

JUN/FY06

PICATINNY ARSENAL

New Jersey

**Army Defense Environmental
Restoration Program
Installation Action Plan**

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Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Cleanup Program for an installation under the ER-A including the Installation Restoration Program and the Military Munitions Response Program. The plan identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive, installation-wide approach, with associated costs and schedules, to conduct investigations and necessary remedial actions.

In an effort to coordinate planning information between the restoration manager, US Army Environmental Center (USAEC), Picatinny Arsenal (PTA), executing agencies, regulatory agencies, and the public, an IAP was completed. The IAP is used to track requirements, schedules and tentative budgets for all Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

The following persons contributed to the formulation and completion of this Installation Action Plan during a planning workshop held on 13 - 14 June 2006 at Picatinny Arsenal:

Company/Installation/Branch

ARCADIS Inc.

Engineering and Environment, Inc. for USAEC

Malcolm Pirnie

NJDEP (New Jersey Department of Environmental Protection)

PTA

PTA Restoration Advisory Board (RAB) CoChair

Subsurface Solutions as Technical Assistance Public Participation (TAPP) for Restoration Advisory Board

Shaw Inc.

US Army Corps of Engineers (USACE)

USAEC

US Environmental Protection Agency (USEPA)

Acronyms & Abbreviations

AEDB-R	Army Environmental Data Base-Restoration
ARDEC	Armament Research, Development and Engineering Center
AST	Aboveground Storage Tank
AWDF	Advanced Warhead Development Facility
BERA	Baseline Ecological Risk Assessment
BRAC	Base Realignment and Closure
BNA	Base Neutral and Acid
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
COPC	Contaminants of Potential Concern
COPEC	Contaminants of Potential Ecological Concern
CTC	Cost to Complete
DDT	Dichloro-diphenyl-trichloroethane
DNT	Dinitrotoluene
DOA	Department of the Army
DERA	Defense Environmental Restoration Account
DRMO	Defense Reutilization and Marketing Office
DSERTS	Defense Site Environmental Restoration Tracking System
DU	Depleted Uranium
EECA	Engineering Evaluation and Cost Analysis
EEQ	Environmental Effects Quotient
ERA	Ecological Risk Assessment
ER,A	Environmental Restoration, Army (formerly DERA)
EPA	US Army Environmental Protection
FS	Feasibility Study
FY	Fiscal Year
GCL	Guncotton Line
GPB	Green Pond Brook
GW	Groundwater
HHRA	Human Health Risk Assessment
HI	Hazard Index
HRC	Hydrogen Release Compound
IAG	Interagency Agreement
IRA	Interim Remedial Action
IRP	Installation Restoration Program
LNAPL	Light Non-Aqueous Phase Liquid
LOC	Levels of Concern
LTM	Long Term Management
LUC	Land Use Controls
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MEC	Munitions and Explosives of Concern
MC	Munitions Constituent
MCL	Maximum Contaminant Level
MMRP	Military Munitions Response Program
MNA	Monitored Natural Attenuation

Acronyms & Abbreviations

NC	Nitrocellulose
NE	Not Evaluated
NFA	No Further Action
NJDEP	New Jersey Department of Environmental Protection
NJNRSCC	New Jersey Non-residential Direct Contact Soil Cleanup Criteria
NJPDES	New Jersey Pollutant Discharge Elimination System
NRC	Nuclear Regulatory Commission
NRDCSCC	New Jersey Direct Contact Soil Cleanup Criteria
NPL	National Priorities List
ORC	Oxygen Release Compound
PA	Preliminary Assessment
PAH	Polynuclear Aromatic Hydrocarbons
PCB	polychlorinated biphenyl
PCE	Perchloroethylene or Tetrachloroethylene
POL	Petroleum, Oil & Lubricants
PP	Proposed Plan
ppb	part per billion
PTA	Picatinny Arsenal
RA	Remedial Action
RA(C)	Remedial Action - Construction
RA(O)	Remedial Action - Operation
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RDX	Royal Demolition Explosive
REM	Removal
RI	Remedial Investigation
RIP	Remedy in Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
RSA	Rodent Sperm Analysis
SI	Site Investigation
SLERA	Screening Level Ecological Risk Assessment
SVOCs	Semi-Volatile Organic Compounds
TACOM	Tank-automotive and Armaments Command
TAPP	Technical Assistance Public Participation
TCE	Trichloroethylene
TECUP	Toxics and Energetic Clean Up
TERC	Total Environmental Restoration Contract
TNT	Trinitrotoluene
TPH	Total Petroleum Hydrocarbons
TRC	Technical Review Committee
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine (formerly USAEHA)
USACE	United States Army Corps of Engineers
USAEC	US Army Environmental Center

Acronyms & Abbreviations

USAEHA	United States Army Environmental Hygiene Agency (changed to CHPPM)
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VOCs	Volatile Organic Compounds

Installation Information

Installation Locale: Picatinny Arsenal is a 6,500 acre government-operated munitions research and development facility located in Morris County, New Jersey, approximately 40 miles west of New York City and 4 miles northeast of Dover, New Jersey. The arsenal sits in the Highlands of the state of New Jersey; the arsenal however is exempted from the Highlands regulation.

Installation Mission: Picatinny Arsenal was established in 1880 by the US War Department as a storage and powder depot. Later it was expanded to assemble powder charges for cannons and to fill projectiles with maximize (a propellant). During World War I (WWI), Picatinny Arsenal produced all sizes of projectiles. In the years following WWI, Picatinny Arsenal began projectile melt-loading operations and began to manufacture pyrotechnic signals and flares on a production basis. During World War II (WWII), Picatinny Arsenal produced artillery ammunition, bombs, high explosives, pyrotechnics, and other ordnance. After WWII, Picatinny Arsenal's primary role became the research and engineering of new ordnance. However, during the Korean and Vietnam conflicts, Picatinny Arsenal resumed the production and development of explosives, ammunition and mine systems.

In recent years, Picatinny Arsenal's mission has shifted to conducting and managing research development, life-cycle engineering, and support of other military weapons and weapon systems. The facility has responsibility for the research and development of armament items. Picatinny Arsenal has also entered into an enhanced usage leasing program for certain acreage at the southern part of the Arsenal as well as the leasing of buildings to 3rd parties in the 350 area of Picatinny. Congress has agreed with the DoD through the BRAC process that Picatinny not be closed but remain open and take in more missions. Seven other DoD sites are now being realigned at Picatinny including parts of Adelphi Laboratory Center and laboratories associated with the Naval Surface Warfare Center Division Crane.

Lead Organization: Installation Management Agency, Northeast Region

Lead Executing Agency: USAEC for the PBC and USACE for other sites.

Regulatory Participation:

FEDERAL: US EPA Region II, Federal Facilities Section, US Fish & Wildlife Survey for Endangered Species

STATE: New Jersey Department of Environmental Protection (NJDEP), Bureau of Federal Case Management

National Priorities List (NPL) Status: Picatinny Arsenal was added to the NPL in March 1990 with a Hazard Ranking Score of 42.3

Projected Dates for Construction Completion: 2010

Projected Date for NPL Removal: 2020

Installation Restoration Advisory Board (RAB)/Technical Review Committee (TRC)/Technical Assistance for Public Participation (TAPP) Status: A Restoration Advisory Board (RAB) was established in December 1995. A Technical Review Committee (TRC) preceded from 1988 to 1995. Picatinny Arsenal Restoration Advisory Board has had a TAPP contractor since 1998. The waiver to exceed the \$100,000 lifetime limit was provided by Army in 2005.

Installation Program Summaries

IRP

Primary Contaminants of Concern: VOCs, SVOCs, Metals, Polychlorinated Biphenyl (PCBs), Benzo(a)Pyrene, Nitroaromatics, Propellants, Radiologicals, Pesticides
Affected Media of Concern: Groundwater, Soil, Sediment, Surface Water
Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 2008/2010
Funding to date (up to FY05): \$89,569,870
Current year funding (FY06): \$8,701,040
Cost-to-Complete (FY07+): \$36,882,000

MMRP

Primary Contaminants of Concern: Munitions and Explosives of Concern (MEC) and Munitions Constituent (MC)
Affected Media of Concern: Soil, Groundwater
Estimated date for RIP/RC: 2017/2032
Funding to date (up to FY05): \$0
Current year funding (FY06): \$573,000
Cost-to-Complete (2007+): \$72,026,000

Cleanup Program Summary

Installation Historic Activity

Picatinny Arsenal was established in 1880 by the US War Department as a storage and powder depot. Later it was expanded to assemble powder charges for cannons and to fill projectiles with maximize (a propellant). During World War I (WWI), Picatinny Arsenal produced all sizes of projectiles. In the years following WWI, Picatinny Arsenal began projectile melt-loading operations and began to manufacture pyrotechnic signals and flares on a production basis. During World War II (WWII), Picatinny Arsenal produced artillery ammunition, bombs, high explosives, pyrotechnics, and other ordnance. After WWII, Picatinny Arsenal's primary role became the research and engineering of new ordnance. However, during the Korean and Vietnam conflicts, Picatinny Arsenal resumed the production and development of explosives, ammunition and mine systems.

In recent years, Picatinny Arsenal's mission has shifted to conducting and managing research development, life-cycle engineering, and support of other military weapons and weapon systems. The facility has responsibility for the research and development of armament items.

IRP

- Prior Year Progress: 3 Records of Decision signed by Army and EPA in fiscal year 2005, 3 Records of Decision in draft for regulator review, RIs for most sites approved, PBC PWS is awarded to ARCADIS Inc., Ecological Risk study completed for Phase III and remaining Phase I sites
- Future Plan of Action: Public notice 6 proposed plans; complete 3 Feasibility Studies; complete the investigation of groundwater in the 600 Hill; complete the remedial design and remedial action for 3 Records of Decision; install the PRB and terminate the Area D groundwater pump and treat system. Have 7 Records of Decision signed in fiscal year 2007. Achieve RIP at 12 PICA sites under the PBC by 30 September 2007. Ensure that all major construction including BRAC-related are fully coordinated with CERCLA/IRP requirements.

MMRP

- Prior Year Progress: Phase III Report approved by Army and provided to regulators, Site Investigation scheduled for 2005, An Historical Records Review Report (similar to an Archives Search Report) , the SI Report itself generally takes 14 – 17 months, Cost estimates in AEDB-R.
- Future Plan of Action: The installation plans to complete the Supplemental SI and Remedial Investigations/ Feasibility Studies (RI/FS) by 2012 and execute follow on phases/actions as required in the individual site cleanup strategies.

PICATINNY ARSENAL

Installation Restoration Program

Total AEDB-R IRP Sites / AEDB-R sites with Response Complete: 176/127

Different Site Types:

2 Burn Area	56 Contaminated Buildings
3 Contaminated Fill	4 Contaminated Groundwater
4 Contaminated Sediments	13 Surface Disposal Areas
6 Building Demolition /Debris Removal	6 Disposal Pits/Dry Wells
1 Firing Range	4 Landfill
1 Maintenance Yard	1 Oil/Water Separator
37 Storage Area	1 Surface Impoundment/Lagoon
21 Spill Site Areas	4 Aboveground Storage Tanks
1 Underground Storage Tank	2 Waste Lines
3 Explosive Ordnance Disposal Area	6 Waste Treatment Plants

Most Widespread Contaminants of Concern: VOCs, SVOCs, Metals, Polychlorinated Biphenyl (PCBs), Benzo(a) Pyrene, Nitroaromatics, Propellants, Radiological Material, Pesticides

Media of Concern: Groundwater, Soil, Sediment, Surface Water

Completed Removal (REM)/Interim Remedial Action (IRA)/Remedial Action (RA):

1991 to present - REM - Money spent on Tanks from, Cost \$1,012.1k
 1992-1995 - REM - Bottled Water to 2 off-site residences homeowner sampling water and waterline extension, Cost \$335k
 1994 – REM - Soil Removal , Cost \$192.7k
 1989-1999 – IRA - GW Pump & Treat Facility Cost \$10,373k
 REM- PCB Removal Bldg. 60, Cost \$208k


Total IRP Funding

Prior years (up to FY05):	\$89,569,870
Current year funding (FY06):	\$8,701,040
Future Requirements (FY07+):	<u>\$36,882,000</u>
Total:	\$135,152,910


Duration of IRP


Year of IRP Inception: 1973
 Year of IRP RIP/RC: 2008/2010
 Year of IRP Completion including Long-Term Management (LTM): 2039

Picatinny Arsenal
Installation Action Plan Approval Signature

 20 Nov 2006
KERRY SKELTON Date
Lieutenant Colonel
Garrison Commander

**US Army Environmental Center Concurrence Signatures
for Picatinny Arsenal Installation Action Plan**


12 Dec 06
Date
JAMES D. DANIEL
Cleanup Division
US Army Environmental Center


7 Dec 06
Date
ROBERT A. SNYDER
Chief, Oversight Northeast Branch
US Army Environmental Center

IRP Contamination Assessment Overview

The US Army Environmental Center, formally US Army Toxic and Hazardous Materials Agency (USATHAMA), Environmental Branch, conducted a record search of Picatinny Arsenal in July 1976. This report recommended that ground water quality data should be collected by Picatinny Arsenal at the locations where the groundwater leaves the Arsenal. The US Army Environmental Hygiene Agency (AEHA) performed a geohydrologic study of Picatinny Arsenal in May 1979 and found no gross contamination of existing drinking water wells. The study identified several areas of concern and recommended that an additional 19 wells be installed to monitor sites of concern and the Arsenal boundary.

The State of New Jersey performed a New Jersey Pollutant Discharge Elimination System (NJDES) compliance inspection in July 1980, and found organic solvents being discharged from Buildings 24 and 95 (RI Concept No. 21/ PICA-120, RI Concept No. 37/ PICA-76, and RI Concept No. 22/ PICA-10, Building 24 contained a metal plating operation and Building 95 contained a circuit board etching operation.

In October 1980, USAEC performed a reassessment of Picatinny Arsenal and found significant contamination associated with RCRA Site Building 24 and RCRA Site Building 95. The US Army recommended that a RCRA ground water assessment be completed. During the period January 1981 through August 1983, AEHA conducted a detailed ground water assessment. The investigation demonstrated that there were several monitoring wells in the vicinity of Buildings 24 and 95 which were highly contaminated with organic solvents, primarily TCE. The AEHA prepared a ground water quality assessment report documenting the investigation in February 1984. Picatinny Arsenal employed the US Geological Survey (USGS) to perform the additional ground water investigation.

In February 1989, NJDEP completed a RCRA Facility Assessment (RFA). A total of fifty-five (55) solid waste management units were identified. Many of these sites were previously identified in other studies.

During a RCRA Compliance Evaluation Inspection (CEI) by the EPA in 1986 and 1987, at least thirty (30) additional sites were found where waste was handled and/or stored. Many of these sites were previously identified. In June 1988 Picatinny Arsenal began field work on a confirmation study. This study included ground water and/or soil sampling at thirty-five known or potentially contaminated areas. This study was completed and is considered to be a site investigation (SI) by the regulators.

In April 1988 Argonne National Laboratory (ANL) was tasked to prepare a comprehensive Remedial Investigation (RI) Concept Plan to identify, prioritize and develop a plan of action for each site for the accomplishment of an overall RI. The RI Concept Plan addressed over 157 sites. The final version of the RI Concept Plan was published in March 1991 and approved by the EPA in October 1991

The investigative approach suggested by the RI Concept Plan, initiated by the Army and approved by the regulatory agencies in 1990, was to break the defined RI Concept Plan

IRP Contamination Assessment

sites into Areas (Areas A - P). These sixteen (16) RI Concept-defined areas were prioritized and divided into three phases of investigation called Phase I, II, and III. The investigation of the Burning Ground (PICA 002/RI-Concept Site 34 or Area A), however, was initiated before the approval and normalization of this approach.

This original approach was modified by the implementation of the DOD's Relative Risk Funding Policy. The goal of the relative risk policy is to attempt to address the worst sites first from a national or DOD perspective. According to the guidance, the investigative and remedial actions for sites with the highest relative-risk will be funded first with few exceptions.

To determine relative risk for each site, specific steps are required by the guidance. (Each step is applicable, when data exists, for the four different environmental media.) The media includes ground water, soils, sediments and surface water. The process includes the following steps:

1. Comparing individual chemical results on a site basis to contaminant hazard factors which are supplied by the guidance;
2. Determining a migration pathway factor (significant, moderate or minimal) based on DOD guidance; and
3. Determining the migration pathway factor (evident, potential or confined) based on DOD guidance.

The resultant calculation is then designated high ("1"), medium ("2") or low ("3") relative risk. The site will take the highest relative risk score of any one media. The relative risk score for each site also includes a factor as to whether there exists a regulatory agreement with schedules ("A" designation) or a regulatory agreement does not exist (a "B" designation). All the sites at Picatinny are under such a regulatory agreement with schedules and thus all ratings are designated as "A". Relative risk is not an absolute expression of risk and is not a substitute for a baseline health risk assessment.

Army Environmental Restoration Data Base – Restoration (AEDB-R) formally The Defense Site Environmental Restoration Tracking System (DSERTS) presently includes 175 sites for Picatinny Arsenal. The numbers are not consecutive and go from PICA-1 through PICA-210. These sites include the original sites listed in the RI Concept Plan plus additional sites identified after the RI Concept Plan was approved.

One hundred fifty-four of the sites were originally identified by the RI Concept Plan. Another 21 sites were subsequently added. Those additional 21 sites were identified with DSERTS numbers higher than PICA 187. The additional 21 sites include 14 sites relating to "Other Buildings" for RI Concept Areas B - P. These sites were identified because of the potential that the contractor, Argonne National Laboratories, who developed the RI Concept Plan, did not assess or review all the available information on all the buildings at the Arsenal. However, after an evaluation, some of these "Other Buildings" sites were renamed as Area-wide Groundwater or specific sites. Additional "new" DSERTS sites also

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included specific locations such as Bear Swamp and Green Pond Brooks and the firehouse. The 175 DSERTS sites are regularly updated in the AEDB-R database.

At the August 2000, April 2001 and 2002 IAP meetings, it was agreed that sites be considered response complete (RC) based on the following:

1. Active Range, not ER-A eligible previously identified in the DSERTs database.
2. Active Range, not ER-A eligible, not previously identified in the DSERTs database.
3. Previously identified as RC based on fact assumed to be "No Further Action" now identified in Institutional Control Proposed Plan.
4. Combined with other sites such as PICA-120 now tied to PICA-076 and agreed to at meeting.
5. PICA 78 will be considered RC and any action will be incorporated into the other two (2) sites in the Building 31/Building 33 grouping. The RC is being done for administrative purposes.
6. Site investigation identified no areas of concern as discussed in the 1998 IAP and beyond.
7. PICA 63 (Site 20) was combined with PICA 66 (Site 24) for administrative purposes.

in calendar year 2003, as a consequence of the agreements made at a series of meeting that occurred, Picatinny RI Concept Sites were consolidated into PICA sites. The consolidation was agreed to by the regulators and USAEC AEDB-R program managers. The consolidation was based on geographic attributes, similar schedules, and similar remedies. A major portion of the sites are expected to have only Institutional Controls as a remedy. As the agreement now stands with EPA, each RI Concept Plan Site will go forward as noted in a letter to the regulators:

"This proposed consolidation will decrease the number of required estimates plus reduce the degree of other Army-funding related requirements for us. The shortcoming would be that we would have to coordinate the Record of Decisions for all the RI Concept Plans sites included in the grouped DSERTs site. This, I feel, should be no problem. EPA will note that this proposal will not affect the agreement in regard to conducting risk assessments per site nor will it affect the many Areas of Concern defined in the Technical Regulations required by the NJDEP to regulate. This proposal does (or should) not alter the number of Remedial Investigation Concept Plan Sites or the combined future costs for the actions¹ at those sites. The costs will now be combined in the consolidated site (most are predicted to be Land Use Controls). I have coordinated and worked on this proposal with the Army Environmental Center who manages the IRP funding."

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The consolidation of PICA Sites is reflected as follows, the site in bold is the remaining site in the AEDB-R that now consolidates the other sites:

Pica #	RI Concept Plan Site #	RI Concept Plan Area	Site Description
29	96	G	Waste Oil Storage
121	95	G	Laundry for Explosively cont. clothe
89	52	G	Petroleum Leak Area
117	134	G	Maintenance and Service Shops
119	136	G	Metallurgy Lab
188	185	G	Laboratory
111	142	F	Propellant Solvent Mixing
113	144	F	Propellant Finishing
115	146	F	Powder Pressing
144	109	I	Pyrotechnic Plant
203	none	I	Former Poison Gas Lab
106	125	F	Lubricant testing
79	40	I	Explosive Manufacturing WWT F or Group 1
139	93	I	Ammunition Demo & Ordnance Facility
151	156	I	Ordnance Facility
152	157	I	Ordnance Facility
53	7	N	Munitions & Propellant Test Area
56	10	N	Former Chemical Burial Area
85	46	I	Engine Maintenance Facility
64	147	I	Poach House
73	32	I	Storage Tanks
74	33	I	Spent Ethyl Alcohol Tanks
140	97	I	Engine Pump Maintenance Bldg.
142	105	I	Propellant Plant
146	113	I	Propellant Plant
148	148	I	Change House
149	149	I	Propellant Plant
150	150	I	Propellant Plant
156	184	I	Refrig. And Inert Gas Bldgs.
135	71	I	General Purpose Lab
137	82	I	X-Ray Photo Processing Lab
153	158	I	High-Explosive Magazine
154	159	I	Explosive Storage

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Pica #	RI Concept Plan Site #	RI Concept Plan Area	<u>Site Description</u>
2	6	L	Shell Burial Area
162	5	L	Shell Burial Area
104	111	F	Propellant Bagging Plant
107	138	F	Chemical Lab and Propellant Plant
108	139	F	Propellant Processing
109	140	F	Propellant Processing
138	90	I	Electromagnetic Gun Test Range
147	137	I	Waste Pit
210		G	Lab and Machine Shop
12	83	I	Physical Analytical Lab
18	30	I	Flourochemical Storage
134	70	I	R&D Lab and Warehouse
133	151	H	Change House
175	115	M	Ordnance Facility Building
178	152	M	Ordnance Facility Buildings
179	153	M	Ordnance Facility Building
180	154	M	Disassembly Building
75	36	L	Waste Storage
86	47	I	Heavy Equipment Maintenance
141	102	I	Barracks and Waste Oil
191	188	L	Coal Storage
159	172	K	Parking Lot
160	173	K	Chemical Lab
161	174	K	Old Sewage Treatment Sludge Bed
189	186	K	Firehouse
37	51	L	Haz. Waste Storage Tanks
80	41	L	Lab Pack Flammable Waste Storage
81	42	L	PCB storage Area
82	43	L	Pesticide Storage
165	114	L	Explosives Loading
166	160	L	Ordnance Facility
167	167	L	Propellant Plant/Ordnance Facility
164	103	L	Reservior near Bldg.3159
170	170	L	Propellant Melt-Pour

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Pica #	RI Concept Plan Site #	RI Concept Plan Area	Site Description
195	77	L	Machine Shop
7	1	J	Rocket Fuel Test Area (G-2 Area)
8	2	J	Rocket Fuel Test Area (G-1 Area)
157	4	J	Rocket Motors Test Area
91	55	H	Machining of Explosives Facility
123	62	H	Haz. Waste Storage
124	64	H	Load/Disassembly Plant
125	98	H	Mine Assembly
126	100	H	Explosive Loading Facility
127	127	H	Melt Casting Operation
128	128	H	Explosives Pressing Plant
129	129	H	Change House
130	130	H	Powder Press/Pelleting
131	131	H	Ordinance Manufacture
132	132	H	Explosive Press and Loading Facility
102	61	F	Waste Dumping area behind Bldgs.
103	104	F	Chemical Lab
22	50	I	Haz. Waste Storage Tanks
47	63/65	I	Steam Power Plant
145	110	I	Propellant Production
21	35	L	Nitroglycerin Production
163	91	L	Rocket Motor Assembly
168	168	L	Propellant Press
169	169	L	Propellant Plants
174	166	L	Propellant Plants
172	161	L	Nitration Building
171	171	L	Ordinance Facility
173	162	L	High Explosives Production
69	27	P	Salt Storage Area
185	119	P	Propellant Storage Buildings
186	120	P	Propellant Storage
187	121	P	Chemical Storage
208	none	P	DU Scrap Storage Area
116	101	G	Former Gas Station
72	31	G	Building 314, 314E Former DRMO

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At the May 2005 IAP, it was agreed to keep open one site - PICA 096 (Site 117) Bldg 22, Precision Machine Shop for all sites in the 25 Sites Institutional Control Feasibility Study, Proposed Plan and later Record of Decision. Please note certain sites have been already consolidated. Also one site was reopened, PICA 20 (Site 19) to incorporate the costs associated with the 13 Site Institutional Control Record of Decision sites.

<u>Area</u>	<u>(PICA Site Consolidation)</u>	<u>RI Site, Building, and Description</u>
D	94	69, Building 92 - Surveillance Laboratory
D	96	117, Building 22 - Precision Machine Shop
D	98	123, Building 64 - Metal Plating Shop
D	190	187, Building 67 - Oil and Acid Storage
D	207	None, Building 63 - Lumber and Pipe Storage Shed
F	101	60, Building 163, Photography Lab
F	114	145, Building 477, Explosive & Propellant Mix Area
G	(29)	52, 95, 96; Building 305 - Petroleum Leak Area, Laundry Facility & Waste Oil Storage
G	(29)	134, Building 302, Maintenance and Service Shops
G	(29)	136, Building 355, Metallurgy Lab
G	(29)	185, Building 350, Former Laboratory
J	158	175, Building 3801, Helicopter Maintenance
K	(161)	172, Parking Lot across from Building 3328
K	(161)	173, Building 3404, Chemical Lab
K	(161)	174, Former Building 3420, Sewage Treatment Plant
K	(161)	186, Building 3316, Firehouse
L	176	176, Little League Baseball Field
L	177	177, Sanitary Sewer Line Breaks/Leaks
N	(53)	7, Building 1242, Munitions and Propellant Test Area
N	(53)	10, Former Chemical Burial Area
O	183	164, Building 1217, General Purpose Magazine
P	(69)	27, Former Building T-90, Salt Storage
P	(69)	119, Buildings 46, 47, & 48, Propellant Storage Buildings
P	(69)	120, Building 50, Propellant Storage
P	(69)	121, Building 57, Chemical Storage
P	(69)	208, DU Scrap Storage Area

Note: The issue involving the enforceability of land-use controls that was noted in the October 2002 IAP was resolved in 2003. The issue was between the EPA and DoD. Picatinny and USEPA Region II agreed to follow the "Navy approach" to the LUC issue. Any ROD will only mention and not detail specific land use controls. The details will be specified in the remedial design phase document.

Note: Although the enforceability of land-use controls was resolved in 2003, as noted above, the EPA and Army still wrestled with the terminology and text regarding "acceptable risk" and existing land use controls. The issue are now (June 2006) resolved, the issue had held up planned Records of Decision and Proposed Plans for a number of months.

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NJDEP has maintained its position that soils with levels of contamination above their Non-residential Direct Contact Soil Cleanup Criteria (NJNRDCSCC) need to be addressed with both institutional and engineering controls. The Army through General Geis's letter, included as an attachment to this IAP, considers the NJNRDCSCC as only To-be-Considered criteria and not ARARs. The NJDEP agreed at a partnering meeting that existing vegetative covers of soils contaminated above their NJNJDSCC could be defined as an acceptable engineering control. The Army has agreed to propose and negotiate acceptable institutional and/or engineering controls with the NJDEP on a case by case basis.

IRP Cleanup Exit Strategy

The time to complete the Remedial Investigation process including the Feasibility Study and the document review process can be improved significantly in meeting our goals. The cleanup exit strategy includes the following array of tools and options:

- Use the Performance-based contracting to speed the process from draft to final documentation and enhance the negotiating strength of the Army.
- Continue partnering to arrive at approved documentation for actions, mini workplans, use of emails rather than letters and use of the world wide web as a platform for review.
- Implement with the DoD, a federal hire or a contractor to work at the NJDEP under the DSMOA. The intention is to decrease NJDEP document review time but at the same time keep all current technical reviewers and case manager at the NJDEP.
- Combine sites into documents to reduce the total time lag natural with the process. This may take the shape of including all 'soil' sites into one Record of Decision or all sites with removal action and those with institutional controls only into separate Record of Decisions. Currently, the 25 Site Feasibility Study was developed and has been approved by the EPA.

1931

- The History of Picatinny Arsenal, Picatinny Arsenal, Mar 1931.

1976

- The History of Picatinny Arsenal 1880 – 1931, Vol 1 War Plans Division, Plant Engineering Department, PTA March 31, 1931, Reissued December 1976.

