nitric and sulfuric acid production facilities, an oleum production facility, and an ammonia storage facility. Except for a number of aboveground storage tanks, the production facilities were disassembled, decontaminated, and sold in 1974.

An SI was performed in 1994. The results of the SI indicated that a remedial action was necessary, therefore a FS was developed without first fully defining the vertical and horizontal extent of contamination. Subsequent to the review of the draft FS, it was determined that further delineation of the extent of contamination would be required before a final FS could be completed.

The supplemental sampling was completed in 1999. Results indicate contamination in soil surrounding the former production buildings is more widespread than originally believed. The vertical extent of soil contamination above proposed preliminary remediation goals (PRGs) is limited to the upper 10 feet.

PROPOSED PLAN

The soil remediation alternative will be chosen when the FS is finalized; however, considering the small volume of material (approximately 2500cy) and funding constraints, the preliminary choice is excavation and off-site disposal to a TSCA approved facility.

Any groundwater contamination and LTM will be addressed under VAAP-035.

IRP STATUS

RRSE RATING: High Risk

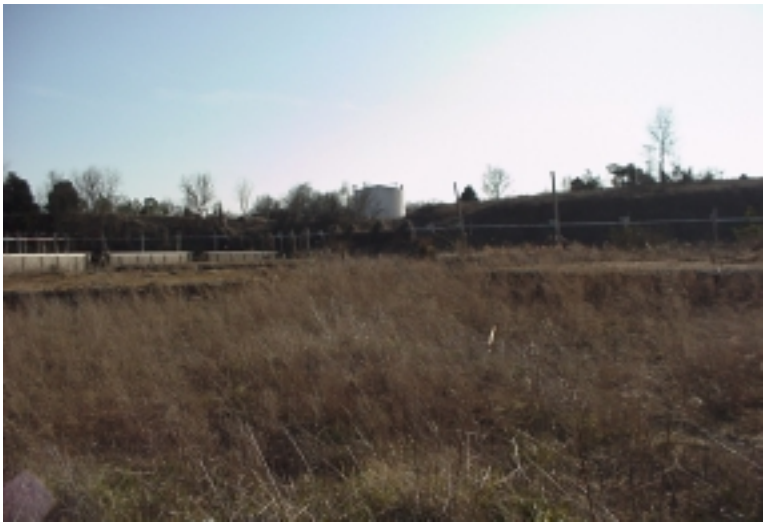
CONTAMINANTS OF CONCERN:
Explosives, PCBs, As, Pb, PAHs

MEDIA OF CONCERN:
Soil and Groundwater

COMPLETED IRP PHASE:
PA/SI, RI/FS

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RD, RA



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD			155				
RA(C)			1773				
RA(O)							
LTM							
LTO							

PROJECTED TOTAL: $1,928,000

VAAP-02
CFI LEASE AREA

SITE DESCRIPTION

The CFI Lease Area consists of approximately 686 acres located along the western boundary of VOAAP. Of these 686 acres, only approximately 56 acres correspond to the actual production facilities. The area contains a number of former plant facilities for the production, handling, and storage of nitric acid, ammonium nitrate, and urea, as well as sulfuric acid concentration facilities. In addition, former urea and fertilizer manufacturing facilities were located at this site.

Concrete foundation slabs remain for all the buildings that have been razed.

An SI was performed in 1994. The results of the SI indicated that a remedial action was necessary, therefore a FS was developed without first fully defining the vertical and horizontal extent of contamination. Subsequent to the review of the draft FS, it was determined that further delineation of the extent of contamination would be required before a final FS could be completed.

The supplemental sampling was completed in 1999. Results indicate contamination in soil surrounding the former production buildings is more widespread than originally believed. The vertical extent of soil contamination above proposed preliminary remediation goals (PRGs) is limited to the upper 10 feet.

PROPOSED PLAN

An interim removal action will be conducted. As part of the removal action, soil is anticipated to be stabilized. Metals and other contaminants will be disposed of off-site in conjuction with stabilized metals. Approximate volume of soils to be removed is 13,000cy.

Any groundwater contamination and LTM will be addressed under VAAP-035.

IRP STATUS

RRSE RATING: High Risk

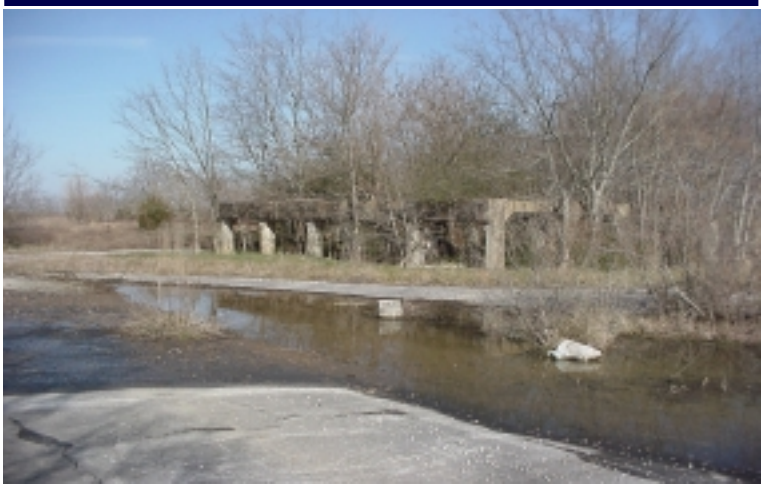
CONTAMINANTS OF CONCERN:
PCBs, As, Pb, PAHs

MEDIA OF CONCERN:
Groundwater, Soil, Sediment

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RD/RA(C)



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)		1885	1885				
RA(O)							
LTM							
LTO							

PROJECTED TOTAL: $3,770,000

VAAP-003
PISTOL RANGE

SITE DESCRIPTION

Site VAAP-03 consists of two closed pistol ranges (used until 1995) for training by the VOAAP security guards.

The ranges are located in the northern portion of the installation.

A focused SI was accomplished in December 1998 and results indicate high levels of lead in soil and lead slugs on the surface.

PROPOSED PLAN

This site is ineligible for ER,A funding. Previous analytical results indicate that there is lead contamination in the surface soils. Further delineation and an RA will be necessary.