1979

- Geohydrologic Consultation No. 31-24-0191-79, US Army Environmental Hygiene Agency, Jul-79.

1981

- Phase 1, Ground Water Quality Assessment No. 38-260153-82, Picatinny Arsenal, Dover NJ US, Army Environmental Hygiene Agency, Jul-81.

1982

- Darcon Historic Building Inventory HABS/HABER Report (condensed version), Picatinny Arsenal, Aug-82.
- HABRS/HAER Inventory Report (full report) DARCOM – Historic Building Inventory HABS/HAER Report, Picatinny Arsenal, Probably 1982.
- Technical Background and Terminology, HAER No. NJ-36, Picatinny Arsenal, Probably 1982.
- Summary of Building History Area H, Picatinny Arsenal, Probably 1982.
- Summary of Building History Area I, Picatinny Arsenal, Probably 1982.
- Picatinny Arsenal Preliminary Field Investigation Findings/Recommendations Area H, Picatinny Arsenal, Probably 1982.
- Summary of Building History Area H, Picatinny Arsenal, Probably 1982.

1983

- Reassessment of Picatinny Arsenal, 1983, Chemical Systems Laboratory, May-83.

1984

- Final Report, Ground-Water Quality Assessment No. 38-26-0153-84, ARRACDEN Picatinny Arsenal Support Activity, Dover, NJ , US Army Environmental Agency, Jan-84.

1985

- Historic Properties Report, Picatinny Arsenal, Dover, New Jersey , Picatinny Arsenal, Mar-85.

1986

- Ground Water Quality Data for Picatinny Arsenal, NJ, 1958-85 , US Geological Survey, 1986.
- Description and Results of Test Drilling Program at Picatinny Arsenal, NJ 1982-84, US Geological Survey, 1986.

1986 (con't)

- Determination of Geohydrologic Framework and Extent of Ground-Water Contamination Using Surface Geophysical Techniques at Picatinny Arsenal, NJ; Water Resources Investigation Report 86-4051, US Geological Survey, 1986.

1988

- Resource Conservation and Recovery Act (RCRA Buildings to be Exempted and Closed, Part I, II and III, plus Appendices, Sep-88.

1989

- Installation Assessment Picatinny Arsenal, Morris County, NJ Volume 1 text, Volume 2 maps, USEPA, Mar-89.
- Cost Estimate Report for Interim Groundwater Remediation at Picatinny Arsenal, Building 24 Study Area, Dover, New Jersey, ERC Environmental and Energy Services, Co., Inc., Mar-89.
- Engineering Feasibility Study for Interim Groundwater Remediation at Picatinny Arsenal Building 24 Study Area Dover, New Jersey, ERC Environmental and Energy Services, Co., Inc., Apr-89.
- Develop Documentation/Prepare Remedial Action Concept Plan for Building 24, Contamination Plume at Picatinny Arsenal, Engineering Technologies Associates, Inc., 17-Apr-89.
- Record of Decision and Environmental Assessment Report for Interim Groundwater Remediation at Picatinny Arsenal, Building 24 Study Area Dover, NJ ERC, Environmental and Energy Services Co., Inc., May-89.
- Record of Decision and Environmental Assessment Report for Interim Groundwater Remediation at Picatinny Arsenal, Building 24 Study Area Dover, NJ ERC, Environmental and Energy Services Co., Inc., May-89.
- Record of Decision for Interim Groundwater Remediation Plan, Picatinny Arsenal, New Jersey, ERC Environmental and Energy Services, Co., Inc., 22-May-89.
- Site Investigation of Picatinny Arsenal, Volumes 1 and 2, Dames & Moore, Jul-89.
- Final Report, Well Drilling/Installation and Sampling Analysis, Southwest Boundary Well Clusters, Picatinny Arsenal, NJ, Dames and Moore, Jul-89.
- USATHAMA Public Involvement and Response Plan for Picatinny Arsenal, Environmental Science and Engineering, Sep-89.
- Data Review, Post Farm landfill, Site 23, Picatinny Arsenal, New Jersey, US Army Toxic and Hazardous Materials Agency (USATHAMA), 12-Sep-89.
- Transcript of Public Meeting on a Proposed Interim Remedial Action Plan for Control of Migration of Contaminated Groundwater in the Building 24 Area of Picatinny Arsenal, 9/25/1989.

1990

- Assessment of Contamination of Groundwater and Surface Water in the Area of Building 24, Picatinny Arsenal, NJ 1986-87, Water-Resources Investigations Report 90-4057, US Geological Survey, 1990.
- Technical Review Committee (TRC) Charter, 1990.

1990 (con't)

- Contamination of Shallow Groundwater in the Area of Building 95, Picatinny Arsenal, NJ, 1985-90, Water Resources Investigation Report No.: 92-4122 US Geological Survey data for study was completed in 1990
- Contingency Plan, Safety Health & Emergency Response Plan, Building 24 Interim Groundwater Remediation, US Army Armament Research, Development and Engineering Center, Morris County, NJ, USACE, Jan-90.
- Final, Verification of Design Parameters, Picatinny Arsenal, Interim Groundwater Treatment System, Metcalf & Eddy, Inc., Jan-90.
- Final, Waste Management Plan for Interim Remedial Design, Picatinny Arsenal, New Jersey, Metcalf & Eddy, Inc., Jan-90.
- Site Specific Quality Management Plan, Interim Groundwater Remediation Plan, Picatinny Arsenal, NJ, Metcalf & Eddy, Inc., Jan-90.
- Geophysical Surveys to Locate Buried Drums at Post Farm Site, Picatinny Arsenal, August 1990, U. S. Geological Survey, Pierre J. Lacombe, Aug-90.
- Environmental Remedial Actions at Picatinny Arsenal, Weston, Contract No. DACA87-90-C-0054, 21-Dec-90.
- Streamed-Material Characterizations and Surface Water Quality, Green Pond Brook and Tributaries, Picatinny Arsenal, NJ 1983-90, US Geological Survey, Water Resources Investigation Report 95-4246, study ended in year 1990.

1991

- Sampling and Analysis and Quality Assurance/Quality Control Plan, Interim Groundwater Remediation, Picatinny Arsenal, NJ, Feb-91.
- Remedial Investigation Concept Plan for Picatinny Arsenal Volumes 1 and 2, Argonne National Laboratories, Mar-91.
- Federal Facility Agreement, Administrative Docket Number: II-CERCLA-FFA-001-04 (US EPA and US Army Armament Research Development and Engineering Center, aka Picatinny Arsenal aka Interagency Agreement, USEPA, Apr-91.
- US Army Environmental Hygiene Agency, Health Risk Assessment Study No. 39-26-L172-91, ARDEC, Picatinny Arsenal, NJ, AEHA, Apr-91.
- Picatinny Arsenal Open Burn Area, Air Toxic Monitoring, 14-15 November 1990, Foster-Wheeler Enviroresponse Inc., May-91.
- US Army Environmental Hygiene Agency, Health Risk Assessment Study No. 39-26-L172-91, ARDEC, Picatinny Arsenal, NJ, AEHA, Jul-91.
- Environmental Remedial Actions at Picatinny Arsenal Volumes I, II and III, Weston Services, Inc., 1-Oct-91.
- Removal Site Investigation of Post Farm Landfill, Drum Burial Area at Picatinny Arsenal, Volume 1, Roy F. Weston, Inc., Nov-91.
- Air Permit Log No. 01-90-2140 (Permit to Construct, Install or Alter Control Apparatus or Equipment), New Jersey Department of Environmental Protection, revised January 2, 1991.

1992

- US Army Environmental Hygiene Agency, Health Risk Assessment Study No. 39-26-L172-92, ARDEC, Picatinny Arsenal, NJ, AEHA, Apr-92.
- Decision Document, Picatinny Arsenal Off-Post Alternate Water Supply, Sep-92.
- Removal Site Investigation of Post Farm Landfill, Drum Burial Area at Picatinny Arsenal, Phase II and Phase III Technical Report, Roy F. Weston, Inc., Oct-92.
- Removal Engineering Evaluation/Cost Analysis (EE/CA) – Final Post Farm Landfill – Site 23 (Drum Burial Area Only) Picatinny Arsenal, Roy F. Weston, Inc., Oct-92.
- Environmental Baseline Study for Picatinny Arsenal, Volume II, US Army Armament Munitions & Chemical Command Armament RDE Center, Dec-92.
- Remedial Investigation/ Feasibility Study (RI/FS) of the Burning Ground at Picatinny Arsenal, Dames and Moore, Dec-92.
- Part A, RI/FS Work Plan, Dames and Moore, Dec-92.
- Part B, Field Sampling Plan (FSP), Dames and Moore, Dec-92.
- Part C, Quality Assurance Project Plan, Dames and Moore, Dec-92.
- Part D, Health and Safety Plan, Dames and Moore, Dec-92.
- Appendix B: USG.S. Well Logs and Downhole Geophysical Logs, Dames and Moore, Dec-92.

1993

- Removal Action Report, Post Farm Landfill – Drum Burial Area, Picatinny Arsenal, Rockaway Township, New Jersey, Roy F. Weston, Inc., Jun-93.
- Validated Sampling Data, Veritech Environmental, Jun-93.
- Phase I Remedial Investigation/Feasibility Study (RI/FS) Picatinny Arsenal, New Jersey, Dames and Moore, Aug-93.
- Part A, Work Plan, Dames and Moore, Aug-93.
- Part B, Field Sampling Plan, Dames and Moore, Aug-93.
- Part C, Quality Assurance Project Plan, Dames and Moore, Aug-93.
- Part D, Health and Safety Plan, Dames and Moore, Aug-93.
- Phase I Remedial Investigation/Feasibility Study (RI/FS) Picatinny Arsenal, New Jersey, Dames and Moore, Aug-93.
- Part A, Work Plan, Dames and Moore, Aug-93.
- Part B, Field Sampling Plan, Dames and Moore, Aug-93.
- Part C, Quality Assurance Project Plan, Dames and Moore, Aug-93.
- Part D, Health and Safety Plan, Dames and Moore, Aug-93.
- Environmental Remedial Actions, Building 519, at Picatinny Arsenal, Final Closure Plan, Roy F. Weston, Sep-93.
- Environmental Remedial Actions Post Farm Landfill, Borrow Area at Picatinny Arsenal, Final Work Plan, Roy F. Weston, Inc., Oct-93.
- Non-Time Critical Removal Action Preliminary Assessment for Unexploded Ordnance Area of the DRMO Yard (Site 31), Roy F. Weston, Nov-93.

1994

- Hydrology of and Water Quality In The Open Burning Area and Vicinity, Picatinny Arsenal, NJ, 1989-90, Water Resources Investigation Report 92-4134, US Geological Survey, 1994.
- RCRA Groundwater Monitoring Plan Building 95 Surface Impoundments, Carpenter Environmental Associates Inc., Jan-94.
- Environmental Remedial Actions Post Farm Landfill, Borrow Area at Picatinny Arsenal, Preliminary Subsurface Investigation, Roy F. Weston, Inc., Feb-94.
- Water Allocation Permit Equivalency No. 2450E (formerly 2403P), New Jersey Department of Environmental Protection, 2/24/1994.
- Non-Time Critical Removal Action Site Investigation Report of the DRMO (RI-Concept Site No. 31), Roy F. Weston, Jul-94.
- NJ Pollutant Discharge Elimination System/Discharge to Groundwater (NJPDES/DGW) Permit Equivalency (PEQ) for Surfactant Injection Study, New Jersey Department of Environmental Protection, 10/24/1994.
- Burning Ground Remedial Investigation Report (RI Concept Plan Site No.34 and Area A), Volumes I and II), Dames and Moore, Dec-94.
- Picatinny Arsenal, Phase II Remedial Investigation/ Feasibility Study Work Plan, Final Report, December 1994, prepared by US USAEC Task Order No. 8, Contract No. DAAA15-91-D-0014., USAEC, Dec-94.
- Picatinny Arsenal, Phase II Sampling and Analysis Plan and Quality Assurance Project Plan, Volume 1 and Volume II, Final Report, USAEC, Dec-94.
- Picatinny Arsenal, Phase II RI/FS, Final Health and Safety Plan, USAEC, Dec-94.
- Fact Sheet No. 1, Environmental Cleanup at Picatinny Arsenal IT Corporation, Knoxville, Dec-94.
- Fact Sheet No. 2, Public Participation in Picatinny Arsenal Environmental Cleanup, IT Corporation, Knoxville, Dec-94.
- Fact Sheet No. 3, Environmental Investigation Expedited at the Arsenal Burning Ground, IT Corporation, Knoxville, Dec-94.
- Update and Confirmation for Building 24 Contamination Plume, Picatinny Arsenal Technical Support Services, Final Report and Appendices, Engineering Technologies Associates, Inc., 12/30/1994.

1995

- Evaluation of the Effect of Extraction Well Withdrawals on a Trichloroethylene Plume in Ground Water Near Building 24, Picatinny Arsenal, US Geological Survey, 1995.
- Particle-Tracking Analyses to Determine locations for a New Extraction Well in the Trichloroethylene Plume in Ground Water Near Building 24, Picatinny Arsenal, NJ, US Geological Survey, 1995.
- RCRA Building 95 Impoundments Groundwater Monitoring Results Sampling of June 25, 1993, Northeastern Analytical Corporation, 1995.
- Evaluation of the Effect of Extraction Well Withdrawals on a Trichloroethylene Plume in Ground Water Near Building 24, Picatinny Arsenal, US Geological Survey, 1995.
- Final Report and Appendices CERCLA Site Clearances, Pistol Range, Carpenter Environmental Assoc., Feb-95.

1995 (con't)

- Final Report and CERCLA Site Clearances for Building 537, Carpenter Environmental Associates, Inc., Jun-95.
- Final Report and Appendices for CERCLA Site Clearances for Building 537, Carpenter Environmental Associates, Inc., Jun-95.
- Final Report and Appendix A, Volume I, CERCLA Site Clearances for Building 537, Carpenter Environmental Associates, Inc., Jun-95.
- Picatinny Arsenal, Appendix A, Volume II, CERCLA Site Clearances for Building 537, Carpenter Environmental Associates, Inc., Jun-95.
- Non-Time Critical Removal Action Site Investigation Report and Engineering Evaluation/Cost Analysis at Building 1363A and 1373, RI Concept Area L, Picatinny Arsenal, New Jersey, Carpenter Environmental Associates, Inc., 6/1/1995.
- Final Engineering Evaluation/Cost Analysis Report for Buildings 1363A and 1373, Carpenter Environmental Associates, Inc., Jun-95.
- Appendix A, Volume II, SI (Site Investigation) Report and EE/CA (Engineering Evaluation/Cost Analysis) at Buildings 1363A and 1373, Carpenter Environmental Associates, Inc., Jun-95.
- Appendix B and C, Volume I, SI Report and EE/CA at Buildings 1363A and 1373, Carpenter Environmental Associates, Inc., Jun-95.
- Appendix C, Volume II and EE/CA at Buildings 1363A and 1373, Carpenter Environmental Associates, Inc., Jun-95.
- Appendix D, Volume II and EE/CA at Buildings 1363A and 1373, Carpenter Environmental Associates, Inc., Jun-95.
- Final Summary Removal Report for Non-Time Critical Removal Actions at Buildings 1363A and 1373, RI Concept Area L, Picatinny Arsenal, NJ, Sep-95.
- Quality Assurance Project Plan, Interim Groundwater Treatment System, Dow Environmental Inc., Nov-95.
- Engineering Evaluation/Cost Analysis for a Non-Time Critical Removal Action for Radium, Strontium and Depleted Uranium Contaminated Soils at Picatinny Arsenal Health Physics Office and the Installation Restoration Program Office of the Public Safety and Environmental Affairs Office and of Picatinny Arsenal, NJ with Support From Radiation Waste Disposal Office of the Industrial Operations Command, Army Materiel Command, Rock Island, IL with Allied Technology Group, June 25, 1995.

1996

- Hydrogeology of and Simulation of Ground-Water Flow at Picatinny Arsenal, US Geological Survey, Water Resources Investigation, 96-4061, 1996.
- Fact Sheet No. 4, The Information Repositories and Administrative Record, IT Corporation, 1996.
- Fact Sheet No. 5, IRP/CERCLA Documents, IT Corporation, 1996.
- Picatinny Arsenal Restoration Advisory Board (PAERAB) Charter, PAERAB, Aug-96.
- Evaluation of Structures Built Prior to 1946 at Picatinny Arsenal, WCH Industries, December 30, 1994/ November 29, 1996

1997

- Analysis of Ground-Water Flowpaths Near Water Supply Wells, Picatinny Arsenal, NJ, US Geological Survey Water-Resources Investigations Report 96-4228, 1997.
- Fact Sheet No. 6, Air Sampling Survey, ICF Kaiser Engineers, 1997
- Picatinny Arsenal Area D Groundwater Feasibility Study, Volume 1A – Data Gap Work, Volume 1B Data Gap Workplan, ICF Kaiser Engineers, Oct-97.
- Picatinny Arsenal Area D Groundwater Feasibility Study, Volume 1A – Data Gap Work, Volume 1B Data Gap Workplan, ICF Kaiser Engineers, Oct-97
- Picatinny Arsenal Area D Groundwater Feasibility Study Data Gap Work Plan, Delivery Order 007, Volume 1B Data gap Workplan Sections 4, 5, 6 and 7, ICF Kaiser Engineers, Oct-97.
- Site 23 – Post Farm Landfill Additional Investigation Data Report – Volume 1 – DATA and Volume II Appendicies, ICF Kaiser Engineers, Nov-97.
- Phase 1 Remedial Investigation Report Volume 6A, Section 15, Conclusions and Recommendations, Dames and Moore, Dec-97.
- Ecological Field Sampling Work Plan Phase II Remedial Investigation/Feasibility Study, Picatinny Arsenal, New Jersey, ICF Kaiser Engineers, 12/19/1997.

1998

- Preliminary Assessment/Site Inspection Report for Non-Evaluated Phase III RI Concept Plan Sites and Additional Sites within RI concept Plan Area L, Volume 1, Sites with Recommendations For No Further Action, and Volume 2, Sites with Recommendations for Further Action, ICF Kaiser Engineers, Jan-98.
- Picatinny Arsenal Facility-Wide Health and Safety Plan, Volumes 1 and 2, ICF Kaiser Engineers, Feb-98.
- Work Plan for Additional RI Investigation at Phase II, Group 1, Sites 40, 93, 156 & 157, ICF Kaiser Engineers, Feb-98.
- Work Plan for Additional RI Investigation at Phase II, Group 3, Sites 1, 2, 4D & 4E, ICF Kaiser Engineers, Feb-98.
- Field Inspection of 53 Areas Sensitive for Cultural Resources and Phase IB Archaeological Surveys of Eight Sensitive Areas at Picatinny Arsenal, Morris County, NJ, Panamerican Consultants, Inc., Apr-98.
- Community Involvement Response Plan Picatinny Arsenal, Apr-98.
- Phase 1, Site 20/24 Data Report and Additional Investigation Work Plan – Picatinny Arsenal, Phase I, ICF Kaiser Engineers, May-98.
- Response to NJ Historic Preservation Office Review of Architectural Assessment of Historic Structures at Picatinny Arsenal, Morris County, NJ and Definition of Historic Districts for Picatinny Arsenal, Morris County, NJ, Panamerican Consultants, Inc. Buffalo Branch Office, 36 Brunswick Road, Depew, NJ 14043, Aug-98.
- Site 23 – Post Farm Landfill Fracture Trace Analysis Report, ICF Kaiser Engineers, Aug-98.
- Picatinny Arsenal Facility-Wide Field Sampling Plan, ICF Kaiser Engineers, Sep-98.
- Trenching and Sampling Work Plan Site 180 – Waste Burial Area, Task Order 19, ICF Kaiser Engineers, Sep-98.
- Workplan Summary Investigation Tables for Phase III 1A Study Sites, Delivery Order 0017, ICF Kaiser Engineers, Sep-98.

1998 (con't)

- Work Plan for Areas F and G Groundwater Remedial Investigation, Task Order 0017, ICF Kaiser Engineers, Dec-98.

1999

- Final Remedial Investigation Workplan Buildings 31 and 33 Picatinny Arsenal, New Jersey Contract Number DAAE30-96-D-1026, Delivery Order Three, Environmental Compliance, Inc., Feb-99.
- Phase I, Remedial Investigation Report, Volume 14, Appendix D Data Validation Appendix E Physical Properties of Contaminants of Concern, Dames & Moore, Apr-99.
- Phase 1 Remedial Investigation Report, Volume 1, Introduction and Area B, Dames and Moore, Apr-99.
- Phase 1 Remedial Investigation Report, Volume 7, Ecological Assessment, ICF Kaiser Engineers, Apr-99.
- Phase 1 Remedial Investigation Report, Volume 1, Introduction and Area B, Dames and Moore, Apr-99.
- Area B Data Report, Groundwater Feasibility Study Data Gap Investigation, Volume 2, Appendices A-R, ICF Kaiser Engineers, Apr-99.
- Phase 1 Remedial Investigation Report, Volume 2, Study Area C, ICF Kaiser Engineers, Apr-99.
- Phase I Remedial Investigation Report Volume 3, Study Area D and E, Dames & Moore, Apr-99.
- Phase 1 Remedial Investigation Report, Volume 4, Study Area F, Dames & Moore, Apr-99.
- Phase I RI Report, Volume 5, Section 10 Study Area G, Dames & Moore, Apr-99.
- Phase I RI Report, Volume 6, Sections 11 & 12, Study Area G Green Pond Brook and Fate and Transport, Dames & Moore, Apr-99.
- Phase II Remedial Investigation Report, Round 1, Volume 1, ICF Kaiser Engineers, Apr-99.
- Phase II Remedial Investigation Report, Round 1, Volume 2, Area H Sites, ICF Kaiser Engineers, Apr-99.
- Phase II Remedial Investigation Report, Round 1, Volume 3, Area I, No Further Action Sites, ICF Kaiser Engineers, Apr-99.
- Phase II Remedial Investigation Report, Round 1, Volume 3 Area I IA Sites Recommended for Additional Investigation, ICF Kaiser Engineers, Apr-99.
- Phase II Remedial Investigation Report, Round 1, Volume 3, Area I 2A/3A Sites Recommended for Additional Investigation, ICF Kaiser Engineers, Apr-99.
- Phase II Remedial Investigation Report, Round 1, Volume 4, Area J Sites, ICF Kaiser Engineers, Apr-99.
- Phase 1 Remedial Investigation Report, Volume 8, Human Health Assessment, Dames & Moore, Apr-99.
- Public Health Assessment for Picatinny Arsenal (US Army) Dover, Morris County, NJ, CERCLIS NO NJ3210020704, ATSDR, Apr-99.
- Health Consultation, Review of Picatinny Arsenal PCB Health Risk Assessment Assumptions, Picatinny Arsenal, Dover, Morris County, NJ CERCLIS NO NJ3210020704, ATSDR, Apr-99.

- Picatinny Arsenal Facility-Wide Quality Assurance Project Plan, IT Group, May-99.
- Proposed Plan No Response Action with Existing Institutional Controls and Land Use Control Assurance Plan for Sites 19, 22, 28, 44, 49, 86, 1043, 106, 124, 135, 141, 143, 145 163, 182 and 183 at Picatinny Arsenal, ICF Kaiser Engineers, May-99.
- Compilation of Background Information and Existing Institutional Controls for Reference During Regulatory Review Proposed Plan – No Response Action with Existing Institutional Controls and LUCAP for Sites: 19, 22, 28, 44, 49, 86, 104, 106, 124,135,141, 143, 145, 163, 182 and 183, ICF Kaiser Engineers, May-99.
- Area E Groundwater Feasibility Study Data Gap Investigation Workplan, ICF Kaiser Engineers, Jul-99.
- Area E Groundwater Feasibility Study Data Gap Investigation Workplan, ICF Kaiser Engineers, Jul-99.
- Picatinny Arsenal Task Order 17, Phase I 2A/3A Sites Additional Investigation Work Plan, The IT Group, Aug-99.
- DSMOA – TWO YEAR WORKPLAN TABLE NJ Department of Environmental Protection, Sep-99.
- Phase I Additional RI Sites 22, 44, 61, 104, 122, 135, 141 and 145, Volumes 1 & 2, IT Corporation, Sep-99.
- Picatinny Arsenal Task Order 19, Engineering Evaluation/Cost Analysis (EE/CA) Site 122, PCB Soils at Building 60/60A Area, IT Corporation, Sep-99.
- Area B Data Report/Groundwater Feasibility Study Data Gap Investigation, Volumes 1, Data Report Workplan, IT Group, Oct-99.
- Picatinny Arsenal Facility-Wide Background Investigation Work Plan, IT Corporation, Nov-99.
- Picatinny Arsenal Additional Site Investigations Sites 3, 31, 192, and 199 (Workplan), IT Corporation, Nov-99.

2000

- Picatinny Arsenal Task Order 19 Site 122 PCB Soil and Sediment Removal Action Work Plan, IT Corporation, Jan-00.
- Picatinny Arsenal Task Order 17, Site 34, Proposed Plan, IT Corporation, Mar-00.
- Feasibility Study for Site 20/24 Picatinny Arsenal, NJ, IT Group, Mar-00.
- Picatinny Arsenal Task Order 19, Site 16 Guncotton Line Investigation Work Plan, IT Corporation, Mar-00.
- Phase I & II Remedial Investigation Report, Buildings 31 and 33, Picatinny Arsenal, NJ Contract No. DAAE30-96-D-1026, D.O. 3, Environmental Compliance, Inc., Apr-00.
- Picatinny Arsenal Task Order 17 Phase III 2A/3A Sites Additional Investigation Workplan, IT Corporation, Jun-00.
- Screening-Level Ecological Risk Assessment Site 54 – Lake Denmark Remedial Investigation/Feasibility Study, Picatinny Arsenal, NJ, IT Corporation, Jul-00.
- Risk Management Plan for 9 Sites in the Phase I Area, Picatinny Arsenal, NJ, IT Group, Aug-00.
- Area E Groundwater Feasibility Study, IT Corporation, Aug-00.
- Picatinny Arsenal, Task Order 19, Site 180, Exploratory Trench Investigation Data Report, IT Corporation, Oct-00.

2000 (con't)

- Picatinny Arsenal Task Order 19, Site 122 (DSERTS #PICA011) PCB Soil & Sediment Removal Action Report, IT Corporation, Oct-00.

2001

- Fact Sheet No. 8, Fact Sheet on Site 20 – Pyrotechnical Range and Site 24 Sanitary Landfill, Picatinny Arsenal, 2001.
- Fact Sheet No. 9 on Institutional Control Proposed Plan for 13 Sites, Picatinny Arsenal, 2001.
- Mid-Valley Groundwater Investigation Work Plan Picatinny Arsenal, NJ, IT Group, Jan-01.
- Picatinny Arsenal RCRA Subpart X Permit Monitoring Summary of Groundwater Sampling Results from February 1999 to October 2000, Task Order 0027, IT Corporation, Jan-01.
- Iron Powder Demonstration Study: REO: Interim Status Report PTA Landfill Morris County, NJ, ARS Technologies Inc., 17-Jan-01.
- Transcript of Proceedings, Public Meeting, Wharton Public Library, Wharton, NJ 07885, February 8, 2001, A.R.T. Agency, Inc., Feb-01.
- Picatinny Arsenal Task Order 19, Engineering Evaluation/Cost Analysis – Remedial Action to Treat Tetryl in Soil from the Northern Tetryl Pits at Site 17, IT Corporation, Mar-01.
- Indiana Bat Prey Tissue Sampling Workplan, Picatinny Arsenal New Jersey, Task Order 5, IT Corporation, Apr-01.
- Picatinny Arsenal Task Order 17, Fish Collection and Human Health Risk Assessment Workplan, IT Corporation, Apr-01.
- Picatinny Arsenal Phase III-1A Human Health Risk Assessment Approach, IT Corporation, Apr-01.
- Picatinny Arsenal Green Pond Brook & Bear Swamp Brook Focused Feasibility Study, Task Order 17, IT Corporation, May-01.
- Institutional Control Proposed Plan For Soils at Sites: 19, 28, 44, 49, 86, 106, 124, 135, 141, 143, 163, 182 and 183 at Picatinny Arsenal, IT Group, Inc., Jun-01.
- TITLE: Proposed Plan for Site 20/24 Picatinny Arsenal, New Jersey, IT Group, Jun-01.
- Feasibility Study for Site 23, Picatinny Arsenal, NJ, IT Corporation, Jun-01.
- Picatinny Arsenal Task Order 17, Area C Groundwater Data Report, IT Corporation, Jul-01.
- Picatinny Arsenal Task Order 17, Fish Collection and Human Health Risk Assessment Workplan; also listed under Risk Assessment Reports, IT Corporation, Jul-01.
- Picatinny Arsenal Task Order 19, Site 16, Guncotton Line Investigation and Removal Action Report, IT Corporation, Jul-01.
- Picatinny Arsenal Task Order 17, Area C Groundwater Data Report, IT Corporation, Jul-01.
- Area D Groundwater Feasibility Study, Report of Model Re-Calibration and Cost Analysis, IT Corporation, Jul-01.
- Picatinny Arsenal Task Order 17, Site 34, Feasibility Study Report, IT Corporation, Aug-01.

2001 (con't)

- Institutional Control Record of Decision for Soils at Sites 19, 28, 44, 49, 86, 106, 124, 135, 141, 143, 163, 182 and 183, IT Group, Aug-01.
- Proposed Plan for Site 23, Post Farm Landfill, Picatinny Arsenal, NJ Task Order 17, prepared by IT Corporation, Draft Final, IT Corporation, Oct-01.
- Picatinny Arsenal, Delivery Order No.17, Phase II Group 3 Sites Remedial Investigation Report Sites 1, 2 & 4, Volumes 1 - 6, IT Corporation, Oct-01.
- Picatinny Arsenal Task Order 19, Site 17, (DSERTS #PICA 001) Northern Tetryl Pits, Explosive Soil Removal and Treatment Action Work Plan, IT Corporation, Oct-01.
- Picatinny Arsenal Phase II Sites Surface Water & Sediment Supplemental Human Health Risk Assessment, IT Corporation, Nov-01.
- Picatinny Arsenal Phase II Sites Surface Water & Sediment Supplemental Human Health Risk Assessment, IT Corporation, Nov-01.
- Picatinny Arsenal Phase II Sites Surface Water & Sediment Supplemental Human Health Risk Assessment (see also in GW documents), IT Corporation, Nov-01.
- Proposed Plan for Green Pond and Bear Swamp Brooks, Picatinny Arsenal, NJ, IT Corporation, Dec-01.

2002

- Picatinny Arsenal Task Order 19 Remedial Action Work Plan for the Construction of a Soil Cap at Site 20/24 Pyrotechnic Testing Range, IT Group, Feb-02.
- Draft Technical Report, Bench Scale Study for Innovative Technology Demonstration, Picatinny Arsenal/Range Safe, BEM Systems, Inc., Mar-02.
- Picatinny Arsenal Task Order 17 Phase III – 1A Sites Remedial Investigation Report General Sections Volume 1, Binder 1, Apr-02.
- Picatinny Arsenal Task Order 17 Phase III – 1A Sites, Remedial Investigation Report, Area N – Site 10 Volume 3, Binder 4, Apr-02.
- Picatinny Arsenal Task Order 17 Phase III – 1A Sites Remedial Investigation Report Area O – Site 54 Volume 4, Binder 5, Apr-02.
- Area B Groundwater Feasibility Study, Volume 1 Report, Volume 2 Appendices, IT Corporation, Apr-02.
- Picatinny Arsenal Facility-Wide Background Investigation, IT Corporation, May-02.
- Proposed Plan for Area B Groundwater Picatinny Arsenal NJ, Shaw Environmental & Infrastructure, Inc. (formerly IT Corporation), May-02.
- Picatinny Arsenal Task Order 19 Work Plan for the Investigation of Sumps and Dry Wells with Previously Identified COCs at Various Sites, IT Corporation, May-02.
- Picatinny Arsenal Task Order 19 Work Plan for the Investigation of Sumps and Dry Wells with Previously Identified COCs at Various Sites, IT Corporation, May-02.
- Picatinny Arsenal Task Order 17, Phase III 1A Sites, Remedial Investigation Report, Area P, Volume 5, Binder 6, May-02.
- Proposed Plan for Area B Groundwater Picatinny Arsenal NJ, Shaw Environmental & Infrastructure, Inc. (formerly IT Corporation), May-02.
- Engineering Evaluation/Cost Analysis (EE/CA) for the Removal and Disposal of the Sediment from the Retention Basins of Bear Swamp Brook, Picatinny Arsenal, NJ, Picatinny Installation Restoration Office, Jun-02.

2002 (con't)

- Picatinny Arsenal Task Order 5, Phase II Group 1 Sites, Remedial Investigation Report Sites 40, 93, 156 & 157 Volumes 1 through 7, IT Corporation, Jun-02.
- Picatinny Arsenal Task Order 17, Fish Consumption Human Health Risk Assessment Report, IT Corporation, Jun-02.
- Trichloroethylene Treatability Study Work Plan, Environmental Restoration, Aug-02.
- Revised Work Plan for Lead Isotope Analysis For Area C Groundwater, Picatinny Arsenal, NJ, Shaw Environmental & Infrastructure, Inc., Aug-02.
- TITLE: Proposed Plan for Area D Groundwater Picatinny Arsenal, New Jersey, Shaw Environmental & Infrastructure Inc., Aug-02.
- Sampling Work Plan Site 193 Bear Swamp Brook Sediment Retention Ponds Task Order 17, Shaw Environmental & Infrastructure, Inc., Aug-02.
- Revised Work Plan for Lead Isotope Analysis For Area C Groundwater, Picatinny Arsenal, NJ, Shaw Environmental & Infrastructure, Inc., Aug-02.
- Additional Site Investigations (Orchard) Sites 3, 31, 192 & 199 Remedial Investigation Report Volume 3, Human Health Risk Assessment Appendix M, IT Corporation, Aug-02.
- Submittal of Response to EPA's Evaluation Evaluations of Picatinny's responses to EPA comments on the Phase III-1A RI Report, Picatinny Arsenal, Oct-02.
- Picatinny Arsenal Area D Groundwater Record of Decision, Shaw Environmental & Infrastructure Inc., Oct-02.
- Sampling Work Plan Site 193 – Bear Swamp Brook Sediment Retention Ponds Task Order 17, IT Corporation, Oct-02.
- Picatinny Arsenal Task Order 17 Phase III – 1A Sites, Remedial Investigation Report, Area L, Volume 2, Binder 3 (Sites 43, 91, 103, 161, 168 Groundwater Assessment), Oct-02.
- Picatinny Arsenal Task Order 17 Phase III – 1A Remedial Investigation Report, Area L, Volume 2, Binder 2 (Sites 5, 6, 18, 35, 167), Oct-02.
- Area E Groundwater Feasibility Study, IT Corporation, Nov-02.
- Picatinny Arsenal Task Order 17, Additional Site Investigations Remedial Investigation Report, Sites 3, 31, 192, and 199 Volume I, IT Corporation, Nov-02.
- Draft Classification Exception Area (CEA), New Jersey Department of Environmental Protection, 18-Nov-02.

2003

- Task Order 17 Southern Boundary Fall 2002 Quarterly Ground Water Monitoring Report, IT Corporation, Jan-03.
- Remedial Investigation Workplan for LNAPL Area at Well 31-6, Building 31, Picatinny Arsenal, NJ Contract No. DAAE30-01-D-1004, D.O.5, Environmental Compliance, Inc., Jan-03.
- Application for a Stream Encroachment Permit (equivalent) & Statewide General Permit (equivalent) No. 4 for sediment Removal from Bear Swamp Brook Sedimentation Ponds, New Jersey Department of Environmental Protection, Jan-03.
- Transcript of Proceedings, Public Meeting, Hilton Garden Inn, Rockaway, NJ 07885, February 28, 2003, A.R.T. Agency, Inc., Feb-03.

2003 (con't)

- Phase 1 2A/3A Sites Remedial Investigation Report Volume 1, Shaw Environmental, Inc., Mar-03.
- Feasibility Study for Site 25/26, Delivery Order 0017, US Army Corps of Engineers Baltimore District, Mar-03.
- Phase I 2A/3A Sites Remedial Investigation Report Volume 2, Area D Sites, Shaw Environmental, Inc., Mar-03.
- Phase I 2A/3A Sites Remedial Investigation Report, Volume 3, Area F Sites, Shaw Environmental, Inc., Mar-03.
- Phase I 2A/3A Sites Remedial Investigation Report, Volume 4 – Area G Sites Shaw Environmental, Inc., Mar-03.
- Picatinny Arsenal Task Order 19, Site 16, Guncotton Line Investigation and Removal Action Report, Shaw Environmental, Inc., Mar-03.
- TITLE: Picatinny Arsenal Task Order 17, Phase I 2A/3A Remedial Investigation Report, Volume 6 – Human Health Risk Assessment (site 60, 142, 185, 187, 209, and 210) Appendix Q, Shaw Environmental, Inc., Mar-03.
- Picatinny Arsenal Task Order 17, Phase I 2A/3A Remedial Investigation , Volume 7 – Human Health Risk Assessment (Site 101, 118, 126, 136, 139, 146) Appendix R, Shaw Environmental, Inc., Mar-03.
- Correspondence and Comments from EPA: File Correspondence Phase III 1A Sites Remedial Investigation Report, US Environmental Protection Agency, 18-Mar-03.
- Correspondence and Comments to EPA Response top Comments on Site 34 Proposed Plan., Picatinny Arsenal, 20-Mar-03.
- Correspondence and Comments to NJ Department of Environmental Protection: Submittal of the Discharge Monitoring Report (DMR), Picatinny Arsenal, 21-Mar-03.
- Correspondence and Comments to NJ Department of Environmental Protection: Modification to DEP of Environmental Protection Land Use Regulation Element Permit-Equivalent No. 4 (Hazardous Site Investigation and Cleanup) relating to Site 20/24, Picatinny Arsenal, 26-Mar-03.
- Correspondence and Comments to EPA: Minutes from Final March 4th and 5th Partnering meeting, Picatinny Arsenal, 27-Mar-03.
- Correspondence and Comments from EPA: Additional Sites Remedial Investigation Report, Sites 3, 31, 192 and 199. EPA has completed its review of the above-reference report and comments are attached, US Environmental Protection Agency, 27-Mar-03.
- Picatinny Arsenal Task Order 19 Addendum to the Remedial Action Work Plan for the Construction of a Soil Cap at Site 20/24 Pyrotechnic Testing Range, Shaw Environmental, Inc., Apr-03.
- Site 193, Bear Swamp Brook, Sediment Removal Action, Delivery Order 17, Shaw Environmental, Inc., Apr-03.
- Phase II Group 1 and Group 3 Sites, Groundwater summaries, Picatinny Arsenal, NJ, Task Order 17, Shaw Environmental, Inc., Apr-03.
- Correspondence and Comments to EPA: Request for a change in the submittal of Interim Groundwater, Picatinny Arsenal, 8-Apr-03.
- Submittal of Data from Green Pond Brook in front of Site 78, Picatinny Arsenal, 9-Apr-03.

2003 (con't)

- Submittal of green cover for 3 reports: 1. Site 16, Report, July 2002: No formal approval letter except IAG schedule – ongoing work in Phase II Additional Investigations. 2) Site 122 Removal Action Report: No formal approval letter except IAG schedule. FS is now considered to be the next step for this site. 3) Indiana Bat Report June 2002: EPA approves document, United States Fish and Wildlife survey accepts response to comments which requires no revision to the document, 9-Apr-03.
- Correspondence and Comments from NJ Department of Environmental Protection: Area D and Area C Reporting Change Request, New Jersey Department of Environmental Protection, 16-Apr-03.
- Proposed Plan for Site 23, Post Farm Landfill, Picatinny Arsenal, Shaw Environmental, Inc., May-03.
- Submittal of the Final Area D Groundwater Feasibility Study, Delivery Order 17, Shaw Environmental & Infrastructure Inc., May-03.
- Proposed Plan for Green Pond and Bear Swamp Brooks, Picatinny Arsenal, NJ, Shaw Environmental, Inc., May-03.
- Correspondence and Comments to EPA: comments on Phase III IA Remedial Investigation (RI) report, 28-May-03.
- Picatinny Arsenal Task Order 19 Addendum to the Remedial Action Work Plan for the Construction of a Soil Cap at Site 20/24 Pyrotechnic Testing Range, Shaw Environmental, Inc., Jun-03.
- Picatinny Arsenal Task Order 19, Site 122 (DSERTS #PICA011) PCB Soil & Sediment Removal Action Report, Shaw Environmental, Inc., Jun-03.
- Mid-Valley Groundwater Investigation Work Plan Picatinny Arsenal, NJ, Shaw Environmental, Inc., Jun-03.
- Lead Engineering Evaluation/Cost Analysis (EE/CA) for Soil Removal at Sites 139, 142, 209 (Building 430), 209 (Former Building 303), 161, and 171 at Picatinny Arsenal US EPA, Jun-03.
- Submittal of Proposed Plan for Area B Groundwater, Picatinny Arsenal, 9-Jun-03.
- Response to comments Final Fish Consumption Human Health Risk Assessment Report base on June 7th Meeting, Picatinny Arsenal, 17-Jun-03.
- Transmittal of Proposed Plan for Area D Groundwater, Picatinny Arsenal, NJ, Shaw Environmental & Infrastructure Inc., Jul-03.
- Submittal of Response to EPA Comments on the Phase I 2A/3A Remedial Investigation Report (RI Report), Picatinny Arsenal, Sep-03.
- Final Site 34 Proposed Plan, Shaw Environmental, Inc., Sep-03.
- Mid-Valley Groundwater Investigation Data Gap Work Plan Picatinny Arsenal, NJ, Shaw Environmental, Inc., Sep-03.
- Picatinny Arsenal Task Order 19 Work Plan for the Investigation of Sumps and Dry Wells with Previously Identified COCs at Various Sites, Shaw Environmental, Inc., Sep-03.
- Picatinny Arsenal Task Order 17 Phase III 2A/3A Sites Remedial Investigation Report, Volume 1, Volume 2 – Area L Sites, Volume 3 – Area M Sites, Volume 4 – Area P Sites, Shaw Environmental, Inc., Sep-03.

2003 (con't)

- Picatinny Arsenal Task Order 17 Phase III 2A/3A Sites Remedial Investigation Report, Volume 5 – Appendices A-K (Binder 1), Appendix L, Human Health Risk Assessment (Binder 2), Appendices M-O (Binder 3), Shaw Environmental, Inc., Sep-03.
- Picatinny Arsenal Task Order 17 Phase III – 2A/3A Sites, Remedial Investigation Report, Volume 2 - Area L Sites, Sep-03.
- Proposed Plan or Site 25/26 Soil Picatinny Arsenal, New Jersey, Oct-03.
- Proposed Plan for Area E Groundwater, Picatinny Arsenal, NJ., Shaw Environmental, Inc., Oct-03.
- NJ Pollutant Discharge Elimination System/Discharge to Groundwater (NJPDES/DGW) Permit Equivalency (PEQ), New Jersey Department of Environmental Protection, January 27, 1992; expires 7/31/03 new permit TBR 8/1/03.

Other

- Installation Action Plan for Installation Restoration Program at US Army Research, Development and Engineering Center (ARDEC), Picatinny Arsenal, Picatinny Arsenal Completed for Fiscal Years 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, Draft 2003.
- Chronic Toxicity Testing for Discharge Monitoring Reports (DMR) for Permit Equivalent for Interim Action Pump and treat Picatinny, NY, Shaw Environmental, Inc., Monthly.
- Discharge Monitoring Reports (DMR) for Permit Equivalent for Interim Action Pump and treat Picatinny, NJ, Shaw Environmental, Inc., Monthly.
- Discharge Monitoring Reports for NJPDES/DGW Permit Equivalency Metcalf & Eddy; Dow Environmental, Shaw Environmental & Infrastructure, Inc., Monthly.
- Picatinny Arsenal Restoration Advisory Board (PAERAB) Meeting Minutes, Recording Secretary, Ongoing.
- Technical Review Committee (TRC) Meeting Minutes, Ongoing.
- Newspaper Clip File, Ongoing.
- Public Notices, Ongoing.
- Correspondence with Private Well Owners, Public/Picatinny, Ongoing.
- Correspondence with Organizations/Individuals, Public/Picatinny, Ongoing.
- Correspondence and Comments to EPA Picatinny Arsenal, Prior to 1988 until Present.
- Correspondence and Comments from EPA, US Environmental Protection Agency, Prior to 1988 until Present.
- Correspondence and Comments to New Jersey Department of Environmental Protection, Picatinny Arsenal, Prior to 1988 until Present.
- Correspondence and Comments from NJ Department of Environmental Protection, New Jersey Department of Environmental Protection, Prior to 1988 until Present.
- Validated Sampling Data* from all Phase I Investigations and monitoring activities (including quarterly Groundwater Sampling Data from Interim Groundwater Remediation Project), Dames & Moore, 1988 to Present
- Water Diversion Reports for 3rd quarter 2003 for the Interim Action Pump and treat Picatinny, NJ, Shaw Environmental & Infrastructure, Inc., Quarterly.

Other (con't)

- Water Diversion Reports for Water Allocation Permit No. 2450E, Metcalf & Eddy; Dow Environmental; Shaw Environmental & Infrastructure, Inc., Quarterly.
- Submittal of the 3rd quarter 2003 Air Permit-Equivalent Log No. 01-90-2140, stack 049, Certificate 098726, APC #25005, CERCLA, AWD Technology; Shaw Environmental & Infrastructure, Inc., Quarterly.
- Report for Air Permit-Equivalent Log No. 01-90-2140, AWD Technology; Shaw Environmental & Infrastructure, Inc., Quarterly.
- Submittal of the first quarter 2003 Air Permit, Equivalent Log no. 01-09-2140, Stack 049, Certificate 098726, APC # 25005, Shaw Environmental, Inc., Quarterly.
- Installation Restoration Program Guidance, HQ AMC, Updated Annually.
- Fact Sheet on Technical Assistance for Public Participation, Picatinny Arsenal.

Additional studies and documents can be found in the Administrative Records of Picatinny.

PICATINNY ARSENAL

Installation Restoration Program Site Descriptions

INACTIVE TETRYL WASTE PITS (SITES 17/18)

SITE DESCRIPTION

The Northern Tetryl Pits formerly consisted of four unlined, bermed pits, located at the intersection of 18th Avenue and 13th Street. Two pits, the upper northern tetryl pits, were located on the north side of 18th Avenue, and two pits, the lower northern tetryl pits, were located on the south side of 18th Avenue. Each pit was ~10 ft in diameter, with depths ranging from 1 to 5 ft. The pits are believed to have been used from at least 1932 (when the pits were first indicated on engineering drawings) until 1945, for disposal of waste resulting from the processing of tetryl in the nearby 1000 buildings. The Southern Tetryl Pit received waste from Building 1052, a nitrating building, and may have operated from 1938 to 1945. The northern and southern tetryl pits are currently inactive. Materials that may have been associated with the tetryl pits included: tetryl, acid (possibly nitric acid) and water. Lead may also have been associated with the manufacturing of tetryl, although it is not a constituent of the final product.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Metals, VOCs, Explosives, PAHs

MEDIA OF CONCERN: Soil,
Sediment, Groundwater

Phases	Start	End
PA.....	197607	198105
SI.....	198707	198906
IRA.....	200010.....	200503
RI/FS	199606	200710
RD	200604	200804
RA(C)	200604	200808

RC DATE: 200808

Surface soil samples were collected as part of a PA/SI conducted in 1996, and soil, sediment, and groundwater samples were collected during RI activities conducted from 1998 to 2000. Soil analysis indicated the presence of explosives (tetryl), metals (lead), and PAHs in excess of levels of concern. Sediment in the on-site ditch, at the northern tetryl pit, contains PAHs above levels of concern.

An EECA was completed in 2001 for the removal of soil co-contaminated with explosives and lead. Soil contaminated with explosives (~300cy) was treated in a bio-reactor to address explosives. A rotted catch basin and 25 cy of soil were removed at the southern tetryl pits as part of a facility-wide sump and catch basin investigation in 2004.

Groundwater contains VOCs (TCE) above levels of concern at both the northern and southern tetryl pits, as well as metals (lead) and explosives (RDX) at the northern tetryl pits.

A RI was submitted in 2003 which included the results of the tetryl removal action. HHRA results indicate the non-cancer hazard index is less than 1 for target populations and estimated total cancer risks are 1E-4 for industrial research worker and within target risk range of 1E-4 to 1E-6 for the on-site youth visitor scenario. A baseline ecological risk assessment (ERA) was conducted in 2005. It determined that although the food web

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INACTIVE TETRYL WASTE PITS (SITES 17/18)

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models indicated that adverse effects on reproduction in small mammals or birds could occur given sufficient exposure to site COPECs in northeastern Area L, the field investigations and RSA results indicated that affects, if any, were not impacting the local populations of small mammals or birds.

CLEANUP STRATEGY

A decision document for the excavation of lead contaminated soils (~161cy) will be developed. The Site is included in the Site-wide PBC.

Consistent with the IRP Cleanup Strategy on page 28, an FS will be completed that includes PICA 001, PICA 006, PICA 022, PICA 085, PICA 143, PICA 163, PICA 171, PICA 192, and PICA 199.

After the soil removals, land use controls are the only action expected. Groundwater contamination is being addressed on an area-wide basis as part of the Mid-Valley groundwater investigation currently in the RI/FS stage. **Funding for the Mid-Valley GW Investigation is under PICA-204.**

LOWER BURNING GROUND (SITE 34)

SITE DESCRIPTION

The Burning Ground encompasses an area of approximately seven acres. Site 34 is broken into 4 areas: the Landfill Area, the Waste Pile Area, the Open Burning Area, and the Burn Pan Area. The Landfilled Area sustained landfill operations from 1960 to 1980 to fill in low-lying ground. Direct burning of explosives-contaminated wastes on the ground surface was conducted in the Open Burning Area until the practice was discontinued in 1985. From 1985 to present, explosives-contaminated wastes have been burned in nine burning pans located in the Burn Pan Area. An incinerator is being permitted at a different location at PTA to replace the burning ground. Currently, the Army has obtained the appropriate state and federal permits to operate the incinerator. However, incinerator operation cannot begin until the trial burn results are accepted by the state.

In the 1980s, a geophysical survey was conducted and groundwater wells were installed. A SI was completed in 1989 that included collection of surface soil, groundwater, surface water/sediment samples and analysis for VOCs, BNAs, cyanide, and total phenols. Metals and PAHs were detected above LOCs in soil and sediment. In 1990, USAEHA soil sampling found dioxins. In a 1990 groundwater assessment, wells and minipiezometers were installed and sampled for VOCs, BNAs, pesticides dioxins/furans, and PCBs. VOCs and metals were detected above LOCs and the HHRA found risk was above 5×10^{-4} . A contamination assessment (CA) in 1991 included surface soil sampling for VOCs, BNAs, TPHs, PCBs, and PP metals. The 1993 RI included sampling soil, surface water, sediment, and groundwater for VOCs, metals, BNAs, dioxins/furans, PCBs, and pesticides. In soil there were exceedances of BNAs, metals, PCBs, and detections of explosives and dioxins/furans. There were exceedances of metals and VOCs in surface water and metals, pesticides, and cyanide in sediment. Metals were detected in above LOC in groundwater. The 1993 HHRA indicated that risk was above 1×10^{-4} from metals, PAHs, PCBs, and dioxins. The ERA determined that there was elevated risk from metals, pesticides, PCBs, and dioxins. A limited groundwater sampling event in 1999 indicated that sampling via low-flow techniques returned exceedances of published standards for only two metals (arsenic and lead). UXO has been found in close proximity to the site.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Metals, Dioxins, SVOCs, PCBs, Pesticides

MEDIA OF CONCERN: Soil, Surface Water, Groundwater, Sediment

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199011	200508
RD	200604	200802
RA(C)	200602	200806
LTM	200807	203806

RC DATE: 200806

PICA-002
LOWER BURNING GROUND (SITE 34)
(PAGE 2 OF 2)

A feasibility study was prepared which recommends capping the entire site. The FS evaluated capping, soil fixation, soil treatment, excavation, and disposal in a number of different combinations. The regulatory agencies have indicated that capping with an impermeable cap would be an acceptable alternative. This FS was approved in fall 2001. Surface soil sampling, in order to complete the contamination delineation, was initiated in August 2002. These results will be used to finalize the design of the cap. A public meeting for the site was completed on February 19, 2004. The ROD was signed by the Picatinny Garrison Commander and USEPA.

CLEANUP STRATEGY

A capping system will be placed on the site, followed by cap maintenance and LTM. The final cap dimensions will be determined in the remedial design. The cap will be extended to cover the burning ground contamination extending into Site 180. This site is included in the PBC.

GUNCOTTON LINE (SITE 16) (PAGE 1 OF 2)

SITE DESCRIPTION

The Guncotton Line (GCL) is located near the southern end of Picatinny Lake, and is believed to be either an abandoned sanitary sewer line or a storm drain, that inadvertently received nitrocellulose (NC), referred to as guncotton. The pipeline was formerly used to discharge liquid waste from a TNT facility, in Building 520, into Picatinny Lake, southwest of the PTA power plant, Building 506. The line includes a portion of open trench, which collects surface runoff and a buried pipeline. Reportedly, the pipeline was about 2,500 ft long and ran from an underground catch basin near Building 554, past Building 506, under the location of a former coal pile, and ended in the vicinity of Building 424-E.

During the Phase II RI, a geophysical survey was conducted to identify the underground portion of the line. A long linear anomaly was identified northwest of Building 514; however, it was unclear whether the anomalous area represents the GCL or another utility line. In addition, soil samples were collected from the open trench portion of the line. Explosives and metals have been detected in the soil from the open trench at concentrations in excess of LOCs. Bioassays conducted on soil from the open trench did detect explosives, pesticides and metals in the test organisms but the levels of these chemicals did not result in increased toxicity to the earthworms. The undefined portion of the line, under the former coal pile, near Building 506, was identified in Spring 2000 through use of video cameras, smoke testing and test pitting. Approximately 270 linear feet of a 12-inch pipeline, and 200 linear feet of an 8-inch pipeline, were excavated and removed with nitrocellulose-contaminated soil, in order that a sanitary sewer line could safely be installed through the affected area.

Additional sampling performed in 2001 delineated the horizontal and vertical extent of contamination in the open trench. The risk from sediment and subsurface soil exposures are within USEPA's target risk range of 1×10^{-4} to 1×10^{-6} . The non-cancer hazard from exposure to subsurface soil is below USEPA's target threshold of 1, while the hazard from sediment exposure exceeds 1.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: Metals, Explosives

MEDIA OF CONCERN: Soil, Sediment

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199502	200710
RD	200604	200804
RA(C)	200604	200808

RC DATE: 200808

GUNCOTTON LINE (SITE 16) (PAGE 2 OF 2)

The lead concentrations identified in the sediment are not considered a health concern. Metals and explosives contamination are present along the entire length of the open trench and drainage ditch (2,200 feet). Additional ecological investigations of the open trench planned for the spring of 2005 found the trench to be completely dry. Alterations to its origin due to remediation and/or construction have rendered the trench unsuitable as a significant aquatic habitat or significant transport pathway.

CLEANUP STRATEGY

An FS to include a PP and ROD will be completed. Land use controls will be recommended as a remedy for this site. Removal of ~163 cy of DNT-contaminated soil from the open trench will be evaluated in the FS. The Site is included in the Site-wide PBC.

INACT. ROCKET FUEL TEST AREAS (SITE 2)

SITE DESCRIPTION

This consolidated site is called Group 3.

This 31-acre site includes Rocket Test Areas A, B, and C, that were leased to the NARTS division of the Navy. The Navy entered into a sublease agreement with the Reaction Motors Division (RMD) of Thiokol Chemical Co. in 1947. Activities at this site discontinued in 1962. The sublease with RMD expired in 1968. RMD tested and evaluated rocket engines and their related components at the site. Other operations known to have occurred in these test areas include new and alternative rocket fuel development and engine redesign. The majority of the buildings have been decontaminated and demolished, and Test Areas B and C remain inactive and unimproved.

As part of the Phase II RI conducted in 1996, the following activities were performed: a geophysical survey, a soil-gas survey, installation of monitoring wells, excavation and sampling of test pits, and collection of soil, groundwater, surface water and sediment samples. VOC GW

contamination has been identified in the two aquifers beneath the site. The extent of the GW contamination in the shallow aquifer was defined during the Group 3 RI completed in 1998. The HHRA indicates that the risk and hazard to impacted site media are below the target risk level of 1×10^{-4} , but above the target hazard level of 1. The primary pathway contributing to risk and hazard was dermal contact with GW. The primary chemical driving the cancer risk and non-cancer hazard was carbon tetrachloride. The shallow groundwater discharges to several ecologically-sensitive ponds, brooks and associated wetlands at the site. Surface water and sediment results have indicated levels of VOCs, ammonia and metals above LOCs in these surface water bodies. Additional groundwater investigation and MNA evaluation was completed in 2002, to fill specific data gaps to effectively evaluate remedial alternatives for the surface and groundwater contamination. The FS addresses all media at RI Sites 1, 2 and 4. At RI Site 2, carbon tetrachloride, tetrachloroethene and corresponding breakdown products were COCs in GW. In surface water ammonia and metals were identified as COCs. In sediment several metals were identified as COCs. In surface soil, areas of concern were developed for lead (4,410 mg/kg) and zinc (1,550 mg/kg). Additional surface soil sampling was completed for the former location of Buildings 3513 and 3517 to investigate PCB contaminated surface soil. After compliance averaging, it was determined that no remedial action was needed for the

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: VOCs, SVOCs, Metals

MEDIA OF CONCERN: Soil, Surface Water, Groundwater, Sediment

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199502	200702
RD	200604	200706
RA(C)	200604	200708
RA(O)	200604	200905
LTM	200906	203708

RIP DATE: 200708

RC DATE: 200905

PICA-008

INACT. ROCKET FUEL TEST AREAS (SITE 2)

(PAGE 2 OF 2)

PCBs in this area. A pilot study, to test zero-valence iron, was completed in Fiscal year 2005 and a report was submitted to the regulators.