IRP STATUS

RRSE RATING: NE

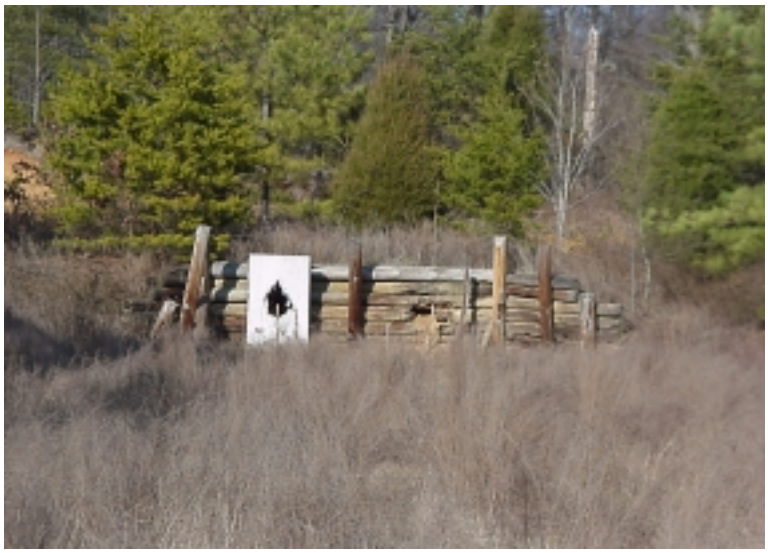
CONTAMINANTS OF CONCERN:
Lead

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RC

FUTURE IRP PHASE:
RC



VAAP-004
ENVIRONMENTAL LAB

SITE DESCRIPTION

Site VAAP-04 is a former environmental laboratory used to perform water quality analyses.

A focused SI was performed in January 1999 and results indicate no contamination present.

PROPOSED PLAN

A No Further Action Request was submitted to TDEC in April 00 and is currently awaiting their response.

IRP STATUS

RRSE RATING: NE

CONTAMINANTS OF CONCERN:
Metals, VOCs

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RC

FUTURE IRP PHASE:
RC

VAAP-005
OLD STORAGE AREA (EXP MAG)

SITE DESCRIPTION

Site VAAP-05 consists of the western-most of the two magazine areas located in the eastern half of the installation. The site contains 100 igloo type magazines for storage of final TNT product. Explosives are no longer stored at VOAAP.

One small area (approximately 300 ft^2) near the railcar loading area requires explosives remediation.

A portion of this site was the 940 acres sold to Hamilton County and the City of Chattanooga for $7.5 million via negotiated sale under early transfer authority in September 2000. A supplemental investigation was conducted by TDEC and contaminants were discovered in soil/sediment and groundwater. It is anticipated that a limited removal action will be required.

IRP STATUS

RRSE RATING: Low Risk

CONTAMINANTS OF CONCERN:
Explosives

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
IRA

FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional site investigation is required on the entire site to include the 940 acres transferred to Hamilton County and the City of Chattanooga at the direction of TDEC and EPA.

CONSTRAINED COST TO COMPLETE

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

PROJECTED TOTAL: $0

VAAP-006
NEW STORAGE AREA (EXP MAG)

SITE DESCRIPTION

Site VAAP-06 consists of the western-most of the two magazine areas located in the eastern half of the installation. The site contains 100 Corbetta type magazines for storage of final TNT product. Explosives are no longer stored at VOAAP.

A focused SI was performed in January 1999 and results indicate no contamination present.

Additional sampling has been conducted by TDEC and has been included in the DD.

IRP STATUS

RRSE RATING: NE

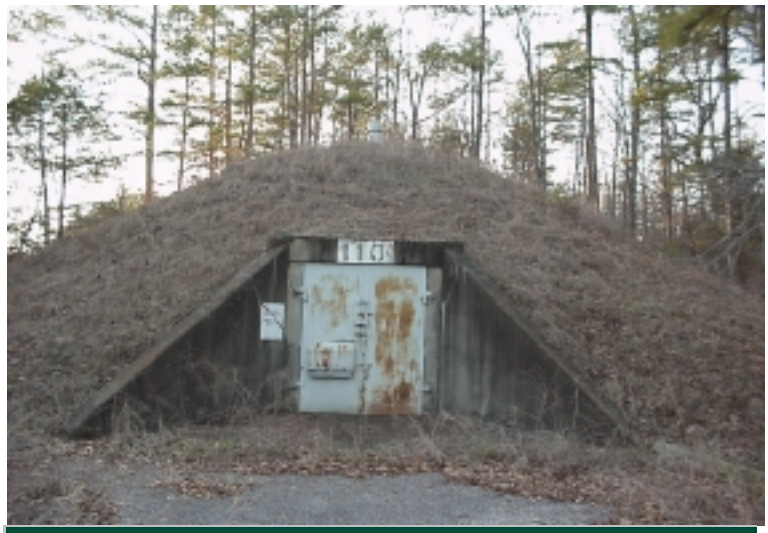
CONTAMINANTS OF CONCERN:
Explosives

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
IRA, RC



PROPOSED PLAN

Additional site investigation is required on the entire site at the direction of TDEC and EPA.

An IRA is planned where 150 soil and sediment locations will be sampled for explosives and PAHs. 20 new bedrock wells will be built.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA			810				
RD							
RA(C)							
RA(O)							
LTM							
LTO							

PROJECTED TOTAL: $810,000

VAAP-015
BURNING GROUND /NEW LF

SITE DESCRIPTION

Site VAAP-15 encompasses approximately 80 acres, including a 0.6 acre burning pad, a 225 square foot flash pad, and a 3.2 acre unlined landfill. The site is located north of the new magazine area, in the eastern half of the installation. RCRA closure of the landfill occurred in April 1996 with continuing monitoring paid by Maintenance of Inactive Industrial Facilities (MIIF).

TDEC issued a clean RCRA closure in May 1999 for the burn pad pursuant to groundwater being addressed under CERCLA.

PROPOSED PLAN

Any further action will be addressed under the proposed plan for groundwater under VAAP 035.