In 2003, PICA-007 and 157 were listed as response complete in AEDB-R and will be addressed as part of PICA-008. As of summer 2006, Site 2 is being used as a homeland defense training center.

CLEANUP STRATEGY

As of June 2006, the Army was reviewing the draft Proposed Plan based on the approved Feasibility Study. This review includes ensuring the remediation is consistent with the PBC contractor's plan. The Proposed Plan will need to be approved by the regulators before being public noticed.

At PICA-008 copper contaminated surface soil will be excavated and disposed of in a non-hazardous landfill. Sediment contaminated with chromium, silver and manganese will be excavated and disposed of in a non-hazardous landfill. GW contaminated with VOCs will be treated via injection of zero valent iron or other substrates to be determined in the remedial design. MNA polishing will be used after treatment. After remediation is complete, land use controls will be necessary to preclude residential land use.

At PICA-007 lead contaminated subsurface soil will be excavated and disposed of in a non-hazardous landfill. After remediation, land use controls will be necessary to preclude residential land use.

At PICA-157 land use controls will be necessary to preclude residential land use.

PICA-007 (PART OF PICA-008) INACT. ROCKET FUEL TEST G-2 AREA (SITE 1)

SITE DESCRIPTION

This site, located at the eastern boundary of Picatinny, was operated by the Naval Air Rocket Test Station (NARTS) under a lease agreement with the Army from the early 1950s until the late 1960s. The site was used for flare tests in the early 1980s and, more recently, as a training area for anti-mech/defensive combat and offensive combat/helicopter operations. The majority of the structures, at this site, were decontaminated and demolished prior to 1986. The site is currently inactive and is characterized as containing rubble and debris from past demolition activities. Much of the 17-acre site is woodlands. Ames Brook is located ~1,300 ft south of the site and receives surface water runoff from several sites in the area. Ames Brook flows south off of Picatinny. Numerous surface water, sediment and soil samples have been collected from Ames Brook since 1975. Analytical results have not indicated any parameters in excess of LOCs.

As part of the Phase II RI conducted in 1996, the following activities were performed: a geophysical survey, a soil-gas survey, installation of monitoring wells, excavation and sampling of test pits, and collection of soil, groundwater and sump samples. Concentrations of lead were detected in soil above LOCs and SVOCs, and metals were reported at concentrations in excess of LOCs in a sediment sample collected from a sump. Areas of Concern (AOCs) identified at the site as a result of the RI include a sump at former Building 3555, and lead-contaminated soil associated with buried fill materials. Additional sampling at these AOCs, as part of the Group 3 RI, has indicated that the extent of contamination is minimal. Results of the HHRA for soil exposure indicate that the risks and hazard indices are below the target levels of 1×10^{-4} and 1, respectively. Lead concentrations in subsurface soil are a concern for human health. Likewise, the cancer risk and non-cancer hazard from exposure to sediment in the sump are below these target levels.

This site is included in the Group 3 FS along with PICA-008 & 157 (RI Sites 2 & 4). Lead and zinc (4,410 mg/kg and 1,550 mg/kg respectively) in the subsurface have been identified as an AOC in this FS. The Group 3 feasibility study recommends implementation of land use controls for the surface and subsurface soil areas of attainment. As part of the sump investigation, the sump at former Building 3555 was removed in 2003. Additional sampling at the outfall of this sump was conducted in Spring 2005. The additional sampling indicates no spread of contamination associated with this removed sump. In 2003, PICA-007 and 157 were listed as response complete in AEDB-R and will be addressed as part of PICA-008.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOCs, SVOCs, Metals

MEDIA OF CONCERN: Soil,
Surface Water, Groundwater,
Sediment

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	197607	198105
SI.....	198707	198906
RI/FS	199502	200306

RC DATE: 200306

PICA-157 (PART OF PICA-008) (SITE 4) FORMER MOTORS/ROC FUEL TST AREA (3600)

SITE DESCRIPTION

This 23-acre site is divided into Test Areas D and E, both of which were operated by the NARTS division of the Navy. Operations performed in these test areas were new and alternative rocket fuel development and engine redesign. The test stands were used to test liquid and solid fuel rocket engines, turbine pumps, and other rocket motor components. After rocket testing ended in 1968, testing of small mines was conducted for an unknown period of time somewhere in Test Area D.

In 1975, a Ballistic Rail Gun (BRG) was constructed in Test Area D. The BRG consists of a trough filled with water or anti-freeze, which allows the soft recovery of conventional shells fired from a 115-mm Howitzer cannon. At the time the Group 3 FS was drafted, Test Area D was still active. At least four buildings were devoted to operations, storage, and support for the Hawk Radar system at that time. Three buildings are devoted to ordnance disassembly. Specifically, Building 3611 was a photography lab where pictures of disassembled ordnance are developed.

NARTS used Test Area E to test and develop highly volatile rocket fuels and rocket propulsion systems. Rocket engine testing occurred over a rectangular pit located behind Building 3618. Before the exhaust pit was lined with gunnite in 1965 or 1966, materials in the exhaust pit most likely leached into the ground. Besides army training activities, Test Area E has remained inactive since 1968.

Results of the Phase II RI, and additional sampling during the Group 3 investigation, have identified the following AOCs at the site: surface water and sediment contamination in one sump and one septic tank; PCB-contaminated surface soil around the transformer pads; inorganic contaminated surface water and sediment; and VOC contaminated groundwater. Results of a HHRA indicate that the risk and hazard from exposure to impacted site media are below the target levels. Bioassays conducted on surface water from the rocket exhaust pond showed significantly decreased survival of test organisms, suggesting some minor potential for aquatic toxicity at the site. However, results of a macroinvertebrate survey suggest that the sediment does not appear to be highly toxic. The sump and septic tank (one at Bldg 3617 and one at Bldg 3610) were removed as part of a sumps investigation. The Building 3610 sump was removed in 2003 and the Building 3617 septic tank was removed in 2004. The FS identified surface water contaminated with metals and ammonia as well as ammonia contaminated groundwater as AOC. In 2003, PICA-007 and 157 were listed as response complete in AEDB-R and will be addressed as part of PICA-008.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: VOCs, SVOCs, Metals

MEDIA OF CONCERN: Soil, Surface Water, Groundwater, Sediment

Phases	Start	End
PA.....	197607	198105
SI.....	198910	199103
RI/FS	199502	200306

RC DATE: 200306

BLDG 60 SATELLITE WSTE ACCOM AREA (SITE 122)

SITE DESCRIPTION

Building 60 was constructed adjacent to BSB in 1942 as an environmental testing laboratory. Various types of testing conducted in the building include: ballistic air gun launch testing, drop testing, solar radiation testing, mechanical stress, shock, vibration, and jolt testing, and static load testing. The various testing equipment and machines at Building 60 utilize lubricating, hydraulic, and heating oils. Heating oils were formerly stored in Building 60-A which was located on the west side of Building 60. The recirculation water/steam is discharged into Bear Swamp Brook via various pipes projecting out of the eastern wall of the building. These discharges were permitted through a NJPDES permit.

A remedial investigation was performed in 1994 that included a radiological survey, surface soil, subsurface soil, surface water and sediment sampling as well as human health and ecological risk assessments. The radiological survey did not identify any areas of concern. The HHRA determined that carcinogenic risk was between or above 1×10^{-4} to 1×10^{-6} . The ERA determined that contaminants were detected but the communities were not affected and the habitat was highly altered by human activity. The remedial investigation recommended that additional sampling be completed to delineate areas of metals, PCB and SVOC contamination above LOCs. Based on these recommendations and regulatory comment, a follow-on investigation was completed in 1997. This RI identified soil contaminated with SVOCs, PCBs, and metals and sediments contaminated with PCBs. In 1999, an EE/CA was written and in 2000 an interim removal action was performed for PCBs. A total of 387 cy of soil and sediment was removed from the site. Other areas of the site still contain soils contaminated with SVOCs and metals at moderate levels and PCBs above the residential standard. Groundwater at the site is addressed in the Area D area-wide groundwater FS.

CLEANUP STRATEGY

A FS to include a PP and ROD will be completed. Land use controls are expected. The Site is included in the Site-wide PBC

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: Metals, PCBs, SVOCs, Pesticides

MEDIA OF CONCERN: Soil, Sediment, Surface Water

Phases	Start	End
PA	198707	198906
SI	198910	199103
RI/FS	199309	200808
IRA	199906	200008
RD	200604	200902
RA(C)	200604	200906
LTM	200906	203906

RC DATE: 200906

OPTS PROTO PROC FAC SITE BLDG 91 (SITE 78)

SITE DESCRIPTION

Building 91 is located at the intersection of Fourth Avenue and South Sixth Street, in the southern portion of PTA. The building was built in 1942 as a storehouse and supply building. An optics laboratory was constructed in the north end of Bldg 91 in 1980, and since then has lost its mission. Operations carried out in the optics laboratory included a glass machine shop. A hazardous waste inventory lists Bldg 91 as containing a hazardous waste satellite area, where cleaning material and oily rags were stored in 1993 in a 55-gallon drum. Currently, the central portion of Bldg 91 is used as office space. The southern end is used for receiving and storage of many materials received at the Arsenal.

Soil samples were taken in 1996. Based upon results, RI activities were initiated in 1998 for VOCs, SVOCs, and metals in soil, surface water, and sediment. Three groundwater monitoring wells were installed as part of a closure report in 1999 upon removal of two heating oil USTs

(3,000 and 7,500 gallons each) on the eastern side of the building. Soil analysis indicates the presence of PAHs in exceedance of the levels of concern (LOC). Surface water metals concentrations are in excess of the LOCs and sediment contains metals and PAHs at concentrations greater than LOC. Groundwater contamination includes VOC concentrations (2 plumes) in excess of levels of concern detected during RCRA activities. Delineation of the groundwater VOC contamination was completed in the RI stage. A RI was submitted in 2003 in which HHRA results worker scenario is 1E-4 and within the 1E-4 to 1E-6 range for on-site youth visitor scenario. A pilot study (sodium lactate injection) was funded in FY03 to address VOCs in groundwater. The pilot study was completed in 2005. Results of the pilot study indicated the injection of sodium lactate is a viable alternative for VOCs in groundwater. A screening level ecological risk assessment conducted in 2004 determined that due to the limited habitat and the relatively low hazard quotients (i.e., HQs < 10), no further ecological investigation was required.

The principal cause for concern at this site is the discharge of VOCs from groundwater to Green Pond Brook and levels in the groundwater above the established standards in groundwater

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: VOCs, PAHs, Metals

MEDIA OF CONCERN: Soil, Groundwater

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198707	198906
RI/FS	199606	200712
RD	200604	200805
RA(C)	200604	200807
RA(O)	200604	201005
LTM	201006	203807

RIP DATE: 200807
RC DATE: 201005

CLEANUP STRATEGY

The Site is included in the Site-wide PBC. FS activities with a proposed plan (PP) and ROD are scheduled. FS will evaluate in situ treatment of the groundwater with molasses, sodium lactate, or alternative amendments, with MNA likely to follow.

Existing engineering controls are expected to be the remedy for the PAH-contaminated soil.

LAKE DENMARK (SITE 54) (PAGE 1 OF 2)

SITE DESCRIPTION

Lake Denmark is a man made lake, located in the northeastern portion of PTA, with a surface area of approximately 174 acres. Lake Denmark has an average depth of 6-7 feet, and is part of PTA's service water source with the outfall from the lake flowing into Picatinny Lake. Surface water at Picatinny is not used as raw water for the potable system. Storage magazines, in the 1200 Area, are the only development around Lake Denmark. ANL reported Lake Denmark has a long history as a repository of munitions and their associated wastes. After the 1926 Lake Denmark explosion, munitions were reportedly dumped into the lake. ANL also discussed the possibility of Radiation Technology dumping waste into Lake Denmark. Lake Denmark has been used as an impact area for experimental mortar rounds and other explosive or pyrotechnic munitions. This site is currently inactive. In 1976 and 1981, chloroform was detected at a concentration above the surface water LOC in samples of the water from the outfall of Lake Denmark. In 1985, one water sample was collected from the Lake Denmark outfall and analyzed for pesticides/PCBs. No analytes of concern were detected in the sample.

Explosives, VOCs, SVOCs, pesticides/PCBs, anions, and metals analysis of soil was conducted as part of the 1996 PA/SI. Based upon results of the PA/SI, RI activities were conducted from 1998 to 1999 including VOCs, SVOCs, explosives, and metals analysis of surface water and sediment; targeted metals analysis of soils; and geophysical surveys.

Surface water and sediment analysis indicate the presence of metals in exceedance of LOC. A geophysical survey conducted as part of RI activities indicates three areas may contain metal deposits. HHRA results indicate risks and hazard are within the target levels. Based upon results of the RI, a screening level Ecological Risk Assessment was conducted in 2000. Results of the screening level Ecological Risk Assessment indicate the level of ecological risk present at Lake Denmark does not warrant a full Ecological Risk Assessment.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: Metals, UXO

MEDIA OF CONCERN: Surface Water, Sediment

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198707	198906
RI/FS	199606	200805

RC DATE: 200805

LAKE DENMARK (SITE 54) (PAGE 2 OF 2)

CLEANUP STRATEGY

The Site is included in the Site-wide PBC. A FS followed by a PP and ROD will be completed. Land use controls and performance monitoring will be recommended for this site.

PYROTECHNIC DEMO AREA (SITE 19) (PAGE 1 OF 2)

SITE DESCRIPTION

This site had been Response Complete but reopened to incorporate all the Sites in the "13 Sites Institutional Control Record of Decision. Site 19 is 5.5 acres in size and is located south of the junction of Shinkle Road and South Brook Road. South Brook Road and Green Pond Brook border Site 19 to the northwest. Site 34, the Burning Ground, is to the southwest and Shinkle Road is to the northeast. Site 19 was once a tree-covered wetland. During the late 1940s and early 1950s, the wetland was reclaimed for Arsenal use by installing two parallel drainage ditches and landfilling with construction debris and borrow pit material. Currently, the surface of Site 19 is flat and consists primarily of hard-packed dirt or gravel, and is partly vegetated with low weeds. Two buildings are located on Site 19. Building 1180, constructed in 1948, is a 50-ft high steel tower located in the southwest corner of the site. The tower has been used for various tests including track technology testing for a M60 Full Tracked Combat Tank, and for the candle power determination of M26 flares. Building 1186 was constructed in 1966 of wood on a concrete foundation with a dirt floor, metal roof, and one plexiglass wall. Building 1186 was originally used as a pyrotechnic view stand. Later, the site was used for the storage of M60 Army Tanks, and since 1980, it has been used to store miscellaneous non-hazardous items. In the past, the area between buildings 1180 and 1186 was used for tank testing. During the performance of the Phase I RI (1992-93), a portion of the site was used for IDW drum storage, and as a staging and decontamination area for drill rigs.

Three investigations have been performed at Site 19 – USGS Geophysical Survey (1986), Site Investigation (1988), and Phase I Remedial Investigation (1995). Soil contaminants have been identified for Site 19 based on sample data; however, most are present at low concentrations. Although two metals, arsenic and beryllium, are present at concentrations exceeding comparison criteria for surface soil, all other detected constituents are present at concentrations below available comparison criteria in both surface and subsurface soil. Thus, this site will be under institutional controls and LUCAP as detailed in the "Institutional Control Proposed Plan for Soils at Sites: 19, 28, 44, 49, 86, 106, 124, 135, 141, 143, 163, 182, and 183, (March 2000)".

The public notice for this proposed plan was completed in July 2001. A ROD was submitted to the regulators in summer 2001 and resubmitted in December 2004 after the land-use control issue was resolved by USEPA. Regulatory approval of this ROD has been delayed because the USEPA has indicated that they will not approve the ROD

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: Metals, VOCs

MEDIA OF CONCERN: Soil, Groundwater

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198707	198906
RI/FS	199309	200702
LTM	200703	203509

RC DATE: 200702

PYROTECHNIC DEMO AREA (SITE 19) (PAGE 2 OF 2)

without receiving an FS which documents the decision process. The Army has included the performance of this FS within the scope of the performance based contract. The ROD for this site will not be signed until this FS is completed and approved.

CLEANUP STRATEGY

This site had been Response Complete but reopened to incorporate all the Sites in the "13 Sites Institutional Control Record of Decision". The costs for the IC for all sites will be in this site. These include PICA #s: 020, 036, 070, 083, 088, 092, 095, 099, 100, 105, 110, 112, and 118. This consolidated site is included in the PBC.

An FS will be completed. A GIS survey will be completed and IC's will be implemented for 13 sites.

PICA-036 (PART OF PICA-020) FORMER PROPELLANT PLANT (1010) (SITE 106)

SITE DESCRIPTION

Former Building 1010 was located between Babbitt Road and Belt Road east of the PTA Power Plant, Building 506. The building was originally constructed as a propellant plant and an acid recovery plant. The exact demolition date of Building 1010 is unknown, but was sometime between 1979 and 1991. The building was destroyed as part of the Toxic Energetics Cleanup Program (TECUP). Reportedly, PCB-based transformers were overturned during the TECUP operations and their contents spilled onto the ground. Following demolition, all building debris was buried at the site.

One investigation has been performed at Building 1010 – the Phase I Remedial Investigation (1995). Surface soil and subsurface soil were collected during the excavation of three test pits and analyzed for VOCs, BNAs, pesticides/PCBs, explosives, metals, and cyanide. A variety of constituents were detected in samples at Building 1010, with most detected at low concentrations below available comparison criteria. PCBs were detected at concentrations exceeding NRDCSCC in only one surface soil sample and subsurface soil with a maximum concentration of 10.8 mg/kg. Carcinogenic human health risk was calculated to be 7×10^{-5} for future Industry/Research worker and 7×10^{-6} for future Construction/Excavation worker. Although total PCBs are a concern in the surface and subsurface soils at one test pit location from the Phase I RI, the PCB detection may be the result of past site activities and the destruction of PCB transformers. Thus, this site will be under institutional controls as detailed in the “Institutional Control Proposed Plan for Soils at Sites: 19, 28, 44, 49, 86, 106, 124, 135, 141, 143, 163, 182, and 183, (March 2000)”. This site is considered response complete because a proposed plan and record of decision are funded for the site and institutional controls are funded on an installation-wide basis. The costs for ICs for this site although closed (RC) for years have been integrated into PICA- 020. It is part of the Institutional Control Record of Decision for 13 Sites.

The ROD had been delayed because of the Land Use Control Issue with EPA and DoD.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
PCBs

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	198910	199103
SI	198910	199103
RI/FS	199309	199612

RC DATE: 199702

PICA-070 (PART OF PICA-020) SEWAGE TRMT PLANT SLUDGE BEDS (B80) SITE 28 (PAGE 1 OF 2)

SITE DESCRIPTION

Site 28 consists of inactive sludge beds associated with a still active sewage treatment plant. These sludge beds were located on the west side of the Building 80 Sewage Treatment Plant, which is located along Green Pond Brook in the southern portion of Area E. This plant was designed to provide primary physical treatment, secondary biological treatment, and tertiary chlorination of sanitary wastewater. The effluent from the tertiary treatment system flows into a final settling unit prior to being discharged into Green Pond Brook. Until 1971, the sludge generated at the plant was dewatered, utilizing a series of four sand filters (ANL, 1991). During the late 1960s, the treatment plant was modified and the sludge beds were removed from service. After the sludge beds were decommissioned, sludge generated at the plant was transported to an offsite solid waste disposal facility.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
Metals

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199309	199612

RC DATE: 199702

The area occupied by the former sludge beds was approximately 9,500 ft.². The sludge beds were surrounded by a low berm made of earthen material and were underlain by compacted and stabilized ground and stone fill. Each of the sludge beds were separated from the others by wooden planks that extended throughout the length of the bed. The sludge beds were equipped with a leachate collection system, which consisted of a series of 4-inch asbestos cement pipes laid at regularly spaced intervals throughout the length of the bed. These pipes discharged into an 8-inch central collection pipe, located in the middle of each sludge bed. All leachate collection pipes were covered by a 13-inch layer of gravel overlain by a 6-inch layer of sand. The leachate collection from the sludge beds was mixed with influent wastewater and recirculated into the sewage treatment plant.

Three investigations have been performed at Site 28 – USGS Geophysical Survey (1986), Site Investigation (1988), and Phase I Remedial Investigation (1995). Soil contaminants have been identified for Site 28, however, most are present at low concentrations and all constituent concentrations in both surface and subsurface soil are present below respective comparison criteria. Thus, this site will be under institutional controls and LUCAP as detailed in the “Institutional Control Proposed Plan for Soils at Sites: 19, 28, 44, 49, 86, 106, 124, 135, 141, 143, 163, 182, and 183, (March 2000)”. The public notice for this proposed plan was completed in July 2001. A ROD was submitted to the regulators in summer 2001. Regulatory approval of this ROD has been delayed because of the release of new USEPA guidance on the use of land use controls.

PICA-070 (PART OF PICA-020)
SEWAGE TRMT PLANT SLUDGE BEDS (B80)
SITE 28
(PAGE 2 OF 2)

The USEPA is performing additional review in light of this guidance. This site is considered response complete because a proposed plan and record of decision. The costs for ICs for this site although closed (RC) for years have been integrated into PICA- 020. It is part of the Institutional Control Record of Decision for 13 Sites. The ROD had been delayed because of the Land Use Control Issue with EPA and DoD.

PICA-083 (PART OF PICA-020) GOLF COURSE MAINTENANCE (BLDG 39) SITE 44

SITE DESCRIPTION

Since 1981, Building 39 has been used primarily to house golf course maintenance equipment (e.g., lawn mowers), and to store gasoline (stored in tanks located on the east side of Building 39) and oil and grease used in mowers and other mechanical equipment maintenance operations. Until 1988, the building was also used for storing and mixing small quantities of pesticides and herbicides.

No environmental samples were collected at Site 44 as part of the Phase I RI due to ongoing operations. However, 3 previous investigations at this site identified pesticide contamination in surface and subsurface soil. Based on the results of these previous investigations, the following 3 areas of concern were identified:

1. Potential vertical extent of pesticide contamination in the former excavation area located on the east side of Building 39;
2. Possible impact to Green Pond Brook from past pesticide mixing activities at Site 44; and
3. Potential impact to the drainage ditch located south of the pump and treat system due to past activities at Bldg 39.

In order to address these AOCs, additional samples were collected as part of the Phase I Additional RI conducted in 1997. Pesticides were detected in one groundwater and two surface soil samples at concentrations well below their levels of concern (LOCs). Therefore, institutional controls are recommended at Site 44 because all three AOCs have been characterized. Thus, this site will be under institutional controls and LUCAP as detailed in the "Institutional Control Proposed Plan for Soils at Sites: 19, 28, 44, 49, 86, 106, 124, 135, 141, 143, 163, 182, and 183, (March 2000)". A ROD was submitted to the regulators in summer 2001. Regulatory approval of this ROD has been delayed because of the release of new USEPA guidance on the use of land use controls. The USEPA is performing additional review in light of this guidance. This site is considered response complete because a proposed plan and record of decision are funded for the site. The costs for ICs for this site although closed (RC) for years have been integrated into PICA-020. It is part of the Institutional Control Record of Decision for 13 Sites.

The ROD had been delayed because of the Land Use Control Issue with EPA and DoD.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Pesticides

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199309	200003
IRA	199001	199108

RC DATE: 200008

PICA-088 (PART OF PICA-020) SOLDERING STORAGE AREA (BLDG 19 & 19A) (SITE 49)

SITE DESCRIPTION

Site 49 consists of Buildings 19 and 19-A and the surrounding grounds, which encompass approximately 0.51 acres. A transformer pad is located at the southern end of the building. Building 19 is currently used as a training facility for high-reliability soldering. Various solvents were used to clean circuit boards prior to soldering. Wastes generated include soldering flux, Freon, lead oxide, and oil. Until a 1991 RCRA Closure Investigation and subsequent removal, the generated waste solvents were placed in drums and stored in adjacent Building 19-A, the 90-Day Waste Accumulation Area. In the past, waste solvents had on occasion been stored in the shed for periods exceeding 90 days. Since Building 19-A was removed, no wastes have been generated in Building 19. Isopropanol is now used in small quantities and volatilizes during cleaning.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
Lead

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	198910	199103
SI	198910	199103
RI/FS	199309	199703

RC DATE: 199706

The maximum inventory of hazardous waste stored in Building 19 is two 55-gallon drums of waste solvent/soldering fluxes and ten 5-gallon metal drums of waste solvents (ANL, 1991).

Building 19-A was a small shed located near Building 19. The roof was constructed of asbestos and the walls of hollow tiles. The floor was constructed of wood over a concrete foundation (ANL, 1991). During renovation of Building 19 in October 1991, Building 19-A was removed from its foundation and placed near Building 267. The new entrance to Building 19 was constructed on the old foundation of Building 19-A. In 1991, as part of RCRA closure activities, Building 19-A was moved from the vicinity of Building 267 to a parking lot near former Building 1010.

This site underwent a RCRA closure, which received NJDEP approval. Thus, this site will be under institutional controls and LUCAP as detailed in the "Institutional Control Proposed Plan for Soils at Sites: 19, 28, 44, 49, 86, 106, 124, 135, 141, 143, 163, 182, and 183, (March 2000)". The public notice for this proposed plan was completed in July 2001. The costs for ICs for this site although closed (RC) for years have been integrated into PICA-020. It is part of the Institutional Control Record of Decision for 13 Sites.

The ROD had been delayed because of the Land Use Control Issue with EPA and DoD.

PICA-092 (PART OF PICA-020) BASEBALL FIELDS (SITE 163)

SITE DESCRIPTION

Site 163 is comprised of two baseball fields and a playground located immediately north of the intersection of Spicer Avenue and Klanderma Lane. The site is 3,000 ft from PTA's southern boundary and 100 ft west of Green Pond Brook. Sites 25 and 26 are adjacent to Site 163 to the northwest. Site 163 is approximately 400 ft by 800 ft, relatively flat and slopes slightly to the west and southwest. According to the ANL RI Concept Plan, unknown materials may have been disposed of in pits at Site 163 or at Site 176, the Little League Baseball Field. In addition, material dredged from Green Pond Brook was spread on the baseball fields at an unknown date.

Two investigations have been performed at Site 163 – USAEHA Soil Investigation (1991) and Phase I Remedial Investigation (1995). Soil contaminants have been identified for Site 163, however, most are present at low concentrations and all constituents are present below LOC. Thus, this site will be under institutional controls and LUCAP as detailed in the "Institutional Control Proposed Plan for Soils at Sites: 19, 28, 44, 49, 86, 106, 124, 135, 141, 143, 163, 182, and 183, (March 2000)". The public notice for this proposed plan was completed in July 2001. A ROD was submitted to the regulators in summer 2001. Regulatory approval of this ROD has been delayed because of the release of new USEPA guidance on the use of land use controls. The USEPA is performing additional review in light of this guidance. This site is considered RC because a proposed plan and record of decision are funded for the site.

The costs for ICs for this site although closed (RC) for years have been integrated into PICA-020. It is part of the Institutional Control Record of Decision for 13 Sites.

The ROD had been delayed because of the Land Use Control Issue with EPA and DoD.

STATUS		
REGULATORY DRIVER: CERCLA		
RRSE: High		
CONTAMINANTS OF CONCERN: Arsenic		
MEDIA OF CONCERN: Soil		
Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199309	199612
RC DATE: 199702		

PICA-095 (PART OF PICA-020) BLDG 12, PHOTO PROCESSING FAC (SITE 86)

SITE DESCRIPTION

Site 86, that encompasses Building 12, is located at the intersection of Phipps Road and Fourth Street. Building 12, referred to as the Battle Field Automation and Technical Data Directorate, was constructed in 1977. It was identified as a study site because of the hazardous chemicals handled during photoprocessing. Prior to 1977, three small, unidentified structures existed in the area occupied by this building. Most of Building 12 is occupied by administrative offices. Photoprocessing operations have been conducted in an area located in the southwestern corner of the building.