IRP STATUS

RRSE RATING: Medium Risk

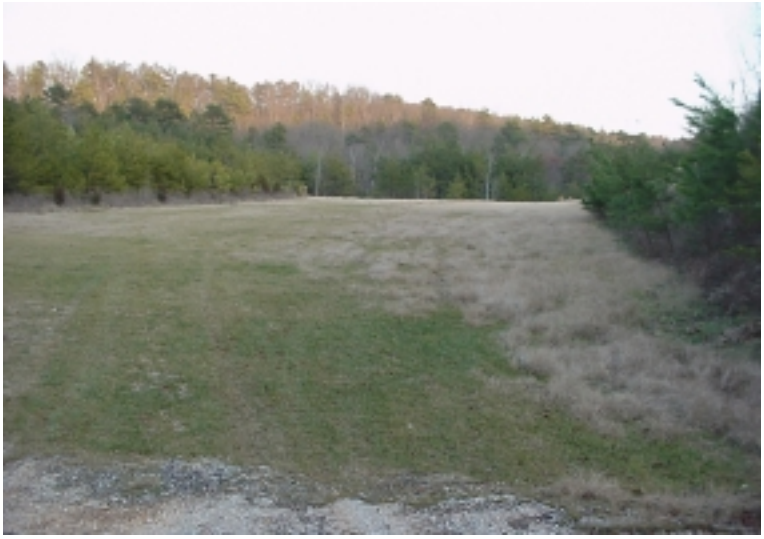
CONTAMINANTS OF CONCERN:
Explosives

MEDIA OF CONCERN:
Groundwater, Soil

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

CURRENT IRP PHASE:
RC

FUTURE IRP PHASE:
RC



VAAP-016
BURNING GROUND (WWII)

SITE DESCRIPTION

Site VAAP-16 is located on approximately 2.5 acres south of the Old Acid Area between the TNT production facilities and the old magazine area. The site was used from 1941 until the early 1960's to burn explosives-contaminated material in an open, unlined pit.

A focused SI was accomplished in 1994 and results indicated low levels of explosives and organics.

PROPOSED PLAN

Additional RI activities will be necessary to fully characterize the burning ground site. Remedial investigative trenching requested by TDEC.

IRP STATUS

RRSE RATING: Medium Risk

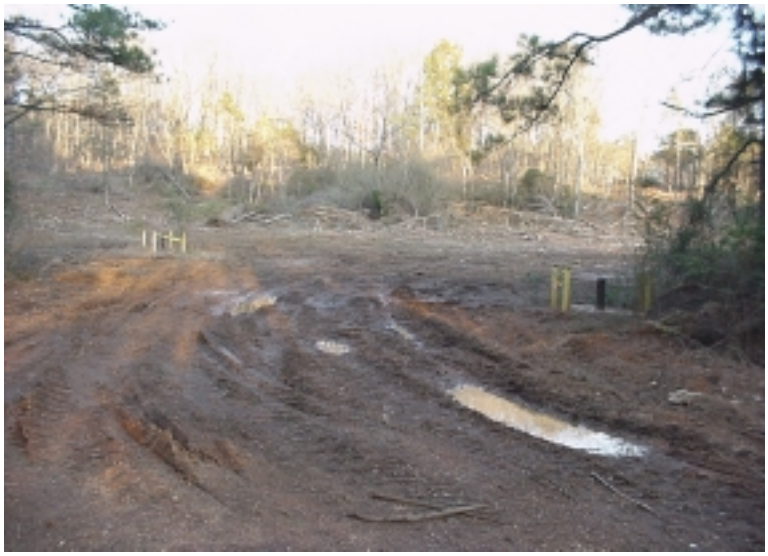
CONTAMINANTS OF CONCERN:
Explosives, PAHs, Metals

MEDIA OF CONCERN:
Soil and Sediment

COMPLETED IRP PHASE:
PA/SI,

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RC



CONSTRAINED COST TO COMPLETE

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

PROJECTED TOTAL: $50,000

VAAP-018
VANADIUM PENTOXIDE/ASBESTOS BURIAL

SITE DESCRIPTION

Site VAAP-18 is located east of the new TNT production facilities and consists of two acres containing two marked, unlined burial areas. One area contains approximately 70,000 pounds of vanadium pentoxide buried in drums, and the other contains approximately 107 tons of double-bagged asbestos pipe insulation.

Groundwater sampling was performed in 1994.

IRP STATUS

RRSE RATING: Low Risk

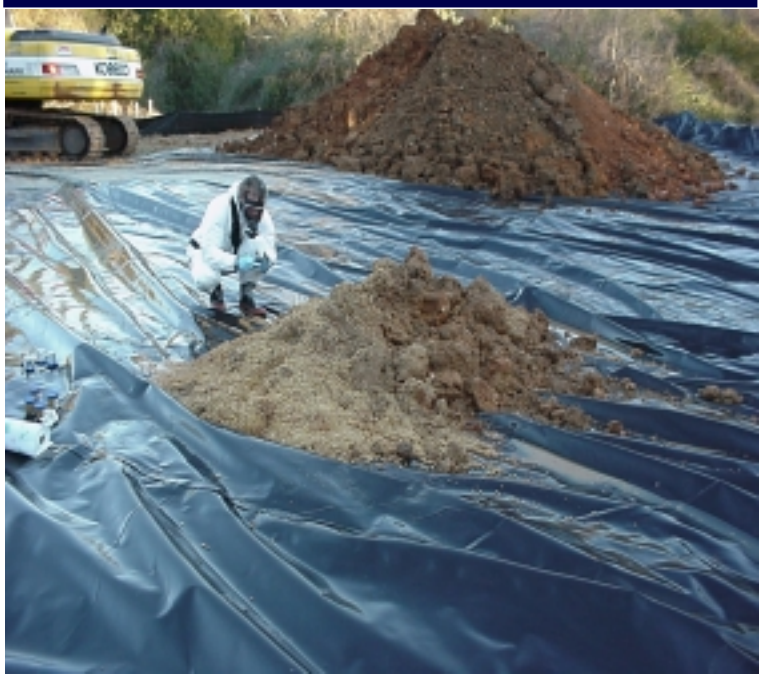
CONTAMINANTS OF CONCERN:
Vanadium pentoxide

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA/SI, IRA, DD

CURRENT IRP PHASE:
RC

FUTURE IRP PHASE:
RC



PROPOSED PLAN

Remedial action completed and site closed. A deed restriction is required for the asbestos burial site.

Any groundwater contamination and LTM will be addressed under VAAP-035.