Building 12 provides automated data processing support for various organizations at PTA. Such support requires the use of computers, microfilm, and microfiche photoprocessing equipment. The photoprocessing operations at Building 12 primarily consist of converting engineering drawing into 35-mm microfilm.

One investigation has been performed at Site 86 – the Phase I Remedial Investigation (1995). A variety of constituents were detected in samples at Site 86, with most detected at low concentrations below LOC. Only arsenic exceeded a LOC. Thus, this site will be under institutional controls and LUCAP as detailed in the “Institutional Control Proposed Plan for Soils at Sites: 19, 28, 44, 49, 86, 106, 124, 135, 141, 143, 163, 182, and 183, (March 2000)”. The public notice for this proposed plan was completed in July 2001. A ROD was submitted to the regulators in summer 2001. Regulatory approval of this ROD has been delayed because of the release of new USEPA guidance on the use of land use controls. The USEPA is performing additional review in light of this guidance. This site is considered response complete because a proposed plan and record of decision are funded for the site and institutional controls are funded on an installation-wide basis. The costs for ICs for this site although closed (RC) for years have been integrated into PICA-020. It is part of the Institutional Control Record of Decision for 13 Sites.

The ROD had been delayed because of the Land Use Control Issue with EPA and DoD.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
Lead

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199309	199612

RC DATE: 199702

PICA-099 (PART OF PICA-020) BLDG 5, ARSENAL REPRTION & TRNG OFF (SITE 182)

SITE DESCRIPTION

Site 182 consists of Building 5, which is located on First Avenue southwest of the intersection with Farley Avenue. Building 5 is a one-story structure with a concrete foundation, 8-inch hollow tile walls, and corrugated asbestos roof. The building was constructed in 1918 and has an area of 4,500 ft². According to the Evaluation of Historic Structures, Building 5 served as a Storage Magazine (WCH Industries, 1994). According to the Real Property Record, the building was used to store flammable materials.

The northern portion of Building 5 was used for computer-aided design (CAD) services. The southern end of Building 5 contained two photoprocessing units that were used until 1992. Each of the photoprocessing units has a different system for managing process wastes. One of the two photoprocessors was directly connected to a silver recovery unit. The effluent from the silver recovery unit was directed to a sanitary sewer. Waste chemicals from the second photoprocessing unit were accumulated in 5-gallon containers and transferred to Building 314 for silver recovery. The maximum waste inventory at Building 5 during a 3-month period was six 5-gallon containers of spent photochemicals. Exemption from the RCRA Part B permit was claimed for the photoprocessing units. According to the spill response log and environmental and safety files, no spills or releases were reported at Bldg 5.

One environmental investigation was conducted at Site 182, a RCRA Closure Verification Investigation in 1991. This RCRA closure received approval from NJDEP. Thus, this site will be under institutional controls and LUCAP as detailed in the "Institutional Control Proposed Plan for Soils at Sites: 19, 28, 44, 49, 86, 106, 124, 135, 141, 143, 163, 182, and 183, (March 2000)". The public notice for this proposed plan was completed in July 2001. A ROD was submitted to the regulators in summer 2001. Regulatory approval of this ROD has been delayed because of the release of new USEPA guidance on the use of land use controls. The USEPA is performing additional review in light of this guidance. This site is considered response complete because a proposed plan and record of decision are funded for the site. The costs for ICs for this site although closed (RC) for years have been integrated into PICA- 020. It is part of the Institutional Control Record of Decision for 13 Sites.

The ROD had been delayed because of the Land Use Control Issue with EPA and DoD.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: NE

CONTAMINANTS OF CONCERN:
None

MEDIA OF CONCERN: None

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199309	199612

RC DATE: 199702

PICA-100 (PART OF PICA-020) GRAPHIC REPRODUCTION & TRNG BLDG 58 (183)

SITE DESCRIPTION

Building 58 is located on First Avenue at the intersection of Fourth Street. Building 58 was constructed for lumber storage in 1937 and has a total area of 19,200 ft². The building was also used for general administration and office space. In 1971, Building 58 was listed as a printing plant. The printing press operations ceased in October of 1993. Building 58 is currently listed as the Arsenal Graphic Reproduction and Training Offices, which include a photoprocessing facility. The photoprocessing area is located in the northern portion of the bldg. The southern portion of Building 58 is used for training and administration.

No environmental investigations have been conducted at Site 183. Due to renovation activities at Building 58, a closure plan for the site was not implemented. NJDEP stated in a letter dated 12/8/92 that the renovation work adequately addressed the closure requirements and the RCRA closure is complete. Thus, this site will be under institutional controls and LUCAP as detailed in the "Institutional Control Proposed Plan for Soils at Sites: 19, 28, 44, 49, 86, 106, 124, 135, 141, 143, 163, 182, and 183, (March 2000)". A ROD was submitted to the regulators in summer 2001. Regulatory approval of this ROD has been delayed because of the release of new USEPA guidance on the use of land use controls. The USEPA is performing additional review in light of this guidance. This site is considered response complete because a proposed plan and record of decision are funded for the site. The costs for ICs for this site although closed (RC) for years have been integrated into PICA- 020. It is part of the Institutional Control Record of Decision for 13 Sites.

The ROD had been delayed because of the Land Use Control Issue with EPA and DoD.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: NE

CONTAMINANTS OF CONCERN:
None

MEDIA OF CONCERN: None

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199309	199612

RC DATE: 199702

PICA-105 (PART OF PICA-020) BLDG 166, PROPELLANT TEST (SITE 124)

SITE DESCRIPTION

Building 166 is located on Kibler Road north of the intersection of Farley Avenue. Building 166 is a one-story 48-ft x 58-ft structure, which was constructed in 1930 as a test chamber or accelerated aging chamber for propellants. The building is currently still used for this purpose. Operations at Building 166 have produced approximately 30 pounds per month of propellant waste that is stored in cans inside the building. Activities at Building 166 also intermittently produced about 0.1 gallons per hour of propellant wastewater, which is sent to the Burning Grounds for disposal.

One investigation has been performed at Site 124 the Phase I Remedial Investigation (1995). A variety of constituents were detected in samples at Site 124, with most detected at low concentrations below LOC. Although the concentrations of two metals, arsenic and copper, slightly exceeded LOC, the samples containing metals were collected from opposite sides of Building 166 and do not indicate widespread contamination. Thus, this site will be under institutional controls and LUCAP as detailed in the "Institutional Control Proposed Plan for Soils at Sites: 19, 28, 44, 49, 86, 106, 124, 135, 141, 143, 163, 182, and 183, (March 2000)". The public notice for this proposed plan was completed in July 2001. A ROD was submitted to the regulators in summer 2001. Regulatory approval of this ROD has been delayed because of the release of new USEPA guidance on the use of land use controls. This site is considered response complete because a proposed plan and record of decision are funded for the site. The costs for ICs for this site although closed (RC) for years have been integrated into PICA- 020. It is part of the Institutional Control Record of Decision for 13 Sites.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199309	199612

RC DATE: 199702

PICA-110 (PART OF PICA-020) BLDG 429, PROPELLANT CRUSHING (SITE 141)

SITE DESCRIPTION

Building 429 is located on 13th Avenue northeast of the intersection of Ninth Street. The building is a one-story rectangular structure with a concrete foundation, hollow tile walls, and a corrugated metal and asbestos roof. Building 429 was constructed in 1942 as a chemistry laboratory and contained five magazines for ammunition surveillance. In 1970, two test bays were constructed at Building 429 for propellant processing and one of the five magazines was converted into a control room. According to the 1982 PTA HABS/HAER Inventory, Building 429 was divided into two rooms. The rooms contained a spray booth with water cooling equipment, a cold storage area for carbon dioxide, and a jet mill to crush propellant grains for propellant property testing. The building also contained a catch tank that had not been used since 1981. According to a 1994 PTA Facilities Directory, Building 429 was inactive.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Metals

MEDIA OF CONCERN: Surface Water

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199309	200003

RC DATE: 200008

According to the ANL RI Concept Plan, operations at Building 429 generated approximately one pound of propellant waste per month. The 1991 Foster Wheeler Water Discharge Investigation Report indicated that a trough ran along the west side of the building and discharged onto the ground. It is possible that explosives contaminated washdown water from propellant crushing operations may have been discharged to this trough.

Two investigations have been conducted at this site: the Phase I Remedial Investigation in 1995, and the Phase I Additional Remedial Investigation in 1998. Additional RI analytical data from surface soil showed no constituents of concern at concentrations greater than LOC. Thus, this site will be under institutional controls and LUCAP as detailed in the "Institutional Control Proposed Plan for Soils at Sites: 19, 28, 44, 49, 86, 106, 124, 135, 141, 143, 163, 182, and 183, (March 2000)".

The public notice for this proposed plan was completed in July 2001. The costs for ICs for this site although closed (RC) for years have been integrated into PICA- 020. It is part of the Institutional Control Record of Decision for 13 Sites.

The ROD had been delayed because of the Land Use Control Issue with EPA and DoD.

PICA-112 (PART OF PICA-020) BLDG 436, PROPELLANT PROCESSING (SITE 143)

SITE DESCRIPTION

Building 436 is located off of 13th Avenue east of the intersection of Ninth Street. The building has hollow tile walls and a corrugated metal roof. Building 436 was constructed in 1948 as a propellant processing plant. The building contains a solvent mixing room, propellant mixing and drying rooms, and control rooms for the propellant mixers and ovens. Floor drains in the propellant mixing and drying rooms are connected to a pipe which discharges to a holding tank, located in a storage shed approximately 20 ft northwest of Building 436. According to PTA safety office files from 1992, Building 436 was used periodically in the preparation of small batches of propellant. Explosive wastes generated at Building 436, as a result of propellant operations, were destroyed at the PTA Burning Ground.

One investigation has been performed at Site 143 – the Phase I Remedial Investigation (1995). A variety of constituents were detected in samples at Site 124, with most detected at low concentrations below available comparison criteria. Bis-2-ethylhexyl phthalate and arsenic exceed respective comparison criteria in soil. Thus, this site will be under institutional controls and LUCAP as detailed in the “Institutional Control Proposed Plan for Soils at Sites: 19, 28, 44, 49, 86, 106, 124, 135, 141, 143, 163, 182, and 183, (March 2000)”. The public notice for this proposed plan was completed in July 2001. A ROD was submitted to the regulators in summer 2001. The costs for ICs for this site although closed (RC) for years have been integrated into PICA- 020. It is part of the Institutional Control Record of Decision for 13 Sites.

The ROD had been delayed because of the Land Use Control Issue with EPA and DoD.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199309	199612

RC DATE: 199702

PICA-118 (PART OF PICA-020) METALLURGY LAB, BLDG 315 (SITE 135)

(PAGE 1 OF 2)

SITE DESCRIPTION

Site 135 originally consisted of Bldg 315. This site has been expanded to include Bldg 316, which is located northeast of Bldg 315. Bldg 315 was constructed prior to 1905 as a storehouse for sodium nitrate. The sodium nitrate was used in the manufacture of explosive powder. Bldg 315 has been used as a sodium nitrate storehouse, offices of the engineering division, research and development laboratories, physical sciences workshops, and metallurgical laboratories. DU contamination in the corrosion laboratory, machine shop, metallographic laboratory, and mechanical testing area resulted from site operations. DU contamination in the corrosion laboratory, machine shop, metallographic laboratory, and mechanical testing areas of both buildings had been identified. In 1994, action was completed to decontaminate and decommission the wastewater holding tanks and room 7 of Bldg 315. This action has been accepted by the NRC.

Bldg 316 was constructed in 1907 as a sodium nitrate storehouse. Bldg 316 has also been used as a Maintenance Operation Procedure (MOP) shop automation laboratory, a plasma equipment building, a uranium laboratory, a physical sciences facility, and, most recently, a metallurgy laboratory. A RA in Bldg 316 included disconnecting all utility hook-ups and all DU processing equipment was removed and all building surfaces were cleaned for "free release". In 1996, a second phase of clean up was undertaken to remove a contaminated floor drain and section of drainpipe in Bldg 316. In 1998, Picatinny's NRC license was amended by the NRC to allow unrestricted use of both buildings. Bldg 316 is currently used as a hazardous materials storehouse.

In 1994, a remedial investigation was completed including soil gas survey, surface soil sampling, and HHRA. Soil samples were analyzed for VOCs, BNAs, metals, cyanide, pesticide PCBs and explosives. There were no exceedances. The HHRA indicated that carcinogenic risk was below 1×10^{-6} for all three populations. The RI recommended no further action. However, based upon regulatory comments additional RI work was completed in 1997. This investigation included passive soil gas, the collection of surface and subsurface soil for VOCs, SVOCs, metals and radiologicals in some samples. Iron was the only exceedance in soil. The RI recommended that the site proceed to FS with institutional controls being the likely remedy. In 2001, work was completed to terminate the NRC license for the building. Remediation of the salt fog chamber, contaminated duct work and plugged drain and radiological investigation of the plugged drain line was completed.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOCs, SVOCs, Metals, Depleted Uranium

MEDIA OF CONCERN: Soil

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198707	198906
RI/FS	199309	200108

RC DATE: 200108

PICA-118 (PART OF PICA-020) METALLURGY LAB, BLDG 315 (SITE 135) (PAGE 2 OF 2)

This site will be under institutional controls as detailed in the “Proposed Plan No Response Action with Existing Institutional Controls and Land Use Control Assurance Plan for Sites: 19, 22, 44, 49, 86, 106, 124, 135, 141, 143, 145, 163, 182, and 183, (March 2000)”. The public notice for this PP was completed in July 2001. The costs for ICs for this site although closed (RC) for years have been integrated into PICA- 020. It is part of the Institutional Control Record of Decision for 13 Sites.

The ROD had been delayed because of the Land Use Control Issue with EPA and DoD.

POWER PLNT/HAZ WST TNKS/PROPELL PRD

SITE DESCRIPTION

The site consists of Building 519, a former still house for storage of ether and alcohol, and Building 519-A, which formerly housed an inactive 3800 gallon AST, that was used to store spent alcohol. Bldg 519 and associated buildings were a single-base propellant manufacturing area. Operations at Bldg 519 also included the manufacture of ether. Bldg 519-A, constructed in 1941, was an open shed-type structure with no walls. Three ASTs, with an approximate capacity of 3,800 gallons each, were used to store virgin ethyl alcohol, process wastes from explosives manufacturing, ether, and spent alcohol. Bldg 519 was deactivated in 1975; the ASTs and all associated piping were removed from Bldg 519-A at approximately the same time. Both buildings were subsequently demolished in 1995 as part of the TECUP program.

Analytical results of soil samples collected during the RCRA closure of Bldg 519-A detected levels of lead above its comparison criterion. Phase II RI activities were conducted at this site in 1996. Analytical results from the RI identified explosives and metals in the soil at concentrations above LOCs. Elevated concentrations of SVOCs and metals were also detected in sediment collected from a sump at Bldg 519. In addition, TCE was reported in one monitoring well in excess of its LOC.

Additional samples collected in 2001 have delineated the extent of the lead contamination in soil, and TCE contamination in groundwater. Results of the HHRA indicated risks and hazards from exposure to surface and subsurface soil are within or below the target levels. Results of the adult lead model indicate lead concentrations in subsurface soil may be a concern for the excavation worker. Based on the calculated EEQs, there is little potential for adverse effects to occur to terrestrial receptors from soil exposure at the site. The suspected location of the former sump is currently a boulder field. As part of a facility-wide sump investigation initiated in 2003, the boulders at Site 50 were removed and a test pit excavated in the area to locate any visual evidence of the sump. Neither stained soil nor odors were noted in the excavation. Post-excavation analytical results of soil samples collected from the excavation did not detect any LOC exceedances and the boulders were returned to the location.

In 2003, PICA 047 and 145 were listed as response completed in AEDB-R and will be addressed under PICA-022.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals

MEDIA OF CONCERN: Soil,
Groundwater

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199502	200710
RD	200604	200804
RA(C)	200604	200808
LTM	200809	203808

RC DATE: 200808

CLEANUP STRATEGY

A FS to include a PP and ROD will be completed for all three sites. Groundwater monitoring is expected at PICA-022. The site is included in the PBC.

At PICA-047- excavation of ~1,900 cy of PAHs and metals-contaminated soil may be removed.

At PICA-145- excavation of ~900cy of metals-contaminated soil will be removed.

Groundwater monitoring is expected to follow at PICA-047 for 30 years for VOCs and metals to include LTM.

PICA-047 (PART OF PICA-022) STEAM POWER PLANT BLDG 506 (SITE 63/65)

(PAGE 1 OF 2)

SITE DESCRIPTION

Building 506 serves as PTA's main power plant and houses three seven-story boilers, which provide PTA with electricity and steam heating. Coal and oil have been used to generate the arsenal's power. Currently, only oil is used to generate power. The oil is stored in two 420,000-gallon ASTs and one 850,000 gallon AST. Two large coal piles, which were used to stockpile coal for the plant, have caused elevated sulfur levels and a low pH in the underlying soil. Both coal piles have been removed from the base. Two large oil spills have been reported at the building. In 1981, 20,000 gallons of #6 fuel oil spilled and migrated into Picatinny Lake and nearby sewage drains. In addition, 3,000 gallons of oil were spilled in 1987. In 1990, during the removal of two USTs, petroleum-contaminated soil and free product, floating on the water table, were observed and removed.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Metals

MEDIA OF CONCERN: Soil,
Groundwater

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198707	198906
RI/FS	199502	200306

RC DATE: 200306

Building 506 has a NJDEP permit for several discharges into Picatinny Lake. Since 1989, only non-contact cooling water has been discharged into the lake. Analyses of soil samples, collected around the building in 1989, indicated the presence of elevated levels of metals and TPHs. As part of a RCRA closure conducted in 1991, elevated levels of PCBs and lead were detected in chip samples collected from the building; however, NJDEP approved the closure. Phase II RI activities included a geophysical survey, a soil-gas survey, installation of five monitoring wells, and collection of soil, groundwater, surface water and sediment samples. The RI identified elevated levels of TPHs and diesel fuel in the groundwater, probably related to the past oil spills, as well as nitroglycerin. In addition, SVOCs and arsenic were reported in excess of their LOCs in the soil. The risk from exposure to surface soil exceeds the target level 1E-4 with PAHs being the primary risk drivers. The risks from exposure to subsurface soil and sediment are within USEPA's target risk range. The non-cancer hazards from exposure to surface soil and sediment are below the target HI of 1. The total hazard from subsurface soil exposure is 2.3 with arsenic the primary hazard driver. A sediment bioassay indicated total toxicity, suggesting that benthic receptors are potentially at risk from exposure to sediments in Picatinny Lake adjacent to the site.

In order to delineate the existing soil and groundwater contamination, additional soil sampling and a soil-gas survey were conducted. Based on the soil-gas results, a downgradient monitoring well was installed and found to contain light non-aqueous phase liquid (LNAPL). In order to monitor the LNAPL, three shallow monitoring wells were installed. Subsurface soil samples collected from the well borings and groundwater

PICA-047 (PART OF PICA-022)
STEAM POWER PLANT BLDG 506 (SITE 63/65)
(PAGE 2 OF 2)

samples collected from the wells did not contain any chemical concentrations above LOCs. Passive oil skimmers have been installed in the three shallow wells to remove floating LNAPL from the groundwater.

In 2003, PICA 047 and 145 were listed as response completed in AEDB-R and will be addressed under PICA-022.

PICA-145 (PART OF PICA-022) 500 AREA BUILDINGS SITE 110

SITE DESCRIPTION

The site consists of the 500 Area buildings located southeast of Picatinny Lake. The 500 Area buildings were used for the production of propellants. Many of the buildings in the 500 Area were characterized, individually, as part of the Phase II RI conducted at other sites. Most of the 500 Area buildings have been demolished under TECUP, during the past 15 years. Potential sources of contamination include reported dumping into Picatinny Lake, and propellants, which reportedly fell off trains that ran through the area.

In order to complete the characterization of the remaining buildings in the area, additional RI activities were conducted in association with the individual sites during 2001. Results of the sampling were used to close data gaps, and determine the area of soil contamination, which will be addressed in a feasibility study.

In 2003, PICA 047 and 145 were listed as response completed in AEDB-R and will be addressed under PICA-022.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Metals

MEDIA OF CONCERN: Soil,
Groundwater

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198910	199103
RI/FS	199502	200306

RC DATE: 200306

SITE DESCRIPTION

This 20-acre site consists of the 1500 Series Buildings and is divided into the Western Explosives Area and the Eastern Pyrotechnics Area. From the early 1950s up until 1958, liquid fuel missiles were tested in the Eastern Pyrotechnics Area. After 1958, additional buildings were constructed for mixing, pressing, and filling of various pyrotechnic compounds into flares, fuzes, and primers. The Western Explosives Area was constructed in the late 1940s and was used for the large-scale storage, production, conditioning, loading and testing of pyrotechnics, explosives and solid rocket propellants from 1947 through the early 1960s. The Eastern and Western Explosives Areas are currently used for storage, assembly, research, development and testing of high explosives, propellants and projectiles.

The 1996 Phase II RI involved the performance of a radiological survey, installation of monitoring wells, and collection of soil, groundwater, surface water and sediment samples at the site. The RI identified explosives in groundwater

downgradient of the Building 1505 Test Range; including RDX in excess of its LOC. Lead was detected above its LOC in a sediment sample associated with a dry well. SVOCs and metals have been detected at elevated levels in surface water and sediment samples collected from the swamp behind Building 1515 resulting in ecological concerns for the area. Additional RI activities performed in 2000 included the installation of an additional well and collection of additional soil, groundwater and sediment samples. Results of this investigation successfully delineated the extent of RDX in the groundwater and characterized the lead contamination. Additionally during the 2000 investigation, an UST was identified near Building 1504. The UST was removed in FY01. Estimated cancer risks are below or within USEPA's target range of 1E-4 to 1 E-6 for all exposures scenarios. The estimated non-cancer hazards are all below USEPA's target threshold of 1. In addition, risk from radiological exposures was below or within USEPA's target range. In response to NJDEP comments, an upgradient monitoring well was installed in 2001. The well was sampled in early 2002; explosives were not detected. The suspected dry well and associated lead-contaminated soil were removed in 2003. An additional 2 cy of lead contaminated soil were removed in 2004 as part of a facility-wide lead removal action.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: RDX, Metals, SVOCs

MEDIA OF CONCERN: Soil, Sediment, Surface Water, Groundwater

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198707	198906
RI/FS	199502	200808
IRA	200102	200203
RD	200604	200902
RA(C)	200604	200906
LTM	200907	203906

RC DATE: 200906

PICA-050 (SITE 3)
FORMER REACT MTRS/RCKT FUEL TST A 1500

(PAGE 2 OF 2)

CLEANUP STRATEGY

A FS will be performed to evaluate remedial alternatives for the site. LTM is proposed to monitor the groundwater quality at the site for 30 years. The site is included in the PBC.

PICATINNY LAKE (SITE 54) (PAGE 1 OF 2)

SITE DESCRIPTION

Picatinny Lake, located at the geographic center of PTA, was formed in the 1880s by damming Green Pond Brook. Picatinny Lake is approximately 118 acres in area, and approximately 5,200 ft long by 1,000 ft wide. The lake has a maximum depth of 20 ft and contains approximately 165 million gallons of water. Picatinny Lake is a source of non-potable water used for production-related purposes and fire fighting.

From 1985 until 1988, PTA discharged treated process wastewater and cooling water to Picatinny Lake under a NJPDES permit. Since 1989, only non-contact cooling water has been discharged to the lake. Many active, inactive, and demolished buildings surround the lake. Surrounding land use includes propellant and munitions research and development, production, and storage; steam and electric power generation; chemical laboratories, and a betatron and x-ray laboratory. Previous land use includes smokeless powder production and testing.

Numerous potential sources of contamination have been documented around the lake, including use as an impact area for experimental mortar rounds; storage of smokeless powder and explosives underwater; discharge or disposal of explosives and debris into the lake; pyrotechnic testing on Flare Island; explosive-related accidents at the surrounding buildings; oil spills, wastewater discharges or sewage overflows.

Phase II RI and ERA activities included the performance of geophysical surveys, the collection of 23 surface water and sediment samples, the performance of surface water and sediment bioassays, the completion of benthic macroinvertebrate and fish surveys, and the chemical analysis of fish tissue samples. Surface water and sediment contamination was identified throughout the lake. The HHRA conducted with the RI evaluated an industrial research worker's exposure to surface water. The estimated chemical and radiological risks are below USEPA's target cancer risk range, and the hazards are below the target threshold of 1. The available ecological evidence suggests that surface water does not pose a risk to ecological receptors. However, the sediment data indicated that there is potential for ecological COPCs to adversely affect benthic receptors.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199502	200805

RC DATE: 200805

PICATINNY LAKE (SITE 54) (PAGE 2 OF 2)

Results from a fish consumption HHRA for PTA's fishable water bodies indicated hazards above USEPA's target threshold of 1 for Picatinny Lake. Thus, PTA instituted fish consumption advisories, as recommended by NJDEP, for anglers using Picatinny Lake and other water bodies at PTA.

CLEANUP STRATEGY

A FS to include a PP and ROD will be completed. The Site is included in the PBC but only goes to completion of the Record of Decision. The UXO at this site will be addressed by the MMRP program (PICA-009-R-001).

INAC. MUNITIONS WASTE PIT (B-656) (SITE 12)

SITE DESCRIPTION

This site is not covered under the PBC.

The Munitions Waste Pit, Site 12, is located in the northwestern portion of Picatinny, at the intersection of Berkshire Trail and 20th Avenue near former Building 656. The site was operated from approximately 1955 until the mid-1980s for evaluating munitions. A layer of topsoil and sand was deposited on the waste pit after use of the site was discontinued in 1980.

Historical practices consisted of testing munitions, and then filling any resulting crater in the ground with fill material, typically gravel and sand. Many ammunition fragments were projected out from the site and were never recovered. According to Picatinny personnel, from 1965 to the present, no munitions were disposed of at the site. Since that time, all material associated with munitions testing was taken to the Picatinny Burning Ground.

Based on a document review, the site currently consists of a gun turret, formerly used for ammunition testing, an elevated stand from which munitions were hung and/or fired, a metal cage in which munitions were detonated and hazard classification tests were conducted, three concrete bases with a cut projectile casing set in each, several 8-inch gun barrels, one partial jet hull, two pieces of concrete storm sewer piping ~18-inches in length, and several mounds of building debris (including asphalt, concrete blocks, and bricks). Propellant grains were scattered on the ground in the area of the metal cage, and the three concrete bases. Historically, the site has also contained a control building (former Bldg 656), a guard shack, a second elevated stand, two additional jet hulls, a steel test unit, and steel observation towers in the western and central portions of the site. A steel box, wood box, wire mesh box, and a steel trough are located in the northern section of the site. The steel trough was used to fire munitions, not for waste discharge.

In the late 1990s, a large amount of rock and fill dirt was placed on the site. The rock and fill dirt was removed from a nearby construction site.

This site also includes the GW beneath PICA-058 and adjacent sites. In the early 1990s, a production well was installed to serve the Advanced Warhead Development Facility (AWDF), Building 660. Analysis of GW from this well indicated contamination with TCE and low levels of MTBE, Freon and toluene.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
UXO, Explosives, Metals, TCE

MEDIA OF CONCERN: Soil, Groundwater

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198707	198906
RI/FS	199606	200707
LTM	200708	203709

RC DATE: 200709

INAC. MUNITIONS WSTE PIT (B-656) (SITE 12)

A GW RI was initiated for this site in 2004. This investigation revealed higher concentrations of TCE (330 ppb) beneath PICA-058. Additional investigation is currently underway.

MTBE contamination at this site will be addressed under the Compliance-Related Cleanup Program site CC-55.

CLEANUP STRATEGY

Groundwater investigation to include the installation of several monitoring wells is ongoing to further delineate the extent of the contamination. The FS, PP and ROD will be completed.

The anticipated remedy for this site is long term performance monitoring with land use controls. LTM will include monitoring of four wells quarterly for one year, and annually for 29 years.

POST FARM LANDFILL (SITE 23) (PAGE 1 OF 2)

SITE DESCRIPTION

The Post Farm Landfill is 10.3 acres and located along the top of the unnamed hill that forms the southeastern boundary of PTA. It contains a borrow pit near the central portion of the site, and two landfilled areas where drums and other materials were buried. During the 1950s, the site was used mostly as a source of borrow materials. In the 1960s landfilling activities began in the southern and northern area of the site. These areas are referred to as the northern drum burial area (DBA) and southern DBA. The DBAs reportedly received fly ash from coal burning operations, paint stripping wastes, phenols, and spent explosive-laden hydraulic oils in containers or as free liquid. A preliminary assessment was performed in 1991 that recommended a site investigation and non-time critical removal action. In 1992, a non-time critical removal action was performed to remove buried containers at the site. During the removal action, small containers, garbage cans, batteries, and drums were removed and disposed of off-site. Post excavation sampling and exploratory trench sampling were also completed as part of the action. The trench investigation determined that all buried containers had likely been removed from the site. The last phase of the action included placing at least 6-18 inches of native soil over the former burial areas.