VAAP-020
INDUSTRIAL LANDFILL

SITE DESCRIPTION

Site VAAP-20 is located approximately 800 feet east of the East Acid Area in an undeveloped part of VOAAP. The site consists of a two acre unlined landfill for decontaminated industrial waste and construction debris. The landfill has been in operation from the 1970's to the present.

PROPOSED PLAN

This site is active and is therefore ineligible for ER,A funds.

IRP STATUS

RRSE RATING: Medium Risk

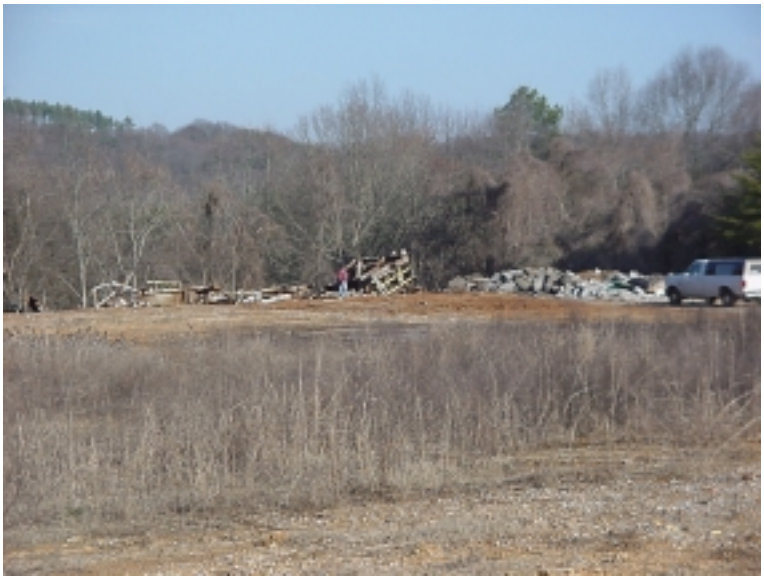
CONTAMINANTS OF CONCERN:
PAHs, Metals, Explosives

MEDIA OF CONCERN:
Groundwater, Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RC

FUTURE IRP PHASE:
RC



VAAP-021
LANDFILL (WWII)

SITE DESCRIPTION

Site VAAP-21 is located in the west-central portion of VOAAP. The site comprises 10 to 15 acres and consists of an unlined landfill that operated between 1941 and the late 1960's. The landfill and disposal trenches reportedly received red water ash, red water sludge and refuse.

A focused SI was accomplished in 1994 and results indicated low levels of explosives and organics in groundwater. Completed investigative trenching in September 00. Soil contaminants detected.

PROPOSED PLAN

Soil and groundwater will require additional investigation. Any groundwater contamination and LTM will be addressed under VAAP-035.

IRP STATUS

RRSE RATING: Medium Risk

CONTAMINANTS OF CONCERN:
Lead and Explosives

MEDIA OF CONCERN:
Groundwater, Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI

FUTURE IRP PHASE:
FS, RD, RA

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS			200				
IRA							
RD				75			
RA(C)				750			
RA(O)							
LTM							
LTO							

PROJECTED TOTAL: $1,025,000

VAAP-023
MAGAZINE AREA RWA-GS LANDFILL

SITE DESCRIPTION

Site VAAP-23 is located in the east-central portion of VOAAP within the New Magazine area. Red water ash and gypsum sludge were disposed over this three acre site. A marshy area is located at the southern end of the landfill. This standing water eventually drains to the southeast, where it leaves this site. The unlined landfill is believed to be located in a sinkhole.

A focused SI was accomplished in 1994 and results indicated the presence of PAHs and metals.

PROPOSED PLAN

Additional RI activities will be necessary to fully characterize the landfill site.

Any groundwater contamination and LTM will be addressed under VAAP-035.

IRP STATUS

RRSE RATING: Low Risk

CONTAMINANTS OF CONCERN:
Explosives, Metals, and PAHs

MEDIA OF CONCERN:
Groundwater, Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI

FUTURE IRP PHASE:
DD

CONSTRAINED COST TO COMPLETE

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

PROJECTED TOTAL: $0

VAAP-030
MUSTARD AGENT SPILL (1947)

SITE DESCRIPTION

In 1946 a freight car en route to Redstone Arsenal was diverted to VOAAP where it was discovered that vapors of German Mustard Agent were leaking from several drums. The car was stopped at a railroad storage track adjacent to VOAAP and a team from the Technical Escort Unit (Redstone Arsenal) decontaminated its cargo. Some spillage on the ground was reported, but was fully decontaminated. After the leaking drums were decontaminated, the car was sealed and shipped to Redstone Arsenal. No residues from the operation were reported buried at VOAAP. No contamination was identified during the PA/SI and no further remedial action is proposed at this site. Records indicate that none of these events of this action occurred within the VOAAP reservation boundary.

PROPOSED PLAN

Documentation confirms that this spill did not occur on VOAAP. TDEC has granted no further action status.

IRP STATUS

RRSE RATING: NE

CONTAMINANTS OF CONCERN:

N/A

MEDIA OF CONCERN:

N/A

COMPLETED IRP PHASE:

PA/SI

CURRENT IRP PHASE:

RC

FUTURE IRP PHASE:

RC

VAAP-031
PESTICIDE STORAGE

SITE DESCRIPTION

Site VAAP-31 is a pesticide storage building. The building was demolished in 1996.

A focused SI was performed in 1999 and results indicate no contamination present.

PROPOSED PLAN

This site is not eligible for ER,A funding. No further action is anticipated, pending approval from TDEC.