A remedial investigation was completed in 1994 with additional sampling in 1996/1997. The 1994 HHRA indicated that carcinogenic risk was in the range of 1×10^{-4} to 1×10^{-6} from PAHs, PCBs, and dioxins/furans. This HHRA was based on a limited number of samples. The 1996/1997 RI included completing soil borings, installing monitoring wells, collecting surface soil, sediment, surface water, groundwater samples and completing a fracture trace analysis. Results indicate moderate criteria exceedances in surface soil for metals and SVOCs, in subsurface soil and sediment for metals, and in groundwater for VOCs, dioxins/furans, metals, and radionuclides. The detections of dioxins/furans were not reproduced in the later 1997 sampling event. A FS was completed in 2000, which evaluated excavation and disposal, onsite fixation, capping, and institutional controls. The FS recommendation was for institutional controls and long-term groundwater monitoring. The USEPA and NJDEP approved the FS. A proposed plan was finalized and a public meeting was held in December 2003. A ROD was signed by the Picatinny Garrison

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: VOCs, SVOCs, Metals, Radionuclides

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199105	200505
RD	200506	200610
IRA	199112	199301
RA(C)	200604	200705
LTM	200706	203706

RC DATE: 200706

POST FARM LANDFILL (SITE 23) (PAGE 2 OF 2)

Commander in September 2004 and by USEPA in December 2004. A remedial design was submitted for this site in November 2005.

CLEANUP STRATEGY

Groundwater monitoring will be performed that includes 11 wells, 1 surface water, and 1 seep sample for metals and nuclide analysis and 3 wells for VOC analysis. LUC will be maintained. The actions in the remedial design are covered by the PBC.

SANITARY LANDFILL (NEAR SITE 20) SITE 24

SITE DESCRIPTION

Site 24 occupies approximately 28 acres adjacent to the southern boundary in the southwestern corner of the arsenal. Records indicate that sanitary waste, fly ash, ordnance, industrial wastes and wastewater treatment plant sludge were dumped on a portion of the site. PICA-066 covers all environmental media at this site with the exception of groundwater. Site groundwater is being addressed in PICA 205.

A 1994 remedial investigation included geophysical, radiological, and soil gas surveys in addition to surface soil, subsurface soil, surface water/sediment and groundwater samples analyzed for VOCs, BNAs, metals, cyanide, explosives, pesticides, PCBs, dioxins/furans, and radiologicals. Metals, PCBs and pesticides were detected above surface soil LOCs. VOCs and metals were detected above surface water LOCs.

Metals, cyanide, and pesticides were detected above sediment LOCs. The HHRA determined that carcinogenic risk fell between or exceeded the 1×10^{-4} to 1×10^{-6} risk range from arsenic, beryllium, PCBs, and dioxins/furans. The HI did not exceed one. Additional RI activity was completed in 1997 including soil gas survey, Geoprobe groundwater sampling, surface soil sampling, subsurface soil sampling, and surface water sediment sampling. Samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and metals. Surface soil LOCs were exceeded for pesticides, PCBs, and metals. This sampling event included a large sampling grid to completely delineate PCB contamination of surface soil.

In 2000, a FS was conducted that included a baseline ecological risk assessment that determined that exposure to lead and DDT in soil could lead to elevated hazards for avian species. The FS also selected PCBs as a COC based on risk to human health. Site specific RGs were developed for these compounds. The FS examined a vegetative soil cover, an asphalt cover, and excavation and disposal of soils contaminated with PCBs above NJDEP criteria and lead and DDT above a site specific ecological action level. A proposed plan has also been completed for this site and public notice was completed in July 2001. A ROD was prepared in summer 2001 and signed in spring 2002. In order to complete the design of the soil cover additional delineation sampling was completed in summer 2001. Some of these samples contained PCBs at much greater concentrations (3,500 mg/kg) than were seen in the 1997 soil grid sampling (297 mg/kg). Soils containing PCBs at concentrations over 297 mg/kg were excavated and disposed of off-site. The vegetated soil cover was completed in 2003. The wetlands that were destroyed by the capping were replaced with an enhanced wetland pursuant to the wetland permit-equivalent for the action.

STATUS		
REGULATORY DRIVER: CERCLA		
RRSE: High		
CONTAMINANTS OF CONCERN: DDT, Lead, PCBs		
MEDIA OF CONCERN: Soil		
<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198707	198906
RI/FS	199309	200206
LTM	200207	203609
RC DATE: 200206		

SANITARY LANDFILL (NEAR SITE 20) SITE 24

CLEANUP STRATEGY

Cap maintenance and institutional controls will be maintained in accordance with the LUCIP in the ROD. The Site is included in the PBC.

PICA-063 (PART OF PICA-066) PYROTECHNIC TESTING RANGE (SITE 20)

SITE DESCRIPTION

Site 20 consists of a pyrotechnic testing range near the southern boundary of the Arsenal. This range is completely contained within the Site 24 (PICA 66) site boundary. PICA-063 has been combined with PICA-066, Sanitary Landfill (Site 24), and both are being addressed concurrently under PICA-066. Thus, PICA-063 is considered response complete.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Metals, Vinyl Chloride

MEDIA OF CONCERN: Sediment,
Groundwater

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199309	200203

RC DATE: 200205

SANITARY LANDFILL (NEAR SITE 26) SITE 25

SITE DESCRIPTION

Site 25 is located within the central valley of PTA; it consists of ~8 acres. The area has been divided into four sections; the southern borrow area, the landfill area, the Dredge Pile (RI Site 26, PICA-068) and the northeast area. PICA-068, the Dredge Pile, has been combined with this site (PICA-067). All issues associated with the Dredge Pile will be addressed under this site. Therefore, PICA-068 is considered response complete. The southern borrow area consists of a 2-acre grass-covered clearing formerly used for landfilling. The Dredge Pile encompasses ~2000 ft², near the center of the site and is ~15-20 ft high. A variety of wastes were disposed of at Site 25 from the 1940s through the 1970s. These wastes included rubbish, industrial wastes, shells, and sewage treatment plant sludge. The landfill was closed and covered in 1972. The site is currently inactive.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: Metals, VOCs, Pesticides, PAHs

MEDIA OF CONCERN: Soil

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198707	198906
RI/FS	199309	200702
RD	200604	200704
RA(C)	200604	200706
LTM	200709	203706

RC DATE: 200707

A remedial investigation was completed for the site in 1994. The field portion of this remedial investigation consisted of a geophysical survey, radiological survey, soil gas survey, soil sampling, test pitting, monitor well installation and groundwater sampling. A HHRA and ERA were also conducted a part of the RI. The HHRA determined that the cancer risk was between 1×10^{-4} and 1×10^{-6} mainly associated with PAHs. The RI report concluded that the site should proceed to FS to address human health risk associated with SVOCs, dioxins/furans, metals, and PCBs. Ecological risk modeling indicated the potential for impact to terrestrial species from metals.

A FS was initiated to address these issues, but was stopped due to inadequate delineation of soil contamination and marginal risk associated with the site. In order to facilitate the performance of the FS, additional delineation of PAH contaminated soil was performed in 1997 to delineate PAH contamination in the northeast corner of the site. To determine the best course of action in light of all data and the level of risk associated with the site, a risk management plan was drafted in 2000. The risk management plan determined that human health risk resulting from PAH contaminated soils was within the risk range 1×10^{-4} to 1×10^{-6} . It also determined that metals and pesticide-contaminated soils could potentially drive ecological risk. Based on these concerns, the risk management plan recommended that a feasibility study be performed.

PICA-067
SANITARY LANDFILL (NEAR SITE 26) SITE 25
(PAGE 2 OF 2)

The FS was finalized in 2003. The FS recommended extending a parking lot to cover the PAH-contaminated soil. The PP and public meeting for the site were completed in December 2004. The ROD for the site was submitted to the regulators in June 2005 and resubmitted after comments from USEPA; the preferred remedy in the revised ROD was revised to a vegetative soil cover in lieu of an asphalt cover.

CLEANUP STRATEGY

The FS was finalized in 2003. The FS recommended extending a parking lot to cover the PAH-contaminated soil. The PP and public meeting for the site were completed in December 2004. The revised ROD for the site is currently being re-reviewed by USEPA.

Funding for PICA-067 (Site 25) and PICA-068 (Site 26) are combined under this site.

The Army reconsidered the alternative at the time of this IAP and determined that the area will be covered with a vegetative soil cover instead of an asphalt parking lot. Institutional controls will also be maintained as part of the remedy.

Potential groundwater concerns are being addressed under PICA-206.

PICA-068 (PART OF PICA-067) DREDGE PILE (SITE 26)

SITE DESCRIPTION

The dredge pile is located in the central valley of PTA near the southern boundary. The dredge pile consists of an irregular shaped pile of sediments dredged from portions of GPB. This site lies completely within Spicer Landfill, approximately 700 feet east of GPB and 100 feet west of two baseball fields. The height of the piles varies from 15-20 feet, and covers an area of less than 1 acre. The estimated quantity of dredged material is about 12,000 cubic yards

Most of the material disposed of on this site was dredged from two locations along GPB in 1982. GPB was dredged from Site 34-Lower Burning Ground, and a location adjacent to the DRMO Yard (Site 31). Dredging was conducted to remove shells found in GPB. GPB has received

waste streams from most operations at PTA, including sewage and industrial wastewater discharges, storm runoff, and discharge from contaminated groundwater plumes. Consequently, the dredged material from the brook was suspected to contain a variety of potential contaminants. This site is currently inactive.

PICA-068 has been combined with PICA-067, Sanitary Landfill (Site 25), and both are being addressed concurrently under PICA-067. Thus, PICA-068 is considered response complete.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
VOCs, Metals

MEDIA OF CONCERN: Soil

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198707	198906
RI/FS	199105	199612

RC DATE: 199702

DRUM STRG AREA (B31 YARD) SITE 29 (PAGE 1 OF 2)

SITE DESCRIPTION

Site 29 is a former drum storage area located in an outside courtyard between Wings 1 & 2 near the NW corner of Bldg 31. Bldg 31 has two-stories, a concrete foundation and consists of five wings with three courtyards. Bldg 31 was a metal workshop containing various types of equipment including lathes, milling machines and drill presses. Operation of these machines generated cutting oils and machine oils, which were collected in 55-gallon drums that were stored outside the building.

A 1989, a SI was conducted. State criteria were exceeded for metals, VOCs, BNAs and TPH. A remedial investigation was conducted in 1994. No petroleum related contaminants were detected in the RI sampling. Under the RCRA program, a tank was removed and confirmatory sampling conducted. The confirmatory sampling consisted of sampling in the tank excavation and advancing soil borings in the area of contamination identified in the 1989 site investigation. In the late 1990s, follow up investigation took place to further address issues discovered in the 1989 site investigation. All tanks associated with this site have been removed. All of the courtyards at Bldg 31 are contaminated with PCBs, petroleum and SVOCs. Some wells at the site are also contaminated with petroleum.

Bldg 31 has been transformed into an Armament Software Center. Regulators have been notified of the situation; institutional and engineering controls will be integrated with the new facility.

Approximately 500 tons of petroleum contaminated soil (6-10 ft bgs) located off the northwest corner of Building 31 was removed in early FY04. Soil in the courtyards has been covered over with concrete, asphalt or coarse gravel.

The Remedial Investigation was completed in 2005 and approved by the regulators. The Feasibility Study was submitted to the regulators in the spring of 2006 and the Army is awaiting comments.

In 2003, PICA-084 was listed as response complete in AEDB-R and will be addressed under PICA-071.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: Metals, Petroleum, PCBs

MEDIA OF CONCERN: Soil, Groundwater

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198707	198906
RI/FS	199309	200808
LTM	200809	203808

RC DATE: 200808

DRUM STRG AREA (B31 YARD) SITE 29 (PAGE 2 OF 2)

CLEANUP STRATEGY

A FS PP and ROD will be completed. The consolidated site is covered by the PBC. Groundwater monitoring will continue. Land use controls will be implemented.

PICA-078 (SITE 39) (PART OF PICA-071) VEHCL MAINT FORMER-WW PRETRTMT FAC (B31)

SITE DESCRIPTION

Site 39, the northeast wing of Building 31, is located in what was historically the central manufacturing valley at Picatinny Arsenal. Building 31 was constructed in 1943 and has an area of 87,074 ft². Site 39, the Vehicle Maintenance Wastewater Treatment Plant, is located within Wing 1 of Building 31. The Vehicle Maintenance Treatment Plant was used as a wastewater treatment unit, utilizing a mechanical skimmer to treat oily wastewater generated by the vehicle maintenance and washing operations from Building 33 (Site 45 – PICA 084), located across Fourth Court from Building 31. It is unknown when the use of the treatment plant was discontinued.

Prior to closure activities in September 1990, an in-ground sump collected oily wastewater from the floor of the Vehicle Wash Area and from roof drains in Building 33. The wastewater was then piped under the street to the treatment unit, located in Wing 1 of Building 31. After flocculation and treatment with a cationic polymer, suspended particles froth and oil were skimmed from the surface and sent to a 1,000-gallon UST at the corner of Fourth Avenue and Fourth Court. The remaining effluent entered a float-treat tank and then the sanitary sewer. Dirt and other heavy solids in the effluent sank to the bottom of the float-treat tank, where a mechanical screw flushed the sediment to the 1,000-gallon UST. The waste from the 1,000-gallon UST was shipped off-post on a regular basis. RCRA activities included removal and confirmatory sampling of the soil beneath the 1000-gallon UST. The State considers the UST to have been closed. No remedial investigation activities were conducted as part of the Phase I RI in 1994 due to the ongoing RCRA activities. Additional investigation was carried out in the late 1990's.

Any future actions needed at this site will be funded under PICA-071, as the site is near or the same geographically.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
Petroleum

MEDIA OF CONCERN: Soil,
Groundwater

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198707	198906
RI/FS	199105	200010

RC DATE: 200103

PICA-084 (PART OF PICA-071) VEHICLE MAINTENANCE (BLDG 33) SITE 45

SITE DESCRIPTION

Site 45 consists of Building 33, located on Third Avenue between Fourth Court and Farley Street. Bldg 33 is a two-story structure, built on a concrete foundation, and has an area of 23,460 ft². Bldg 33 was constructed as a vehicle maintenance shop. Currently, the southern portion of the building contains a paint and body shop, as well as a vehicle wash and waste oil storage area.

Until 1970, waste disposal at the site included an in-ground sump located in the middle of the Vehicle Wash/Waste Oil Storage Area floor, which collected wastewater from floor and roof drains. The oily wastewater collected in the sump was pumped through a pipe under Fourth Court to a treatment unit in Bldg 31 (Site 39 PICA-078). Other wastes that have been accumulated at the Waste Oil Storage Area and disposed of off-site include waste radiator coolant, drained battery acid, and cloths containing oil and paint thinner. These items were sent off-post for disposal.

There are two other ASTs associated with Bldg 33. The AST located between the former paint shop and a storage area is connected to the floor drains, but is unused. The other AST located in the oil storage area is used to store unused or new oil. RCRA closure activities have been completed at this site. The closure activities included decontamination of the vehicle wash/waste oil storage area and the collection of one rinsate, two concrete chips, and one paint chip sample. NJDEP has approved the closure of the vehicle wash/waste oil storage area. However, other potential contamination associated with the site has been investigated in the late 1990s and will be addressed under CERCLA.

The RI found free product in a well next to an abandoned UST. The 10,000 gallon UST was removed in June 2001. The NJDEP has approved the UST report as written. A total of ~609 tons of petroleum-contaminated soils was removed and transported to Tilcon for recycling (formally Mt. Hope Recycling). Approximately 6,185 gallons of water generated from dewatering the excavation was also disposed of off-site.

An August 2003 sampling event indicated only a sheen in one well and levels of BTEX in the plume were declining, an indication that natural remediation is occurring. In 2003, PICA-084 was listed as response complete in AEDB-R and will be addressed under PICA-071.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals, Petroleum, PCBs

MEDIA OF CONCERN: Soil,
Groundwater

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	198710.....	199103
SI.....	198910.....	199103
RI/FS.....	199309.....	200407

RC DATE: 200407

FORMER GAS STATION/DRMO (SITE 31) (PAGE 1 OF 2)

SITE DESCRIPTION

The site includes five buildings located on six acres of land. The site has been used as a storage yard for disposal, salvage, and sale of excess materials. A variety of items including materials used in the manufacturing and testing of explosives, pyrotechnics, and munitions, potential PCB-containing transformers, scrap metal, used batteries, and motor vehicles were stored in the area. PICA-072 includes all environmental media at RI Sites 31 & 101 (formerly PICA-116).

A 1989 site investigation was performed. The SI indicated that surface soils were contaminated with oil, grease, PCBs, metals and BNAs above LOC. Sediments were contaminated with oil, grease, BNAs, and metals.

In 1991, a RCRA closure investigation was performed on an asphalt area adjacent to Building 314 formerly used to store batteries. Closure verification samples (surface soil samples and chip samples) were collected and analyzed for VOCs and PP metals. Analytical results indicted the storage of batteries may have been a source of metals contamination in surface soil. In 1991, a RCRA closure investigation was conducted on a room inside the building formerly used to store photographic film. The area was pressure washed and chip samples were collected. Also in 1991, a RCRA closure verification sampling event was conducted at Building 314-E to evaluate an area used for storage of discarded lead batteries and equipment. The area was pressure washed and rinse and chip samples were collected. The RCRA closure report for all three investigated areas was approved by NJDEP.

In 1993, an investigation was conducted to evaluate the potential for contamination of soil and groundwater from metals, TPH, BTEX, and PCBs. PAHs, metals and PCBs were detected above LOC in soil, and metals were detected above LOC in groundwater. Follow up investigation was conducted in 2000. Surface soil grid samples were collected for VOCs, SVOCs, metals, PCBs, dioxins, and explosives. Six areas of concern were found based on exceedance levels of metals, PCBs, and PAHs. Soil contamination at this site is wide spread and contains “hot-spots” of metals and PCBs. Maximum levels of contamination in surface soil include Aroclor 1260 5,100 mg/kg, copper 68,500 mg/kg, lead 35,900 mg/kg and zinc at 53,800 mg/kg. Maximum levels of metals in site sediment include copper at 6,580 mg/kg and lead at 3,330 mg/kg. Additional sampling was

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Metals, PCBs, VOCs, SVOCs,
Cyanide, Pesticides

MEDIA OF CONCERN: Soil,
Sediment, Groundwater, Surface
Water

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198707	198906
IRA.....	199304.....	199305
RI/FS	199309	200705
RD	200604	200706
RA(C)	200604	200709
LTM	200709	203709

RC DATE: 200709

FORMER GAS STATION/DRMO (SITE 31) (PAGE 2 OF 2)

conducted in 2001 to delineate PCB contamination adjacent to Building 314D. Extensive PCB-contaminated soil was detected in the area. The estimated risk and hazards for the industrial research worker exceed the target levels. The primary risk and hazard drivers are PCBs. In addition, lead is deemed a concern at the site.

In 2003, PICA-116 was listed as RC in AEDB-R and will be addressed under PICA-072.

A final FS has been completed and a PP is being drafted.

CLEANUP STRATEGY

At PICA-072 and 116, remediation will include soil excavation of PCBs (~675 cy) and lead (~1,200 cy) followed by capping (~5.8 acre), and ~600 ft riprap along the stream. This assumes that all of the excavated material will be disposed of offsite. The PCB and lead contaminated soil will be disposed of in an approved off-site disposal facility.

To address surface water and sediment contamination, long-term chemical and biological monitoring will be implemented.

Existing LUCs will be maintained. Additional LUCs (includes engineering and institutional controls) will be implemented across the entire site to preclude residential land use. The site is included in the PBC.

PICA-116 (PART OF PICA-072) (SITE 101) BLDGS 331 & 319, FORMER GAS STATION

(PAGE 1 OF 2)

SITE DESCRIPTION

This site encompasses Buildings 311 (Gasoline Station), 319 (Safety, Surety and Environmental Office), and the paved area to the south of these buildings. Former Building 311 consisted of several gasoline pumps and a computerized gasoline dispensing unit. The gasoline pumps were reportedly removed from service in June 1991. Available documents indicate that at least five USTs were affiliated with Building 311. Three of the five USTs were reportedly used prior to 1961. The tanks were used for the storage of leaded gasoline, unleaded gasoline and diesel fuel. Picatinny closed the remaining two USTs in 1989 and 1993, respectively. Closure of the tanks involved removal of the tanks and ancillary piping. Confirmatory soil samples did not contain any elevated levels of BTEX or lead.

The original Building 319 was used as a storehouse for sodium nitrate. This building was destroyed in an explosion, but was rebuilt in 1926. Building 319 was reportedly utilized in the production of explosives and for the storage of gasoline products. Building 319 was also used as a vehicle dispatcher's office, and for the storage of automobile tires. PTA personnel also indicated that, prior to the 1960s; this building may have also been used as a horse stable area. Since the late 1980s, Building 319 has housed the administrative offices of the Safety, Surety, and Environmental Department. An area to the south of this site and adjacent to the former DRMO was used as a burning ground shortly after the turn of the century.

Environmental samples collected during the Phase I RI indicated concentrations of TCE in groundwater above its LOC. TCE in groundwater is addressed in the cleanup strategy, although TCE has not been detected above the LOC in subsequent sampling. High levels of VOCs were reported in the soil gas samples collected throughout the site. Elevated levels of PAHs and metals were detected in the soil samples. In addition, sediment samples contained concentrations of PAHs, metals, cyanide, pesticides and PCBs in excess of LOCs. As part of the Phase I ERA, this site was characterized as having very low habitat value. However, if the land use were to change and return to usable habitat, the site could pose a significant ecological risk. Human health risk falls within the target range (1×10^{-4} to 1×10^{-6}). The hazard level exceeds the HI criterion of 1. Additional field activities performed in 2000 and 2001 identified two geophysical anomalies (possible USTs) near former Building 311, delineated the existing soil contamination, and investigated the elevated soil gas levels. Test pits excavated to investigate the geophysical anomalies yielded metallic debris, but no evidence of USTs. No VOCs were

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:

Metals, PCBs, VOCs, SVOCs,
Cyanide, Pesticides

MEDIA OF CONCERN: Soil,
Sediment, Groundwater, Surface
Water

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199309	200306

RC DATE: 200306

**PICA-116 (PART OF PICA-072) (SITE 101)
BLDGS 331 & 319, FORMER GAS STATION &
(PAGE 2 OF 2)**

detected at concentrations above LOCs in subsurface soil samples collected to investigate elevated VOC levels detected in soil gas samples.

In 2003, PICA-116 was listed as response complete in AEDB-R and will be addressed under PICA-072.

PICA-075 (SITE 36)

EQPMT & WASTE STORAGE IN 3000 – AREA

(PAGE 1 OF 2)

SITE DESCRIPTION

Building 3100 was constructed as a storage facility in 1942. From 1942 until the early 1950s, Building 3100 was used for explosives storage, and was serviced by a rail line on the west side of the building. From the early 1950s until 1975, the building was utilized as an environmental test building. Materials tested in the environmental lab included: fully loaded rocket components and ordnance items, such as solid propellant boosters and sustainers, prepackaged liquid rocket engines, and gas generators. However, no exposed explosives were tested.

Use of the building, as a waste storage facility, began in 1981 under interim status until March 1991, when PTA was granted a hazardous waste facility permit. Building 3100 is currently the only RCRA-permitted hazardous waste storage facility at PTA. In February 2000, a flammable storage locker was added to the building. Operations in the building include sorting and overpacking of waste materials that are picked up from various organizations throughout the post. The storage of oxidizers, poisons, corrosives and flammables are permitted in the building. There are no floor drains in the building.

A PA/SI was conducted for Building 3100 in 1996. Soil samples were analyzed for explosives, VOCs, SVOCs, pesticides/PCBs, anions, and metals. One soil sample contained beryllium at a concentration equal to the LOCs. RI activities were initiated in 2000 for the analysis of VOCs, SVOCs, TAL metals, cyanide, anions, explosives, and ethylene glycol. Metals were detected at concentrations marginally above LOC in soil. In 2001 additional subsurface soil samples were collected around Building 3100 as part of the Mid-Valley Groundwater Investigation. The samples, which were analyzed for VOCs, did not contain any LOC exceedances. No additional sampling is planned for this site. The field investigations and RSA results from the BERA indicated that affects from exposure, if any, were not impacting the local populations of small mammals or birds. As all samples collected at this site are associated with the adjacent Shell Burial Area, no HHRA has been completed specifically for this site.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals, VOCs, SVOCs

MEDIA OF CONCERN: Soil,
Groundwater

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198707	198906
RI/FS	199606	200808
RD	200604	200902
RA(C)	200604	200906
LTM	200907	203906

RC DATE: 200906

PICA-075 (SITE 36) EQPMT & WASTE STORAGE IN 3000 – AREA (PAGE 2 OF 2)

In 2003, PICA-086, 141 and 191 were listed as response completed in AEDB-R and will be addressed under PICA-075.

CLEANUP STRATEGY

A FS, PP and ROD will be completed for PICA-075, 086, 141 and 191. The Site is included in the PBC.

At PICA-086 LUCs will be maintained.

At PICA-141 excavation of approximately 924 cy of lead contaminated soil is recommended. Following the soil removal, LUCs will be maintained.

At PICA-191 a vegetative cap is recommended for the soil contamination. LUCs will be required for the surface water and sediment contamination and for maintenance of the cap.

PICA-086 (PART OF PICA-075) HEAVY EQUIP. MAINTENANCE (BLDG 3005&3006)

SITE DESCRIPTION

This site consists of Building 3005, a heavy equipment maintenance facility, and Building 3006, a designated satellite waste accumulation area. In 1941, Bldg 3005 was used as a railroad roundhouse, and for the storage of construction equipment. Bldg 3005 was converted to a maintenance facility for heavy equipment in 1962, and is still used for this purpose. A pit, associated with Bldg 3005, was used by the mechanics during the repair and maintenance of locomotives. In 1976, the pit was backfilled with an unknown material. Prior to 1962, the primary substances used at Bldg 3005 were lubricating oil, coal, locomotive fluids, and fuel oil. Bldg 3006 was constructed in 1953, and has been used for storage mostly; but it was also used for a few years, in the mid-1960s, for the repair of small gas engines.

In 1991, Bldg 3005 underwent a RCRA closure and an UST closure. As part of the RCRA closure, oil drums and any other remaining materials were removed. A soil sample, collected beneath the concrete floor, contained levels of metals and TPHs in excess of NJDEP criteria. A 5,000 gallon UST, used to store #2 diesel fuel, was excavated along with ~2cy of TPH-contaminated soil. Post-excavation soil samples did not detect any TPHs.

Phase II RI activities included geophysical surveys, a soil-gas survey, excavation of two test pits, the installation of two monitoring wells, and the collection of soil and groundwater samples. The geophysical surveys conducted at the site could not identify the former waste pit or any remaining USTs. The soil-gas survey results indicated elevated VOC readings near the suspected waste oil pit. Sample analyses detected methylene chloride and lead in the groundwater, and SVOCs in the surface soil at concentrations exceeding their respective LOCs. Results of the HHRA indicate the risk and hazard from exposure to surface soil are below the target levels of 1×10^{-4} and 1, respectively; however, the hazard from exposure to subsurface soil is equal to the threshold level. Additional samples collected in 2001 have delineated the soil contamination. No further sampling is proposed for this site.

In 2003, PICA-086, 141 and 191 were listed as response completed in AEDB-R and will be addressed under PICA-075.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Metals, VOCs, SVOCs

MEDIA OF CONCERN: Soil,
Groundwater

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199502	200306

RC DATE: 200306

PICA-141 (PART OF PICA-075) FORMER ENLISTED MENS BARRACKS (BLDG 3050)

SITE DESCRIPTION

Building 3050 was built in 1934, and has always been used as men's barracks. The building has a dark room available for personnel to develop photographs. Waste materials generated, at Building 3050, come from photographic development activities performed in the dark room. These wastes include photographic developers, stop bath, and fixing/clearing solutions. According to PTA personnel, an oil and lube rack was once located on the western or southern side of Building 3050, and was used to change automobile fluids and oil. The rack was removed and the area backfilled between 1983 and 1984. Other potential sources of contamination at this site include a former #2 fuel oil UST, which was removed in 1993; a transformer, and a former sewage spill.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Metals, VOCs, SVOCs

MEDIA OF CONCERN: Soil,
Groundwater

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199502	200306

RC DATE: 200306

Phase II RI activities conducted at this site included the performance of a geophysical survey, the excavation of one test pit, the performance of a soil-gas survey, the installation of two monitoring wells, and the collection of soil and groundwater samples. During the RI, a test pit excavated in the parking area of Building 3050 discovered an UST with approximately a 500 gallon capacity, about one foot below the asphalt pavement. The UST was subsequently removed. Xylenes and chlorinated solvents were identified in individual soil-gas samples. Lead was detected above LOCs in soil and groundwater samples collected at the site. In addition, elevated concentrations of SVOCs and other metals were identified in the soil. A soil bioassay conducted as part of the Phase II ERA did not reveal adverse effects to the earthworms, although the maximum concentrations of several pesticides and PCBs were detected in the earthworm tissue. The extent of contamination was delineated in 2002. Results of the HHRA indicate the estimated cancer risk from exposure to surface soil exceeds the target risk of 1E-4 with PAHs and arsenic identified as the risk drivers. In addition, the adult lead model results indicate lead in surface soil may be a health concern. The estimated hazard from surface soil exposure is below the target threshold of 1. The estimated risk and hazard from subsurface soil exposure are equal to or below the target levels.

In 2003, PICA-086, 141 and 191 were listed as response completed in AEDB-R and will be addressed under PICA-075.

PICA-191 (PART OF PICA-075) (SITE 188) FORMER COAL STORAGE AREA (BLDG 3173)

SITE DESCRIPTION

Building 3173 is located along Main Road in the Navy Hill section of the arsenal. Building 3173 was originally constructed by the Navy as a carpentry shop in 1902. The building was transitioned from Naval to Army ownership in the early 1960s. Since 1902, Building 3173 has been used as a carpentry shop, lab/test facility, general purpose storage facility, youth center, and office space. The building has a coal storage area behind it, which was used for the Building 3013 power plant from approximately the 1930s until the 1960s. The bunker is surrounded on three sides by concrete walls, with an unlined floor. Materials associated with Building 3173 included coal, small ordnance items, and potentially small amounts of solvents such as acetone, paints, and thinners.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Metals, VOCs, SVOCs

MEDIA OF CONCERN: Soil,
Groundwater

Phases	Start	End
PA	197607	198105
SI.....	199010.....	199107
RI/FS.....	199502.....	200306

RC DATE: 200306

Two USAEHA investigations were conducted, at Building 3173 in 1991, for TPH, BNAs, and oil/grease in soil. Numerous samples collected contained TPH above the detection limit, and the report determined the site should be capped with 12 inches of topsoil and grass. A PA/SI was conducted in 1996 to evaluate VOCs, SVOCs, pesticides/PCBs, explosives, metals and anions in surface soil. PAHs and metals were detected at concentrations greater than LOC. Based upon results of the PA/SI, PICA-191 was included as part of the Phase III 2A/3A RI. As part of the RI sampling program, surface soil, subsurface soil, sediment, surface water, and groundwater samples were collected for the analysis of VOCs, PAHs, metals, and radiological parameters. Surface soil and surface water contained concentrations of metals and PAHs in excess of respective LOCs, and groundwater contained metals at levels greater than LOC. Additional soil, surface water, and sediment sampling were conducted in 2001-02 to complete the delineation of existing contamination. Results of a HHRA indicate the risk from surface soil exposure at the site exceeds the target level of 1E-4. The primary risk drivers are PAHs. Risks from subsurface soil and sediment exposure are below the target level. Hazards are below the target level of 1 for all three exposure scenarios. The field investigations and RSA results from the BERA indicated that affects from exposure, if any, were not impacting the local populations of small mammals or birds.

In 2003, PICA-086, 141 and 191 were listed as response completed in AEDB-R and will be addressed under PICA-075.

PICA-076 (SITE 37)
FORM METL PLATG WSTWTR FAC/LAGOONS
B-24 (PAGE 1 OF 2)

SITE DESCRIPTION

Site 37 consists of a former wastewater treatment facility and lagoons associated the metal plating activities formerly housed in Building 24. The lagoons were suspected to have leaked, and were closed under interim status in 1981. This closure included excavation of 317 yd³ of soil. Final closure of the Building 24 surface lagoons occurred in 1991 including demolition of the concrete basins and excavation of additional soils. The action removed 660 yd³ of soil and 240 yd³ of concrete. The regulators have accepted this closure. A dry well which never had interim status was constructed in 1961, and was closed in 1991 in accordance with NJ Hazardous Waste Regulations. The closure of the dry well has been accepted by the regulators.

There have been numerous investigations of the TCE plume at this site. Two wells were sampled for metals and anions from 1958 to 1985. From 1981 to 1985, 21 wells were installed and sampled for VOCs, phenol, metals, anions, and cyanide. LOCs were exceeded for metals and VOCs. In 1986, a drive point investigation was completed and indicated high levels of VOCs. In 1987, streambed piezometers and 33 additional wells were sampled for VOCs and metals. It was determined that VOCs were discharging to GPB. In 1989, 23 monitoring wells were installed and sampled for VOCs. Between 1990 and 1992 an additional 69 samples were collected from existing wells. In 1992, an interim remedial action was initiated when a hydraulic barrier pump and treat system was installed to impede the flow of TCE to GPB. This plant has been in operation since 1992, and wells have been sampled for VOCs quarterly from 1992 to 2000 and are currently sampled semiannually. In 1994, a remedial investigation was completed and a round of samples was collected from existing wells and one new well. The 1994 HHRA found cancer risk between or above the 1x10⁻⁴ to 1x10⁻⁶ range (assumes direct groundwater use). Pilot scale remedial technology studies have been carried out by the USGS including air sparging, methane sparging, and surfactant treatment.

In 1997 a feasibility study data gap investigation determined the applicability of MNA. A FS and flow and transport model were completed. The feasibility study examined P&T, six phase heating with SVE, accelerated bioremediation, MNA, and reactive barrier wall. The

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOCs

MEDIA OF CONCERN:
Groundwater

Phases	Start	End
PA	197607	198105
SI	198504	199003
RI/FS	199105	200409
RD	200410	200612
IRA	199209	200709
RA(C)	200604	200703
RA(O)	200604	203703

RIP DATE: 200703
RC DATE: 203703

PICA-076 (SITE 37)
FORM METL PLATG WSTWTR FAC/LAGOONS
B-24 (PAGE 2 OF 2)

FS determined that MNA would take an extended period (>100 years). A revision to the draft FS that examined more aggressive treatment alternatives was submitted in summer 2001. Based on this analysis, the preferred alternative is the reactive barrier wall. Two pilot studies (propane and HRC) have been completed, to investigate potential techniques to address residual accessible source area contamination, thereby reducing overall cleanup times. Additionally a geotechnical investigation was performed in fall 2002 and will be included in the PRB design. The FS for Area D Groundwater was finalized in May 2003 and has been accepted by the regulators. The Proposed Plan was finalized in July 2003 and sent to public notice. A ROD was signed by the USEPA in September 2004.

CLEANUP STRATEGY

A permeable reactive wall will be installed and monitored natural attenuation is expected to follow. The interim action pump and treat will stop operating based on the successful performance of the permeable reactive wall. The site is included in the PBC with ARCADIS Inc. MNA is also a component of this remedy

PICA-120 (PART OF PICA-076) FORMER BLDG 24 PLATING FACIL (SITE 21)

SITE DESCRIPTION

Site 21 is located on Third Avenue, southwest of the intersection with Farley Avenue. The plating facility, built in 1942, was originally referred to as Buildings 24 and 45, but now is referred to only as Building 24. Building 45, the southern half of what is now known as Building 24, was originally a deburring, plating, and cartridge-case unit. This section of the building was demolished in 1999. The northern section of the building is still utilized as a welding shop. Components were processed in the deburring rooms prior to plating. The cartridge-case unit was utilized for reworking used cartridge cases, which were then cleaned and/or plated and sent to be reloaded. The original Building 24, the northern half of what is now known as Building 24, was a machine shop and shipping facility but was later converted to a welding shop. Building 24 was gutted in 1960, and a new plating facility was installed in the southeast section of the building. An industrial wastewater treatment plant (IWTP) was built in the southwest section of the building, adjacent to the plating facility. These two facilities compose Site 21.

Operations at the Building 24 plating facility included: anodizing with chromic and sulfuric acids; cleaning; degreasing; deburring; and plating with chromium, cadmium, copper, tin, and nickel. Each plating and etching process required a series of cleaning steps. The plating process consisted of a series of baths containing an assortment of chemicals and rinse solutions. The main chemicals used for the plating process were hydrochloric acid, nitric acid, chromic acid, various caustic solutions, black oxide, sodium bisulfite, sodium hydrosulfite, zinc phosphate, and sodium dichromate. The building contained a chemical storage area where chemicals and rinse solutions for the plating operation were kept. In the chemical storage area, new plating solutions were blended in tanks located over secondary containment pits. Waste generated from plating and anodizing operations included spent cyanide and chromic solutions, as well as wastewater. Operations requiring cyanide were discontinued in 1980. Washing and degreasing of metal parts prior to plating generated trichloroethene (TCE) waste. PTA discontinued the use of TCE in 1983 and began using 1,1,1-trichloroethane (1,1,1-TCA). Plating operations at Building 24 were discontinued in 1982, but activities such as degreasing, aluminum cleaning with mild caustic and aluminum anodizing using sulfuric and chromic acids continued until 1985. Building 24 was torn down and removed in 1999.

The contaminated groundwater from the old Building 24 is currently being addressed as part of PICA-076; thus PICA-120 is considered response complete.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
TCE, EDC, Vinyl Chloride

MEDIA OF CONCERN:
Groundwater

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199309	200006

RC DATE: 200008

SITE DESCRIPTION

Site 38 consists of the former underground treatment tanks within Building 95 and Area E groundwater. RI Sites 38 and 22 have been combined. PICA-077 covers all environmental media at these sites. Building 95 served as a circuit board etching operation from 1961 to 1988. Manufacturing at Building 95 consisted of electroplating operations. The wastewater was discharged into the treatment system where it was stored and treated in nine USTs. These tanks were constructed of concrete, and in some cases lined with brick and/or epoxy lining systems. Integrity testing of the seven tanks was conducted in 1988. All tanks failed and were removed from service. As a result, the nine USTs were filled with concrete as part of RCRA closure activities in 1991. The NJDEP approved these activities.

There have been numerous studies conducted at Site 38 as well as on Area E groundwater. Only the significant investigations are summarized here. Site 38 sampling included confirmatory samples collected during the RCRA closure of the tanks and subsurface soil samples collected as part of tank removal. Area-wide previous studies included surface water and sediment samples collected for metals, VOCs, and water quality parameters. Piezometers were sampled for VOCs. In the Phase I RI, sediment samples were collected for VOCs, BNAs, metals, and pesticide/PCBs. Groundwater investigations included installation and sampling of 45 wells before 1989, 32 additional wells in 1989 and three rounds from 26 existing wells in 1994. The results of this sampling indicated that metals and VOCs were above LOCs. The HHRA found the carcinogenic risk between or above the 1X10⁻⁴ to 1x10⁻⁶ (based on on-site consumption) range based on VOCs, metals and PCBs. Quarterly sampling was conducted on 7 wells from 1990 until 2001. These seven wells are now sampled semi-annually. In 1999 a feasibility study data gap investigation sampled 36 wells, surface water, and minpiezometers for VOCs. A smaller number of wells were sampled for metals and redox parameters.

The levels of chlorinated solvents exceed MCLs and New Jersey groundwater standards. Green Pond Brook is acting as a barrier to contaminant transport, however levels detected in the brook are below surface water criteria. The feasibility study evaluated monitored natural attenuation, pump and treat, chemical oxidation, and air sparging with SVE. Currently, the proposed remedy is MNA. A bench scale evaluation of chemical oxidation was completed in 2002.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: VOCs

MEDIA OF CONCERN: Groundwater

Phases	Start	End
PA	197607	198105
SI	198504	199005
RI/FS	199105	200702
RD	200604	200702
RA(C)	200604	200706
RA(O)	200604	200806
LTM	200806	203806

RIP DATE: 200706
RC DATE: 200806

PICA-077 (SITE 38) PLATNG & ETCHNG WWT FAC (B-95) (PAGE 2 OF 2)

The final FS incorporates this new data and proposes monitored natural attenuation as the final remedy. A PP was finalized and a public meeting held in November 2004. The ROD is currently being reviewed by the Army.

In 2003, PICA-010 was listed as RC in AEDB-R and will be addressed under PICA-077.

CLEANUP STRATEGY

The MNA remedy will consist of sampling 14 wells for VOCs quarterly for two years then semi-annually for five years, then annually for 23 years. Post remediation sampling will be completed for three years for MNA (VOCs). LUC are also part of this site.

PICA-010 (PART OF PICA-077) (SITE 22) BUILDING 95 FORMER WASTE IMPOUNDMENTS

SITE DESCRIPTION

Site 22 encompasses an area formerly occupied by 2 unlined sandfilter lagoons and one unlined sludge drying bed (jointly referred to as the impoundment units). The former surface impoundment units were components of a treatment system for wastewater generated at Bldg 95, Site 38, a circuit board etching facility (PICA-077). The units received precipitated metal sludge directly from the Bldg 95 treatment tanks from 1961 to 1981. The effluent contained TCE, 1,1,1-TCA, cyanide, and heavy metals including chromium and copper. After passing through the sandfilter and lagoons, the filtered wastewater stream flowed by gravity into a drainage ditch that ultimately discharged into Green Pond Brook. The discharge was permitted under the NPDES.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
VOCs

MEDIA OF CONCERN:
Groundwater

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199105	200306

RC DATE: 200306

As of 1980, both lagoons and the sludge bed were registered with NJDEP as RCRA hazardous waste surface impoundment units. The impoundments underwent an interim closure in 1981 and final closure in 1990 that was approved by the regulatory agencies. This closure remediated all piping and material in and beneath the impoundments, but not surrounding soil and sediment. A RI was conducted in 1994 and included the collection of surface soil, subsurface soil and groundwater for VOCs, BNAs and metals. As part of the 1994 RI, no detected analytes in surface or subsurface soil exceeded LOC.

Additional RI work was completed in 1997 as a result of regulatory comment to the 1994 RI. The 1997 investigation identified metals contaminated sediment. To identify the path forward in the CERCLA process a risk management plan was drafted in 2000. The risk management plan concluded that due to limited habitat, adverse ecological impact is not likely; however, elevated levels of metals may suggest adverse impact to terrestrial and aquatic species. Human health risk was between 1×10^{-4} and 1×10^{-6} with a hazard index of less than one. In February 2004 an FS was finalized. The FS recommended land use controls as a stand alone remedy for the site. A proposed plan and public meeting were completed in December 2004. A combined ROD was written for RI Sites 22 and 38 (PICA-010 and PICA-077). The ROD is currently being reviewed by the Army.

In 2003, PICA-010 was listed as RC in AEDB-R and will be addressed under PICA-077.

PICA-079 (SITE 40)

ORDNANCE/EXPLOSIVE BLDGS 800 AREA

(PAGE 1 OF 2)

SITE DESCRIPTION

This site consists of Building 809, a wastewater treatment plant, and Building 810, a melt-pour facility for large projectiles. Bldg 809 was constructed in 1944 for use as a large caliber projectile washout facility. Washout operations included the steam cleaning of off-specification projectiles. Explosives-contaminated wastewater from shell washout operations was discharged to a nearby leaching pool, which eventually discharged to Picatinny Lake. Bldg 809 was later converted to its current use, a Wastewater Treatment Plant for treating explosives-contaminated wastewater.

Bldg 810 was constructed in 1930 for use as an operating facility. The building was renovated in 1940 for its current use as a melt-pour facility. Operations, at Bldg 810, involve melting explosives in kettles and pouring the explosives into projectiles, and transporting the projectiles by conveyor to a cooling bay. Three transformers located on the southwest side of Bldg 810 reportedly contained PCBs.

Phase II RI activities included the installation of five monitoring wells and the collection of soil, groundwater, surface water and sediment samples. Explosives and metals were reported at concentrations exceeding LOCs in groundwater and soil, over an extensive area, to the east of Bldgs 809 and 810. Elevated levels of explosives and metals were also detected in the surface water and sediment samples collected adjacent to the site, probably due to overland runoff and erosion of contaminated soil discharging to Picatinny Lake. Soil and sediment bioassays, conducted as part of the Phase II ERA, found 100% mortality in the test organisms. In addition, large portions of the site are devoid of vegetation, suggesting that the soil contamination is also toxic to vegetation. The installation of two bedrock monitoring wells, and the collection of additional groundwater samples, during the Group 1 RI helped define the extent of the groundwater contamination. Results of the HHRA indicate that the risk and hazard from exposure to impacted site media are above the target levels of 1×10^{-4} and 1, respectively. The risk and/or hazard drivers are RDX and 2,4,6-TNT in soil and 2,4,6-TNT in groundwater. Field work to address data gaps was conducted in summer 2002 and the Group 1 FS was completed in late 2004. The Group 1 FS addresses all media at PICA-079, 139, 151, and 152.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
Explosives, Metals, SVOCs, PCBs

MEDIA OF CONCERN: Soil,
Sediment, Groundwater, Surface
Water

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199502	200702
RD	200604	200706
RA(C)	200604	200708
RA(O)	200604	201005
LTM	201006	203707

RIP DATE: 200708

RC DATE: 201005

PICA-079 (SITE 40) ORDNANCE/EXPLOSIVE BLDGS 800 AREA (PAGE 2 OF 2)

In-situ enhanced bioremediation was selected as the preferred alternative to address GW and a demonstration project is currently being conducted to evaluate the use of recirculating wells for substrate distribution. Explosives contaminated soil will be excavated for on-site treatment through enhanced bioremediation and/or disposal at an approved off-site facility. All other AOCs will be addressed through institutional controls.

In 2003, PICA-139, 151 and 152 were listed as response complete in AEDB-R and will be addressed under PICA-079.

CLEANUP STRATEGY

A PP and ROD will be completed for all four sites (funded in FY05). The site is included in the PBC.

At PICA-079 remediation is expected to be GW treatment through enhanced bioremediation with LTM and soil treatment through enhanced bioremediation and/or disposal at an approved off-site facility.

At PICA-152 remediation is expected to be soil treatment through enhanced bioremediation and/or disposal at an approved off-site facility.

Groundwater monitoring will continue to include LTM (site inspections, five-year reviews, GIS operations and LUCs).

PICA-139 (PART OF PICA-079) AMMUN DEMO 1 ORD FAC (BLDGS 800/807) SITE 93

SITE DESCRIPTION

This site, which borders Picatinny Lake, consists of Building 800 and Building 807. Building 800 was originally used for loading submissiles (cluster bombs) into warheads. In 1978-1979, the building was converted to an ammunition tear-down facility. In the 1980s, Building 800 performed routine and experimental stability tests of smokeless powder and high explosives. In addition, the building was used to conduct surveillance tests on master samples of all lots of propellant powders in storage. Currently, the building is used for the decontamination of energetically contaminated metal parts, using an air decontamination procedure. Four explosive-related accidents have occurred at Building 800. The explosions have not destroyed the building, but have spread ordnance around the area, including the lake.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Explosives, Metals, SVOCs, PCBs

MEDIA OF CONCERN: Soil,
Sediment, Groundwater, Surface
Water

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199502	200306

RC DATE: 200306

Building 807 was constructed in 1930 as a receiving, cleaning, and inspection facility for explosives arriving at PTA by train. During World War II, operations at Building 807 changed to production and manufacturing. Currently, Building 807 is used for cold storage and to stage packing materials for Building 820.

Phase II RI activities included installation of three monitoring wells, performance of a geophysical survey, excavation of test pits, performance of a soil-gas survey, and collection of soil, groundwater and sump samples. RDX was detected at concentrations exceeding LOCs in the soil and groundwater samples. Explosives and metals were identified at concentrations above LOCs in sediment samples collected from a sump and a former dry well. In addition, ordnance was discovered in a test pit at the eastern end of the site. Groundwater samples collected during the Group 1 Sites RI, in 1998, confirmed the elevated levels of RDX. Results of the HHRA indicate that the risks and hazards from exposure to site soil equal or exceed the target levels of 1×10^{-4} and 1, respectively. The hazards associated with exposure to contaminated sediment within the sump also exceed the target level of 1, but actual exposure to the impacted sediment is expected to be minimal.

Additional sampling was performed in 2002 to characterize the sediment in Picatinny Lake and to delineate the extent of the existing soil contamination. A removal action was performed to remove and dispose of the contaminated sediment within the sump and former dry well. The dry well was excavated during installation of a gas pipeline into Building 800. This site is included as part of the Group 1 FS completed in 2004. Institutional controls will address this site. In 2003, PICA-139, 151 and 152 were listed as response complete in AEDB-R and will be addressed under PICA-079.

PICA-151 (PART OF PICA-079) ORDNANCE BLDGS 813, 816/816B (SITE 156)

SITE DESCRIPTION

This 1.7-acre site consists of Buildings 813 and 816, used as large-caliber projectile loading plants, and Building 816-B, an inert storage facility. All three buildings are located along the western shore of Picatinny Lake. Buildings 813 and 816 are currently active. Building 816-B is an inactive magazine.

Two process tanks and a holding tank are located beneath Building 813. These open-top ASTs are located outside the building, under a portion of the building supported by wooden pilings. Water from washdown activities was collected by gutters and discharged into the holding tank. The tanks are no longer in use. According to the PTA transformer database, one of the transformers located southwest of Building 813 contained PCBs.

Two process tanks are also located beneath Building 816. These open-top ASTs are located outside the building, under a portion of the building supported by wooden pilings. These tanks are no longer in use. According to the PTA transformer database, five of the six transformers located northwest of Building 816 contained PCBs.

Phase II RI activities and subsequent Phase II ERA and Group 1 activities have included the installation of two monitoring wells; collection of soil, groundwater, surface water and sediment samples; and the performance of sediment bioassays. SVOCs, explosives, and metals were detected in the soil at concentrations exceeding their respective LOCs during the Phase II RI. Results of the HHRA indicate the risk and hazard from exposure to surface soil are above the target risk level of 1×10^{-4} and equal to the target hazard level of 1. The cancer and hazard driver is arsenic. No statistically significant toxicity was observed in the sediment bioassays. Additional RI sampling was conducted in 2001 to delineate the extent of metals contamination in the soil. Risks and hazards from exposure to impacted surface water and sediment are below the target levels. This site is included as part of the Group 1 FS completed in 2004. Institutional controls will address this site.

In 2003, PICA-139, 151 and 152 were listed as RC in AEDB-R and will be addressed under PICA-079.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
Explosives, Metals, SVOCs, PCBs

MEDIA OF CONCERN: Soil,
Sediment, Groundwater, Surface
Water

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198910	199103
RI/FS	199502	200306

RC DATE: 200306

PICA-152 (PART OF PICA-079) ORDNANCE FAC (BLDGS 820,823) SITE 157

SITE DESCRIPTION

This site consists of Buildings 820 and 823. Both buildings, located along the western shore of Picatinny Lake, were used as large-caliber projectile loading plants. Bldg 820 was constructed in 1930 as a packing and shipping facility for the completed rounds loading production line. Bldg 820 has been reactivated as an ammunition repack and surveillance facility. Ammunition materials are inspected and problem lots pulled for disassembling and repacking. Bldg 823 was constructed in 1930 for the loading of melted TNT and RDX explosives into shells positioned on a conveyor. Wastewater and washdown water generated at the building were discharged to collection boxes, which ultimately discharged to Picatinny Lake.

A 1965 internal investigation cited volumes of wastewater flowing over the surrounding terrain. Investigations conducted in 1974 found excessive condensation of explosives, from the melt kettles, collecting on the building ceiling. In another 1974 report, cracks in the floor were found to contain energetic materials.

During the Phase II RI, explosives were detected at Bldg 823 in groundwater, soil, surface water, and sediment at concentrations exceeding LOCs. The installation of a bedrock monitoring well, and the collection of additional groundwater samples during the Group 1 RI, helped define the extent of the groundwater contamination. Results of the HHRA indicate that the risk and hazard from exposure to impacted site media are above the target levels of 1×10^{-4} and 1. The risk/hazard driver is RDX. Results of the bioassays indicated statistically significant toxicity in the soil and sediment samples. The decreased survival rates are considered to be evidence of adverse ecological effects. Field work, to address data gaps in the evaluation of remedial alternatives for this site, was completed in summer 2002. This site is included as part of the Group 1 FS completed in 2004. Institutional controls will address this site. Excavation and on-site treatment of explosives contaminated soil through enhanced bioremediation and/or disposal at an approved off-site facility and institutional controls will be implemented.

In 2003, PICA-139, 151 and 152 were listed as RC in AEDB-R and will be addressed under PICA-079.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Explosives, Metals, SVOCs, PCBs

MEDIA OF CONCERN: Soil,
Sediment, Groundwater, Surface
Water

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198910	199103
RI/FS	199502	200306

RC DATE: 200306

PICA-085 (SITE 46) BLDS IN 500 - AREA

SITE DESCRIPTION

Building 507 was constructed in 1929 for use as a train engine maintenance facility. From 1987 to the present, Bldg 507 has been used as a garage facility for utility line maintenance vehicles. Waste materials, such as waste oil and spent cleaning solvents, were reportedly stored in 55-gallon drums in a shed adjacent to the eastern side of the bldg.

In 1991, a RCRA closure was performed for the shed. Elevated levels of SVOCs and metals were reported in the soil samples around the shed. The Phase II RI, conducted in 1996, included the performance of a geophysical survey, the performance of a soil-gas survey, the installation of one monitoring well, and the collection of soil and groundwater samples. Results of the geophysical survey did not identify any USTs at the site. No soil-gas analytes were detected above the reporting limits. The RI also identified SVOC and arsenic contamination in the soil around Building 507. Additional samples, collected in 2001, could not delineate the extent of the arsenic contamination; additional sampling is not possible due to the presence of underground utilities and overhead power lines. The results of the HHRA indicated that the estimated cancer risk and hazard index from exposure to surface soil by the site industrial research worker exceed the target levels. The estimated risk from subsurface soil exposure are within USEPA's target risk range of 1E-4 to 1E-6 and the hazard for this exposure is below the target threshold level of 1.

In 2003, PICA-064, 073, 074, 140, 142, 146, 148, 149, 150 and 156 were listed as response complete in AEDB-R and will be addressed under PICA-085.

CLEANUP STRATEGY

A FS to include a PP and ROD will be completed addressing all of the sites. The site is included in the PBC.

LUCs will be recommended for PICA-085, 140, 149, and 150.

At PICA-148, excavation of approximately 2,050 cy of metals and DNT-contaminated soil and 72 cy of SVOC-contaminated soil will be removed.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198707	198906
RI/FS	199502	200710
RD	200604	200804
RA(C)	200604	200808

RC DATE: 200808

PICA-064 (PART OF PICA-085) POACH HOUSE (BLDG 520) (SITE 147)

SITE DESCRIPTION

Building 520 was constructed in 1943 for use as a poaching house for NC water slurry processing. Poaching is a purification process used in the manufacturing of propellant to destroy unstable sulfur esters and completely remove free acids. Poaching operations continued at Bldg. 520 until 1956. In September 1972, the explosive allowance for Bldg. 520 was cancelled. The building was deactivated in the mid-1970's and subsequently demolished under TECUP.

The wastewater generated during the poaching process, at Building 520, was reportedly disposed of, in pits, in the basement of the building. In addition, PTA documentation indicated that liquid waste, containing TNT, may have been discharged from the building into an underground pipeline (i.e., Guncotton Line) that flowed toward Picatinny Lake and Green Pond Brook. According to PTA personnel, a discharge of nitrocellulose also flowed into the Guncotton Line and may have entered Picatinny Lake.

Phase II RI activities included the installation of two monitoring wells and the collection of soil and groundwater samples. Beryllium and lead were detected in the soil around the building at concentrations slightly above LOCs. Results of a HHRA for soil exposure, at the site, indicated that the risks and hazard indices are below the target levels of 1×10^{-4} and 1, respectively. NJDEP and EPA have not requested any additional sampling at this site, and no further investigation is proposed for this site. An FS may be necessary to address soil contamination above LOCs.

In 2003, PICA-064, 073, 074, 140, 142, 146, 148, 149, 150 and 156 were listed as response complete in AEDB-R and will be addressed under PICA-085.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199502	200306

RC DATE: 200306

PICA-073 (PART OF PICA-085) BLDG 553 STORAGE TANKS (SITE 32)

SITE DESCRIPTION

Building 553 was constructed in 1942, as an open structure, to house 11 ASTs. The primary function of the tanks, in Building 553, was to support the manufacturing of nitrocellulose, which took place in the surrounding buildings. The eleven tanks are believed to have ranged in capacity from 3,000 to 10,000 gallons. These tanks were used to store ether, alcohol, diesel fuel, unknown process wastes, mixed solvents, and spent solvents containing explosives and propellant wastes. Use of the tanks ceased sometime before 1980, and the tanks were removed in 1991 as part of a clean RCRA closure. Building 553 was subsequently demolished under the TECUP program.