IRP STATUS

RRSE RATING: NE

CONTAMINANTS OF CONCERN:

Pesticides

MEDIA OF CONCERN:

Soil

COMPLETED IRP PHASE:

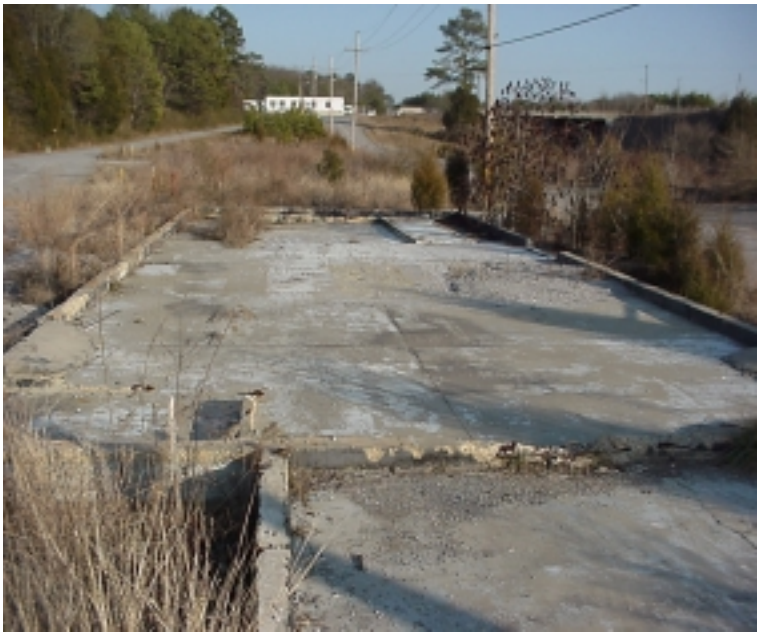
PA/SI

CURRENT IRP PHASE:

RC

FUTURE IRP PHASE:

RC



VAAP-032
TNT MFG VALLEY/INCL GROUNDWATER TREATMENT

SITE DESCRIPTION

Site VAAP-32 includes the old and new TNT production facilities, Red Water Treatment Plant, and the Industrial Surface Water Pollution Control Facilities (former site VAAP-034). The site originally consisted of 16 TNT production batch process lines built in 1942 in support of WWII. Today, only the foundations of the old batch process lines and buildings of six new continuous process lines are present at the site. The Red Water Treatment facilities remain in place and Building 816 is VOAAP's only designated State historical structure. Limited disposal occurred at the site. Contamination is suspected to be primarily the result of spills during production. Groundwater contamination is complicated by the presence of karst geology.

Initial RI results indicated high levels of explosives in soil, sediment and groundwater. Additional contaminants include arsenic, lead, PCBs and PAHs.

A draft RI, draft risk assessment and draft final feasibility study has been completed but has not been finalized pending agreement on a suitable risk-based approach to the contaminants of concern.

PROPOSED PLAN

Revise and finalize the risk assessment, with TDEC and EPA R4 participation and ultimate approval, using two future use scenarios—unrestricted and parks/recreational. Unrestricted use will be used primarily for background purposes while parks/ recreational will be evaluated for appropriateness of the currently planned future land use. This finalzied risk assessment will be used to determine some realistic remediation goals.

IRP STATUS

RRSE RATING: High Risk

CONTAMINANTS OF CONCERN:
TPHC, SVOC

MEDIA OF CONCERN:
Groundwater, Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RD, RA(C)

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	300						
IRA							
RD		650					
RA(C)				4078	4365		
RA(O)							
LTM							
LTO							

PROJECTED TOTAL: $9,393,000

VAAP-033
NEW ACID AREA

SITE DESCRIPTION

Site VAAP-33 encompasses approximately 50 acres located north of the Old Acid Area. The production area was only 18 acres. The site consists of acid production facilities constructed between 1969 and 1973 to support the new TNT production lines. The new acid production facilities were constructed on top of a former burning ground and a red water ash disposal site, which were located at or near sinkholes. The area was filled to allow for the construction of the new acid facility. Thus, the former burning ground and disposal site are now some 50 to 80 feet below ground level. The relatively short period of acid production on-site is not expected to have caused a severe environmental impact. Groundwater contamination is complicated by the presence of karst geology.

A limited soil SI was performed in 1999 and results indicated arsenic concentrations above the PRGs.

PROPOSED PLAN

VOAAP has submitted a request to TDEC for no further action for soils. TDEC will not be able to approve until finalization of the groundwater study because of the possible linkage.

Any groundwater contamination and LTM will be addressed under VAAP-035.

IRP STATUS

RRSE RATING: High Risk

CONTAMINANTS OF CONCERN:
Explosives, Metals and PCBs

MEDIA OF CONCERN:
Groundwater, Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RC

FUTURE IRP PHASE:
RC

VAAP-034
WW TREATMENT PONDS 4,5,+COE

SITE DESCRIPTION

Further action at this site will be addressed under VAAP-032.

Site VAAP-34 consists of the drainage ditches, equalization ponds and related facilities that drain some of the major suspected contamination source areas (i.e., Old Acid Area, CFI Lease Area, TNT Manufacturing Valley, and New Acid Area) into Waconda Bay, north of VOAAP. The drainage system may be acting as a significant contamination migration pathway for surface water contamination and sediments deposited in the ditches and ponds may also serve as contamination sources to groundwater.

PROPOSED PLAN

This site is Response Complete in DSERTS.

IRP STATUS

RRSE RATING: Medium Risk

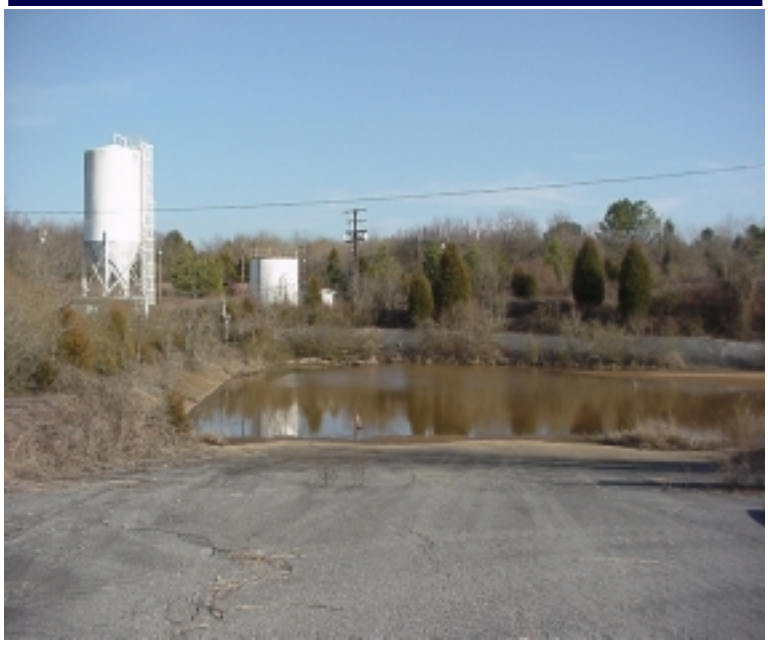
CONTAMINANTS OF CONCERN:
Explosives, Metals, PAHs, and PCBs

MEDIA OF CONCERN:
Groundwater, Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RC

FUTURE IRP PHASE:
RC



VAAP-035
GROUNDWATER

SITE DESCRIPTION

VAAP-035 includes groundwater issues at the following DSERTS sites: VAAP-001, 002, 005, 006, 015, 016, 018, 020, 021, 023, 032, 033, 034. This site addresses all groundwater treatment systems as well as installation-wide long term monitoring.

There has been great difficulty defining the extent of groundwater contamination due to the karst geology and groundwater flow directions. Off-site migration of contaminants has been confirmed. Explosives concentrations have been found in on-post wells several orders of magnitude above off-post wells and springs.

Levels detected in the off-post wells are above State guidelines.

Supplemental RI activities are currently being performed. There are currently 153 groundwater monitoring wells across the installation. Twelve wells are currently being monitored to update the latest data gathered in 1994 and to determine seasonal fluctuations of contaminant concentrations. After installing 11 new eastern perimeter monitoring wells, these wells were sampled and determined to contain explosives and metals. Confirmatory sampling is underway.

IRP STATUS

RRSE RATING: High Risk

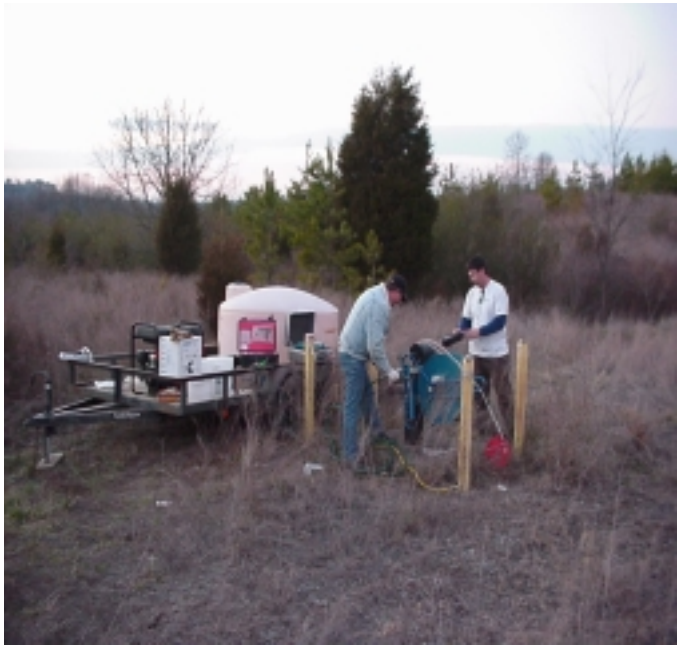
CONTAMINANTS OF CONCERN:
Explosives and Metals

MEDIA OF CONCERN:
Groundwater

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RD, RA(C), RA(O), LTM



PROPOSED PLAN

Well Survey: Initiate and complete planned phases of the water survey. EPA has funded Phase 1 in order to allow Army funding to become available for remaining phases. Phase 1 will obtain basic information, including revalidation of 1994 well survey data, to help define prudent follow-on requirements to include a door-to-door effort in specific areas of concern. A comprehensive installation-wide groundwater monitoring plan, including off-post areas, will be developed. A workplan will be developed for sedimentation, springs, and seeps.

New Acid Area: 10 monitoring wells will be installed around the New Acid area and monitored quarterly for one-year.

VAAP-035
GROUNDWATER

PROPOSED PLAN

CFI Area: 10 monitoring wells will be installed around the CFI area, and the new wells analysed once to evaluate results

East Acid Area: 10 monitoring wells will be installed around the New Acid area, and the new wells analysed once to evaluate results.

Burning Ground/Landfill: Quarterly monitoring of existing wells for explosives, nitrates, and metals

TNT Manufacturing Area: Remaining Army funds from groundwater FS project will be used for RI efforts which include 20 new residuum wells in addition to the existing wells. These 20 wells will also be augmented with 20 bedrock wells for comparative purposes. Results will be analysed one-time with a portion of wells requiring quarterly monitoring depending on results.

Currently Planned Remediation Action: For funding planning purposes in the out years, the remedial action will be groundwater extraction and treatment.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	2582	470					
IRA							
RD						230	
RA(C)							4209
RA(O)							752
LTM							130
LTO							

PROJECTED TOTAL: $8,373,000

SCHEDULE

PAST MILESTONES

For a schedule of IRP work completed to date and planned for the next few years at VOAAP, see below and the chart on the following page.

A. PAST PHASE COMPLETION MILESTONES:

IRP Phase	Completion Date
Installation Assessment	May 1978
Contamination Survey - Phase I	February 1981
Contamination Survey - Phase II	July 1983
RI/FS Completed	July 1987
Follow-On FI/FS	August 1988
Off-Post Sampling	March 1990
Resampling of Off-Post Wells	December 1990
Draft Site Investigation (7 Sites)	June 1995
Draft Remedial Investigation (RI) II	August 1995
Closure Landfill	April 1996
Closure Plan - Burning Ground	May 1997
Draft Feasibility Study	July 1997

B. PROJECTED PHASE COMPLETION MILESTONES:

IRP Phase	Completion Date
Decision Documents	September 2000
Remedial Design	September 2000
Remedial Action (Construction)	September 2008
* Remedial Action (Operation)	N/A
Projected Completion Date of IRP	April 2017

* Projected deletion from the National Priorities List is not applicable to VOAAP.

SCHEDULE

NO FURTHER ACTION SITES

The following sites currently require no further action under the ER,A program:

VAAP-03	PISTOL RANGE
VAAP-04	ENVIRONMENTAL LAB
VAAP-05	OLD STORAGE AREA (EXP MAG)
VAAP-06	NEW STORAGE AREA(EXP MAG)
VAAP-15	BURNING GROUND/NEW LF
VAAP-20	INDUSTRIAL LANDFILL
VAAP-21	LANDFILL (WWII)
VAAP-23	MAGAZINE AREA RWA-GS LANDFILL
VAAP-30	MUSTARD AGENT SPILL (1947)
VAAP-31	PESTICIDE STORAGE
VAAP-33	NEW ACID AREA

Volunteer Army Ammunition Plant IRP Schedule

(Based on current funding constraints)

Completed Phase | Underway Phase | Future Phase

FACILITY	DSERTS #		FY76-99	FY01	FY02	FY03	FY04	FY05	FY06+	FY07+
VAAP-01	OLD EAST ACID AREA	PA/SI								
		RI/FS								
		RD								
		RA(C)								
VAAP-02	CFI LEASE AREA	PA/SI								
		RI/FS								
		RD								
		RA(C)								
VAAP-05	OLD STORAGE AREA (EXP MAG)	PA/SI								
		RI/FS								
		IRA								
VAAP-16	BURNING GROUND WWII	PA/SI								
		RI/FS								
		IRA								
VAAP-21	LANDFILL (WWII)	PA/SI								
		RI/FS								
		RD								
		RA(C)								
VAAP-23	MAGAZINE AREA RWA-GS LANDFILL	PA/SI								
		RI/FS								
VAAP-32	TNT MFG VALLEY/INCL GROUNDWATER TREATMENT	PA/SI								
		RI/FS								
		RD								
		RA(C)								
VAAP-035	GROUNDWATER	PA/SI								
		RI/FS								
		RD								
		RA(C)								
		RA(O)								
		LTM								

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

Site, 4. Installation Phase Summary Report

Installation: VOLUNTEER AAP 1/16/01

Programs: BRAC I, BRAC II, BRAC III, BRAC IV, IRP

Subprograms: Compliance, Restoration, UXO

Installation count for Programs: 1

NPL Options: Delisted, No, Proposed, Yes

Installations count for Programs and NPL: 1

Site count for Programs and NPL: 18

Phase / Status / Sites

PA				SI			
C	**U**	**F**	**RC**	**C**	**U**	**F**	**RC**
18	0	0	0	17	0	0	2

RI / FS				RD		
C	**U**	**F**	**RC**	**C**	**U**	**F**
14	0	2	9	2	0	5

RA(C)				RA(O)			
C	**U**	**F**	**RC**	**C**	**U**	**F**	**RC**
1	0	6	1	0	0	1	0

LTM

C	U	F	N
0	0	0	18

Remedy / Status / Sites (Actions)

IRA

C	U	F
0 (0)	0 (0)	0 (0)

FRA

C	U	F
1 (1)	0 (0)	6 (6)

RIP Total: 0

RC Total: 12

Reporting Period End Date: 03/31/2001

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

Site, 9. RISK INSTALLATION ACTION PLAN REPORT 01/16/2001

Installation: VOLUNTEER AAP
Major Command: AMC
SubCommand: OSC
Program Options: IRP, BRAC I, BRAC II, BRAC III, BRAC IV
Subprogram Options: Compliance, Restoration, UXO

Site	RRSE	Media Evaluated	Phase (s) Completed	Phase (s) Underway	Phase (s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	RIP Date	RC Date
VAAP-01	1B	GW	PA		RAC				N		200409
		SH	RI		RD						
		SL	SI								
		WH									
VAAP-02	1B	SEF	PA		RAC				N		200209
		SH	RI		RD						
		SL	SI								
VAAP-03	NE		PA						N		198403
			RI								
			SI								
VAAP-04	NE		PA						N		198403
			RI								
			SI								
VAAP-05	NE		PA						N		198403
			RI								
			SI								
VAAP-06	NE		PA						N		198403
			RI								
			SI								
VAAP-15	2B	GW	PA						N		199805
		SL	RI								
			SI								
VAAP-16	2B	GW	PA		RAC				N		200206
		SH	RD								
		SL	RI								
			SI								

Site	RRSE	Media Evaluated	Phase (s) Completed	Phase (s) Underway	Phase (s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	RIP Date	RC Date
VAAP-18	3B	GW	PA						N		200006
			RAC								
			RD								
			RI								
			SI								
VAAP-20	2B	GW	PA						N		199412
		SH	SI								
VAAP-21	2B	GW	PA		RAC				N		200406
			SI		RD						
					RI						
VAAP-23	3B	GW	PA						N		200009
			RI								
			SI								
VAAP-30	NE		PA						N		198403
			SI								
VAAP-31	NE		PA						N		198403
			RI								
			SI								
VAAP-32	1B	GW	PA		RAC				N		200509
		SH	RI		RD						
		SL	SI								
		WH									
VAAP-33	1B	GW	PA						N		199906
		SH	RI								
		WH	SI								
VAAP-34	2B	GW	PA						N		199905
		SH	RI								
		WH	SI								
VAAP-35	1B	GW	PA		RAC				N	200609	202109
					RAO						
					RD						
					RI						

RRSE - Relative Risk Site Evaluation; Risk Category - 1=High, 2=Medium, 3=Low;
Legal Agreement - A = with agreement, B = without agreement; C = Complete, U = Underway, F = Future, N = Not Applicable

REM/IRA/RA ASSESSMENT

PAST REM/IRA/RA

VOAAP has a total of 18 validated DSERTS sites. Twelve (12) sites are addressed as part of the current SI and RI/FS. The FS is currently being revised to include groundwater. A new DSERTS site was established for groundwater. The required documents are being prepared to acquire an Interim Record of Decision for VAAP-02.

The National Environmental Technology Test Site established in 1994 was discontinued in 1997.

In 1994 off-post groundwater contamination was discovered in residential wells near Chickamauga Lake. Bottled water was supplied to these residents until they were connected to the public water supply in 1996-97. The cost for these activities was $4,000.

Future remedial action decisions will be made in partnership with the State regulators and the RAB. Some soil remediation will be required, and the particular technology will be identified upon acceptance of the FS. A report of findings has been submitted to the Tennessee Department of Conservation (TDEC) for five (5) sites requiesting concurrence for no further action (NFA). One (1) site has been designated NFA, one (1) site was closed under RCRA, and three (3) sites were determined not eligible for ER,A. One (1) site is currently undergoing an Interim Removal Action (IRA).

PRIOR YEAR FUNDING

FY78	Records Search	50.0K
FY80	Contamination Survey (Phase I)	340.0K
FY81	Modification to Contamination Survey (Phase I)	50.0K
FY82	Modification to Contamination Survey (Phase I)	17.4K
	FY83 Contamination Survey (Phase II)	268.8K
FY85	Limited Sampling/Analysis CFI Lease Area	97.6K
	Comprehensive RI/FS	471.1K
	Aerial Imagery in support of RI/FS	6.0K
FY86	Modification to RI/FS (CFI Lease Area)	315.6K
FY87	Modification to RI/FS	33.4K
FY88	Follow-on RI/FS Work Plan	63.4K
FY89	RI/FS Completion	344.9K
	RA	.7K
FY90	Modification to Task	103.1K
	CLASS Lab	3.0K
	Source Control (CE)	30.0K
FY91	Off-post Sampling	95.5K
	Bottled Water	2.0K
	Sample Residential Wells	36.5K
FY92	Follow-on RI/FS	2,915.8K
FY93	IR RI/FS & RA (VO-SF-1)	4,617.0K
	Plant Support of RI/FS Study (VAAP93-001)	48.0K
	RI/FS Support, ICI	100.0K
	Disposal of IDW	365.0K
FY96	RI/FS	562.2K
	Public Water	4.0K
	Remedial Design	3.0K
FY97	Admin Record	3.0K
FY98	Project SI/RI/FS Supplemental & Base Wide DDS	1,584.0K
FY99	Quarterly Monitoring (VAAP-32)	180.0K
	Interim Removal Action (VAAP-18)	522.0K
	RI/FS (VAAP)	1105.0K
FY00	RI/FS VAAP-01,02,23,32	1268.0K

TOTAL PRIOR YEAR FUNDS $15,606.0K

VOLUNTEER ARMY AMMUNITION PLANT - CONSTRAINED COST TO COMPLETE

DSERTS #	SITE ID	RRSE	PHASE	2001	2002	2003	2004	2005	2,006	2,007	2,008	2009+	TOTAL	DESCRIPTION OF WORK
VAAP-01	OLD EAST ACID AREA	HIGH	RI/FS										**0**	PY S&R
			RD			155							**155**	design of soil excavation and off-site disposal
			RAC			1,773							**1,773**	soil excavation and off-site disposal
VAAP-02	CFI LEASE AREA	HIGH	RI/FS										**0**	PY S&R
			RD										**0**	design of soil excavation, stabilization and off-site
			RA(C)		1,885	1,885							**3,770**	20K tons @ $130/ton; PCB disposal; transportation=$100/load @ 20 ton/load; excavate and clean backfill
VAAP-05	OLD STORAGE AREA (EXP MAG)	LOW	IRA										**0**	Suppl. Invest. = $750K; 150 soil/sed locations (165 samples) for explosives and PAHs, 20 new bedrock wells with 1 sample event for TAL/TCL (sample 12 existing wells with 00 dollars), workplan, report. S&R = $60K.
VAAP-06	NEW STORAGE AREA (EXP MAG)	LOW	IRA			810							**810**	Suppl. Invest. = $750K; 150 soil/sed locations (165 samples) for explosives and PAHs, 20 new bedrock wells with 1 sample event for TAL/TCL (sample 12 existing wells with 00 dollars), workplan, report. S&R = $60K.
VAAP-16	BURNING GROUND WWII	MED	RI/FS			50							**50**	investigative trenching and sampling
VAAP-21	LANDFILL (WWII)	MED	RI/FS			200							**200**	investigative trenching and sampling
			RD				75						**75**	
			RAC				750						**750**	
VAAP-23	MAGAZINE AREA RWA-GS LANDFILL	LOW	RI/FS										**0**	PY S&R
VAAP-32	TNT MFG	HIGH	RI/FS	300									**300**	Conduct/revise risk assessments and anticipated soil
			RD		650								**650**	design for excavation, incineration, and disposal
			RAC				4,078	4,365					**8,443**	Site Mgmt=652K; excavation=500K; on-site incineration=3750K, clean fill=143K, confirmatory sampling=85K, mob/demob of on-site incinerator=1000K, on-site stabilization&off site disposal=1605K, stabilization labor=75K, incineration labor=200K,
VAAP-035	GROUNDWATER	HIGH	RI/FS	2,582	470								**3,052**	39K for GW report; 700K for FS activities (including FS workplan, GW modelling, treatibility studies, draft and final FS report)
			RD						230				**230**	includes design and real estate easement issues
			RAC							4,209			**4,209**	1695K for installation of 113 6 inch extraction wells w/ hydrofracturing; 419K for 18 pumps; 893K for other equipment and construction of treatment plant;1202K indirect admin cost;
			RAO								376	376	**752**	75K for treatment plant maintenance (including electricity, GAC, replacement parts and repairs); 94K for labor; 207K for monitoring
			LTM								65	65	**130**	30 wells annually for explosives and RCRA metals for 15
FY TOTALS IN THOUSANDS OF DOLLAR				**$2,882**	**$3,005**	**$4,873**	**$4,903**	**$4,365**	**$230**	**$4,209**	**$441**	**$441**	**25,349**	
	POM CONSTRAINTS			**$2,882**	**$2,923**	**$4,900**	**$4,903**	**$4,365**	**$1,516**	**$441**	**$441**	**$441**	$22,812	
	DIFFERENCE			$0	$82	($27)	$0	$0	######	$3,768	$0	$0		

COMMUNITY INVOLVEMENT

A Restoration Advisory Board has been established and the first meeting held on 19 February 1998. There are 18 members with representatives from the Army, State, and local citizens.

The RAB meets bi-monthly and past activities have included an installation tour, updates from various agencies (GSA, CE, IT Corporation, the Chattanooga/Hamilton County Regional Planning Agency), and special topic discussions (s.a. risk assessment). The RAB members participated in the GSA open meetings held in various local locations.

Several IRAs have been initiated and/or completed at VOAAP. RAB members are consulted on each proposed project and their comments considered.

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

Installation, 7. RAB REPORT 01/16/2001

Command: AMC **SubCommand:** OSC
Installation: VOLUNTEER AAP

RAB Established Date: 199802 **Reason RAB Not Establish:**
RAB Adjourned Date: **Reason RAB Adjourned:**

TRC Date:

RAB Community Members: **Total RAB Community Members:** 15
Local Residents
RAB Government Members: **Total RAB Government Members:** 3
Other DOD Service Representatives
RAB Activities:
Est. Partnerships W/Stakeholders
RAB Advice
Future Land Use
TAPP Application Approval Date:
TAPP Project Title: 03/31/2001
TAPP Project Description:

Award Number	Purchase Order	Award Date	Completion Date