The RI conducted at this site, in 1996, included a soil-gas survey, the installation of two monitoring wells and the collection of soil and groundwater samples. Sample analysis did not identify any chemicals above their respective LOCs, and no additional sampling is proposed. Results of the HHRA for soil exposure indicated that the risks and hazard indices are below the target levels of 1×10^{-4} and 1, respectively.

In 2003, PICA-064, 073, 074, 140, 142, 146, 148, 149, 150 and 156 were listed as response complete in AEDB-R and will be addressed under PICA-085.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

Phases	Start	End
PA	197607	198105
SI	198707	198906
IRA	199004	199103
RI/FS	199502	200306

RC DATE: 200306

PICA-074 (PART OF PICA-085) BLDG 527A STORAGE TANKS (SITE 33)

SITE DESCRIPTION

Building 527A, formerly located on the southeast shore of Picatinny Lake, operated as a pump house for Building 527. Two steel ASTs were housed in an open, A-frame building, just east of the pump house. The ASTs, which had a combined capacity of 6,325 gallons, stored spent ethyl alcohol contaminated with nitrocellulose from Building 527. The spent ethyl alcohol was conveyed to the ASTs via an aboveground conveyance. In 1991, the ASTs were removed and the building was demolished as part of a RCRA closure.

A site investigation, conducted in 1988, found that surface soils at Building 527-A were contaminated with explosives. Soil samples, collected during the RCRA closure, identified levels of base neutrals and lead in excess of NJDEP criteria. NJDEP reported that the subject area would require further action. The RI conducted at this site, in 1996, included the installation of one monitoring well and the collection of soil, groundwater, surface water and sediment samples. Sample analyses have identified arsenic concentrations in surface and subsurface soil in excess of LOCs. Additional sampling was performed in 2001 to delineate the extent of the arsenic contamination. SVOCs and metals contamination identified in surface water and sediment samples, collected adjacent to the site in Picatinny Lake, will be addressed as part of PICA Site 57 – Picatinny Lake. Human health risk assessment results associated with soil, sediment and surface water exposures at the site are below target levels of 1×10^{-4} and 1, respectively. Results of a sediment bioassay did not indicate significant toxicity to the test organisms as compared to the laboratory control and reference samples. No additional investigation is proposed for the site.

In 2003, PICA-064, 073, 074, 140, 142, 146, 148, 149, 150 and 156 were listed as response complete in AEDB-R and will be addressed under PICA-085.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

Phases	Start	End
PA	197607	198105
SI	198707	198906
IRA	199006	199107
RI/FS	199502	200306

RC DATE: 200306

PICA-140 (PART OF PICA-085) POST ENG MAINT SHOP (BLDG 501) SITE 97

SITE DESCRIPTION

Building 501, located approximately 150 ft south of the southern end of Picatinny Lake, has served as a maintenance shop for repairing pumps. According to PTA personnel, pump oil and mercury were spilled onto the floor during pump repairs and cleaned up. During excavation activities in January 1990, a 5-gallon pail of an unknown substance was unearthed. Approximately 1 pint of the substance had leaked onto the ground. The substance tested negative for energetics (i.e., explosives). The affected area was subsequently cleaned up, and the unknown substance was placed in an overpack drum for offsite disposal.

Phase II RI activities, conducted at this site in 1996, included the drilling of one soil boring, and the collection of surface and subsurface soil samples from the boring to characterize the spill area. The spilled oil or unknown substance is the likely source of elevated SVOC concentrations detected in the soil during the RI. Additional sampling was conducted in 2001 to delineate the extent of the elevated SVOC levels. The results of the HHRA indicated that the estimated cancer risk from exposure to surface soil by the site industrial research worker is above the target risk of 1E-4. PAHs and arsenic were identified as risk drivers at the site. The estimated hazard from exposure to surface soil is below the target threshold level of 1. The estimated risk and hazard from subsurface soil exposure are below the target levels. A feasibility study will be proposed to address the soil contamination.

In 2003, PICA-064, 073, 074, 140, 142, 146, 148, 149, 150 and 156 were listed as response complete in AEDB-R and will be addressed under PICA-085.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199502	200306

RC DATE: 200306

PICA-142 (PART OF PICA-085) PROPELLANT PLANT (BLDG 511) SITE 105

SITE DESCRIPTION

Building 511 was constructed in 1942 as a nitrating house and propellant production plant. Building wastewater was conveyed to a sump located inside the building. Building 511 had been inactive since 1959 and was destroyed under TECUP. PTA personnel reported that transformers were removed at Building 511 prior to its demolition. PTA personnel also reported oils contaminated with PCBs were spilled in the area, but the origin of the spill is unknown.

Phase II RI activities conducted at this site, in 1996, included the collection of soil and sump samples. During the RI, PAHs and lead were detected in the soil at concentrations greater than their LOCs. Marginal exceedances were reported for several metals in the sediment sample collected from the sump. Additional sampling performed in 2000 successfully delineated the lead contamination; however, additional sampling was necessary in 2001 to delineate the extent of the PAH soil contamination. The results of the HHRA indicated that the estimated risk from exposure to chemicals in surface soil by the site research worker is within USEPA's target cancer risk range of 1E-4 to 1E-6. The hazard from this exposure is below the target threshold level of 1. The estimated risk and hazard from subsurface soil exposure are below the target levels. The sump's contents were removed as part of a facility-wide sump investigation in 2004. No LOC exceedances were identified in subsurface soil samples collected around the sump. A feasibility study will be proposed to address the impacted soil at the site.

In 2003, PICA-064, 073, 074, 140, 142, 146, 148, 149, 150 and 156 were listed as response complete in AEDB-R and will be addressed under PICA-085.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199502	200306

RC DATE: 200306

PICA-146 (PART OF PICA-085) PROPELLANT PLANT (BLDG 561) SITE 113

SITE DESCRIPTION

Building 561 was a five-story structure, which was constructed in 1931. The building was located on the eastern shore of Picatinny Lake. It is not known how long Building 561 was in operation, but records indicate that the building was in operation, during 1960, as a blending facility for propellants. The nature of the operations that occurred in the building, and the documented use of spray nozzles in this building, suggest that wastewater was likely to have been generated and probably discharged to the lake. Building 561 was demolished under TECUP prior to 1988.

Phase II RI activities conducted at this site in 1996 included the installation of one monitoring well and the collection of soil, groundwater, surface water and sediment samples. SVOCs, explosives, metals and ammonia were detected at concentrations exceeding their respective LOCs in surface water and sediment samples collected from Picatinny Lake, which borders the site. A deep sediment sample was collected in 2001 to vertically delineate the contamination. These concentrations will be addressed under PICA-057, Picatinny Lake. No exceedances were reported in the soil or groundwater samples. Results of a HHRA for soil exposure did not report any risks or hazards above the target levels of 1×10^{-4} and 1, respectively. However, a HHRA performed for surface water and sediment exposures identified potential hazards from exposure to surface water and sediment within Picatinny Lake adjacent to the site that exceeded the target level. As part of the Phase II ERA, one sediment bioassay exhibited total mortality of the test organisms, while a second bioassay did not detect any significant toxicity, suggesting a toxic hot spot exists in Picatinny Lake, adjacent to the site.

In 2003, PICA-064, 073, 074, 140, 142, 146, 148, 149, 150 and 156 were listed as response complete in AEDB-R and will be addressed under PICA-085.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199502	200306

RC DATE: 200306

PICA-148 (PART OF PICA-085) CHANGE HOUSE (BLDG 527) SITE 148

SITE DESCRIPTION

Building 527 was constructed in 1929 for use as part of the smokeless powder production line. According to PTA personnel, single- and double-base solid propellants were processed in the building. The solvent recovery drainage system discharged to a dry well, located approximately 10 ft from the northwest corner of the building. Operations at Building 527 reportedly ceased in the mid-1970s.

In 1991, a RCRA closure was performed to decontaminate the interior of the building. Based on the results of confirmatory samples, the NJDEP reported the closure area did not require further action. The building was recently demolished under TECUP in 2000. Phase II RI activities conducted at this site in 1996 included performance of a geophysical survey, excavation of a test pit, installation of three monitoring wells, and the collection of soil and groundwater samples. Elevated levels of SVOCs; 2,4-DNT, and several inorganic compounds were detected in the surface soil at the site during the Phase II RI. Additional sampling was conducted in 2001 to delineate the extent of the soil contamination. Results of a HHRA found that the risks and hazards from exposure to surface soil at the site exceed the target levels of 1×10^{-4} and 1, respectively. The main risk drivers are arsenic and manganese. In response to regulatory comments on the RI, additional investigation was conducted in 2005. Surface soil samples were collected beneath the outfall of three different pipes, suspected discharge locations from the former building. Three sediment samples were collected from Picatinny Lake downgradient of the outfalls. No LOC exceedances were reported in the soil samples. Elevated levels for PAHs and lead were identified in the sediment samples.

In 2003, PICA-064, 073, 074, 140, 142, 146, 148, 149, 150 and 156 were listed as response complete in AEDB-R and will be addressed under PICA-085.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199502	200306

RC DATE: 200306

PICA-149 (PART OF PICA-085) PROPELLANT PLANT (BLDG 541) SITE 149

SITE DESCRIPTION

Building 541 was constructed in 1943 to perform the water drying process to harden explosive powder grains. Operations ceased in the mid-1950s, and the building was used to house two Plymouth gas locomotives during the 1960s. Building 541 was demolished under TECUP in 1983.

During its use as a water drying process facility, Building 541 received shipments of explosive powder, transported by railroad from Building 533. PTA personnel reported that a vat in Building 541 ruptured, causing liquid containing propellant to leak onto the building floor and to the outside area. The solution was reported to be single-base propellant grains dissolved in solvents. The energetic compounds were nitrocellulose and/or nitroglycerine. The solvents were ether, alcohol, and/or acetone.

Phase II RI activities conducted at this site in 1996 included the installation of two monitoring wells, and the collection of soil and groundwater samples. SVOCs and 2,4-DNT were detected in the soil at concentrations greater than LOCs during the Phase II RI. Additional RI sampling was conducted in 2001 to complete the delineation of the soil contamination. Results of a HHRA found that the risk from exposure to surface soil at the site exceeds the target level of 1×10^{-4} . The hazard from surface soil exposure is equal to the target threshold level of 1. Risks and hazards from subsurface soil exposure are below the target levels.

In 2003, PICA-064, 073, 074, 140, 142, 146, 148, 149, 150 and 156 were listed as response complete in AEDB-R and will be addressed under PICA-085.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199502	200306

RC DATE: 200306

PICA-150 (PART OF PICA-085) PROPELLANT PLANT (BLDG 555) SITE 150

SITE DESCRIPTION

Building 555 was constructed in 1930 as a continuous drying house for explosive powder. Railroad tracks were used to transport the explosive powder to this facility. Building 555 was demolished under TECUP in 1999.

Wastewater, from explosive operations at Building 555, was formerly discharged to a lead-lined trough, which discharged to a sawdust filter, located on the western side of the building. Once the explosives were filtered from the waste stream, the water was discharged directly onto the ground. According to PTA personnel, nitrocellulose chunks and water from explosive operations at Building 555 were found in a pipeline, and an explosion occurred when the pipeline was cut.

Phase II RI activities conducted at this site included the installation of a monitoring well and the collection of soil and groundwater samples. Lead and explosives were detected at concentrations exceeding LOCs in surface soil collected alongside the lead-lined wastewater trough during the Phase II RI. Additional RI sampling was performed in 2001 to delineate the soil contamination. The wooden filter box was removed in 2003 along with impacted soil. The HHRA results indicate that cumulative risks are within or below EPA's target risk range of 1E-4 to 1E-6 for the two exposure scenarios, and the cumulative hazards are below EPA's threshold level of 1 for both scenarios. The adult lead model results indicate lead concentrations in surface soil may be a concern for the industrial research worker. EEQs for the ecological COPCs detected in soil samples during the Round 1 investigation suggest that there is little potential risk to terrestrial species.

In 2003, PICA-064, 073, 074, 140, 142, 146, 148, 149, 150 and 156 were listed as response complete in AEDB-R and will be addressed under PICA-085.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199502	200306

RC DATE: 200306

PICA-156 (PART OF PICA-085) REFRIG. & INERT GAS PLT (BLDG 523) SITE 184

SITE DESCRIPTION

Building 523 was constructed in 1938 for use as a refrigeration house. Freon was used in the refrigeration unit to cool brine (salt water), which was circulated to nearby buildings for use in maintaining ether at low temperatures, during the explosives manufacturing process. An inert gas manufacturing process was also located at Building 523. The process produced INGAS, a mixture of carbon dioxide and nitrogen.

Building 523 was deactivated on 1976 and most of the process equipment was removed. In 1991-1992, two USTs used to store gasoline were removed and the building decontaminated with a steam cleaner. Soil samples collected from the building, following the UST closure, contained elevated concentrations of TPHs and SVOCs. NJDEP notified PTA that the closure area will require further action. The building was demolished in 1998 under TECUP.

Phase II RI activities conducted at this site included the installation of two monitoring wells and the collection of soil and groundwater samples. No elevated chemical levels were detected in the soil or groundwater samples collected at the site during the Phase II RI. Results of the HHRA indicate that the risk and hazard from soil exposure at the site are below 1×10^{-4} and 1, respectively.

In 2003, PICA-064, 073, 074, 140, 142, 146, 148, 149, 150 and 156 were listed as response complete in AEDB-R and will be addressed under PICA-085.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199502	200306

RC DATE: 200306

PICA-091 (SITE 55)

BLDGS IN 200-AREA (PAGE 1 OF 2)

SITE DESCRIPTION

This site consists of Building 221, an explosives inspection and machining facility; Building 223, a former explosives inspection and machining facility; and Building 225, an explosives machining and light assembly facility. From the 1940s to the 1970s, pilot-scale explosive unit machining and packout operations occurred at Building 221. Other activities conducted at the building include explosive unit testing, inspection, and storage. Materials used at Building 221 are limited to explosives, radioactive materials, and small amounts of solvents and propellants. Former Building 223 is believed to have performed similar operations. Specific operations conducted at Building 225 include solid explosives or propellant cutting, drilling, and pressing. Wastewater is conveyed by floor drains to a collection tank in Building 225. From the collection tank, the wastewater flowed along a trough to a filter, finally discharging to Bear Swamp Brook. The wastewater was managed in this way until 1983. Currently, the wastewater is shipped to Building 809 for treatment and off-site disposal.

An internal investigation, undertaken in 1988, identified elevated levels of explosives in surface soil along the wastewater conveyance trough and near the discharge point to Bear Swamp Brook. In 1991, a RCRA closure was performed on a 4,000 gallon AST located in a concrete vault in the basement of Building 225. Sludge and explosives-contaminated wastewater were removed from the tank and disposed of off-site. The concrete vault, tank and basement area were subsequently decontaminated. Soil samples collected, downgradient of the tank, contained VOCs and metals above LOCs. NJDEP reported that the subject area requires further action. In 1993, facility-wide testing of over 1,000 machines identified PCBs in a milling machine located in Building 225. The RI performed in 1996 involved the performance of a radiological survey, installation of monitoring wells, and collection of soil and groundwater samples. No soil samples collected during the radiological survey contained levels of radionuclides in excess of LOCs. Explosives were detected in the groundwater, downgradient of the buildings, at concentrations exceeding LOCs. SVOCs, PCBs and arsenic concentrations were identified above LOCs in the soil samples.

Additional RI sampling completed in 2000 helped to delineate the extent of the PCBs in soil and RDX in the groundwater. Results of the HHRA indicated that risk and hazard

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: SVOCs, PCBs, Explosives, Arsenic

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199502	200808
RD	200604	200902
RA(C)	200604	200902
LTM	200907	203906

RC DATE: 200906

PICA-091 (SITE 55) BLDGS IN 200-AREA (PAGE 2 OF 2)

exposure to surface soil are above the target risk levels of 1E-4 and the target hazard level of 1.

In 2003, PICA-123, 124, 125, 126, 127, 128, 129, 130, 132 and 134 were listed as response complete in AEDB-R and will be addressed under PICA-091

CLEANUP STRATEGY

A FS to include a PP and ROD will be completed. It is assumed that the combination of the existing vegetative cover and institutional controls will be the remedy for this site. The site is included in the PBC.

PICA-124, 125, 126, 127, 128,129, 130, 132, 134 are considered RC.

PICA-123 (PART OF PICA-091) (SITE 62) FORMER HAZ WASTE STOR/FUSE (BLDG 210)

SITE DESCRIPTION

Building 210, constructed in the 1940s, originally was used as a fuse-assembly line, where black powder was packed and formed into o-rings. Munition pack-out occurred here for several years in the early 1970s. Since then, all equipment, except for the fuse presses, has been removed. In the past, wastewater was discharged via a drain line to the ground outside Building 209. PTA personnel reported that this practice ceased when the building was connected to the sanitary sewer system around 1990. The building has been decontaminated and was used for hazardous waste storage between September 1986 and 1988. As a hazardous waste storage facility, Building 210 stored small quantities of various chemicals, waste oil, and asbestos. The building was also used to store investigation-derived waste generated from sampling activities. Building 210 is slated for demolition in 2006.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

Phases	Start	End
PA	197607	198105
SI	198910	199103
IRA	199101	199105
RI/FS	199502	200306

RC DATE: 200306

According to PTA personnel, all wastes were removed from the building, and the building underwent a RCRA closure in 1991. The RCRA closure involved decontamination of each room that stored waste and removal of asbestos-containing material. In 1992, Building 210 received an official clean closure from NJDEP. A preliminary site evaluation including a radiation survey, was conducted by AEHA in 1993. Analysis of soil samples, as part of the survey, detected elevated levels of radium. Phase II RI activities performed in 1996 included a radiological survey, installation of monitoring wells, and collection of soil, sediment and groundwater samples. No soil samples collected during the radiological survey contained levels of radionuclides in excess of LOCs. Levels of PAHs and copper were identified above their respective LOCs in the surface soil. Results of a HHRA for soil exposure at the site indicated that the risks and hazard indices are below the target levels of 1×10^{-4} and 1, respectively.

No additional RI activities are planned for the site. Maintenance of existing engineering controls has been recommended to address soil contamination above LOCs.

In 2003, PICA-123, 124, 125, 126, 127, 128, 129, 130, 131 and 132 were listed as response complete in AEDB-R and will be addressed under PICA-091.

PICA-124 (PART OF PICA-091) LOADING/DISASSEMBLY PLT (BLDG 241) SITE 64

SITE DESCRIPTION

Building 241 was constructed in 1942 as a loading plant for explosive and propellant munitions. The building was later converted to be used for demilling and disassembly of explosive projectiles. In March 1981, the building was converted to a storehouse and was used as office space and an inert storage area. The building is currently used for storage of plumbing and building supplies. PTA file documentation indicates that wastewater discharges from the building were conveyed by floor drains, with traps to catch basins, and then into an intermittent stream, which discharges into Bear Swamp Brook.

As part of the RCRA closure of a storage shed associated with Building 241, stained and discolored soil were excavated and drummed for off-site disposal. Additional soil sampling and analysis indicated levels of petroleum hydrocarbons, which the NJDEP stated would require further action. The Phase II RI involved the installation of two monitoring wells and the collection of soil groundwater, surface water, and sediment samples. During the RI, PAH compounds and metals were detected at concentrations greater than their respective LOCs in the surface soil. In addition, TCE was reported in both monitoring wells above its LOC. A bioassay conducted on surface soil from the site did not indicate any toxicity to the earthworms.

In response to regulatory comments on the RI, additional soil and groundwater samples were collected to delineate the existing contamination. Results of a HHRA indicate the risks are within or below the target range. The hazards are below the target level. Modeled risk and results of a soil bioassay indicate minimal ecological risk to terrestrial species. Groundwater contamination is being further investigated as part of the Mid-Valley investigation. Surface water and sediment contamination in adjacent Bear Swamp and Bear Swamp Brook was evaluated in the Green Pond Brook/Bear Swamp Brook FS.

In 2003, PICA-123, 124, 125, 126, 127, 128, 129, 130, 131 and 132 were listed as response complete in AEDB-R and will be addressed under PICA-091.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199502	200306

RC DATE: 200306

PICA-125 (PART OF PICA-091) MINE ASSEMBLY FACILITY (BLDG 268) SITE 98

SITE DESCRIPTION

Building 268 was constructed in 1941 as a loading, assembly, and pack-out facility. As a production facility, various types of munitions were produced at Building 268, including antipersonnel missiles. In 1969, the building was decontaminated in accordance with an arsenal-wide cleanup initiative and converted to a pilot-scale research and development facility. Building 268 was proposed for inactive reassignment in March 1975, and additional decontamination was performed. The building was later used to store inert materials (e.g., auxiliary equipment). The building was demolished in accordance with TECUP in the late 1990s.

A limited site investigation including soil sampling was conducted by ARDEC in 1990. Soil samples were analyzed for VOCs, SVOCs, and metals. Only SVOC concentrations exceeded LOCs. As part of the RI conducted in 1996, groundwater, soil and sediment samples were collected. PAHs and beryllium were detected in the surface soil at concentrations slightly in excess of LOCs. Results of a HHRA for soil exposure at the site indicated that the risks and hazard indices are below 1×10^{-4} and 1, respectively. There is little potential risk to mammalian and avian species based on food chain modeling. SVOC and metals contamination detected in sediment samples has been addressed as part of the Green Pond Brook/Bear Swamp Brook FS.

NJDEP and EPA have not requested any additional sampling, and no additional RI activities are planned for the site. An FS has been recommended to address soil contamination above LOCs.

In 2003, PICA-123, 124, 125, 126, 127, 128, 129, 130, 131 and 132 were listed as response complete in AEDB-R and will be addressed under PICA-091.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199502	200306

RC DATE: 200306

PICA-126 (PART OF PICA-091) EXPLOSIVE LOADING FACILITY (BLDG 276) SITE 100

SITE DESCRIPTION

Building 276 was constructed in 1902 and was used as a powder storage magazine from 1902 until 1922. Around 1922, the building was converted to a shell-loading plant. Building 276 was one of the major facilities used in the production of explosives during World Wars I and II. The building was decontaminated and demolished in accordance with TECUP in the late 1980s. The location of former Building 276 is currently used as a staging area for soil piles from sanitary sewer excavations, and for metal plates used in ammunition testing. Unauthorized dumping of waste material has occurred in and around the location of former Building 276. Materials dumped here included storage tanks, test chambers, and rocket components. In addition, explosives contaminated soil excavated from the area in and around the wooden wastewater conveyance trough system at Building 225 is documented to have been temporarily stored here.

As part of an internal investigation conducted in 1986, soil samples collected around a transformer pad, located south of the former building, contained elevated levels of PCBs. Phase II RI activities completed in 1996 included performance of a geophysical survey, installation of two monitoring wells, excavation of test pits, and collection of soil, groundwater and sediment samples. The geophysical survey identified several anomalous areas. Test pits excavated into the anomalies contained various pieces of metallic construction debris. During the RI, PAH concentrations, in excess of LOCs, were detected around the transformer pad. In addition, PCBs were identified in excess of LOCs in a soil waste pile staged at the site.

Additional RI work was performed in 2000 to delineate the PCB and PAH contamination in the soil. Additional LOC exceedances were reported for PCBs and PAHs. Results of a HHRA indicate that the risk from surface soil exposure is above the target level of 1E-4. The risk from exposure to subsurface soil is below 1E-6. The hazards from both exposure scenarios are below the target threshold of 1. SVOC and metals contamination detected in sediment samples collected during the RI has been addressed as part of the Green Pond Brook/Bear Swamp Brook FS.

In 2003, PICA-123, 124, 125, 126, 127, 128, 129, 130, 131 and 132 were listed as response complete in AEDB-R and will be addressed under PICA-091.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

Phases	Start	End
PA	197607	198105
SI.....	198910.....	199103
RI/FS.....	199502.....	200306

RC DATE: 200306

PICA-127 (PART OF PICA-091) MELT CASTING OPERATION (BLDG 230) SITE 127

SITE DESCRIPTION

Building 230 was constructed in 1918 as a melt and pour facility. Operations at Building 230 involved melting explosives in steel tilt kettles and pouring the molten liquid into shells, mortar, and molds. Currently, the building is still active. According to the PTA transformer database, one of the transformers at the site contained Aroclor-1260 at a concentration of 77 ppm.

In September 1991, a mercury-filled manometer in Building 230-G ruptured, resulting in extensive soil contamination in and around Building 230. Seven roll-off containers of contaminated soil were removed from the site. Phase II RI activities included the installation of one monitoring well and collection of soil and groundwater samples. Samples, collected

around the remediated area during the RI in 1996, detected arsenic in the surface soil and PAHs in the subsurface soil at concentrations above LOCs, but no mercury exceedances.

Additional RI sampling was conducted in 2000, in response to regulatory comments. As a result, the extent of soil contamination has been delineated, and no further investigation is planned. Results of a HHRA for soil exposure at the site indicated that the risks and hazard indices are below the target levels of 1×10^{-4} and 1, respectively. A bioassay conducted with soil from the mercury spill area did not indicate toxicity to the earthworms. An FS has been recommended to address soil contamination above LOCs.

In 2003, PICA-123, 124, 125, 126, 127, 128, 129, 130, 131 and 132 were listed as response complete in AEDB-R and will be addressed under PICA-091.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

Phases	Start	End
PA.....	197607	198105
SI	198910	199103
RI/FS	199502	200306

RC DATE: 200306

PICA-128 (PART OF PICA-091) EXP PRESSING PLT (BLDG 235/236) SITE 128

SITE DESCRIPTION

This 2.4-acre site consists of Building 235, an explosives production facility, and Building 236, an explosives pressing facility. A gamma ray densitometer, which contained cobalt pellets, was used at Building 235 to measure unit density. The cobalt was in a shielded or contained source. The densitometer was removed from the building in 1974, and no associated contamination was reported. However, radiation surveys, conducted at the building, indicated readings from 0.10 milliroentgens per hour to greater than 100 milliroentgens per hour. Wastewater from explosive production operations at Building 235 were discharged via a trough to a 90-gallon stainless-steel baffled safety box located on the south side of the building. The safety box, discharged to a small tributary, which flows into Bear Swamp Brook. Building 235 has been inactive since the mid-1970s.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199502	200306

RC DATE: 200306

Building 236 was constructed in 1959 as an explosives pressing facility. The building was decontaminated in 1969 for its present use as an explosives pressing facility for pilot-scale research and development efforts. Wastewater from operations at Building 236 are currently drummed and manifested for offsite disposal, but was historically discharged directly to Bear Swamp Brook.

Phase II RI activities included performance of a radiological survey, installation of four monitoring wells, and collection of soil and groundwater samples. The radiological survey performed around Building 235 identified several locations with gross alpha activity in excess of the project-specific administrative limit. Analytical results from the RI detected lead in groundwater at an upgradient background monitoring well, and SVOCs and arsenic in soil at concentrations in excess of LOCs.

Additional RI work was completed in 2000 as a result of regulatory comments. Groundwater samples collected by the low-flow sampling method did not contain elevated lead levels. Delineation of the arsenic contamination has been completed, and no further investigation is proposed. Results of a HHRA for soil exposure at the site indicated that the risks and hazard indices are below the target levels of 1×10^{-4} and 1, respectively. An FS has been recommended to address soil contamination above LOCs. In 2003, PICA-123, 124, 125, 126, 127, 128, 129, 130, 131 and 132 were listed as response complete in AEDB-R and will be addressed under PICA-091.

PICA-129 (PART OF PICA-091) CHANGE HOUSE (BLDG 240) SITE 129

SITE DESCRIPTION

Building 240 was constructed in 1942 as a change house. In 1972, it was converted to its current use as an administrative office. Change house equipment included laundry, lavatory, and shower facilities, which probably supported operations in Building 241 (demilling and explosives disassembly), as well as other nearby production buildings. Because personnel working in the production facilities used the change house, wastewater from washing operations may have been contaminated with explosives and, to a lesser degree, cleaning solvents such as acetone. Water was discharged to a drain and ultimately to Bear Swamp Brook.

Phase II RI activities completed in 1996 include the installation of one monitoring well and the collection of soil and groundwater samples. A marginal exceedance of an individual PAH LOC was reported by the on-site laboratory in one surface soil sample collected during the RI. Results of a HHRA for soil exposure at the site indicated that the risks and hazard indices are below the target levels of 1×10^{-4} and 1, respectively.

NJDEP and EPA have not requested any additional sampling, and no additional RI activities are planned for the site. An FS has been recommended to address soil contamination above LOCs.

In 2003, PICA-123, 124, 125, 126, 127, 128, 129, 130, 131 and 132 were listed as response complete in AEDB-R and will be addressed under PICA-091.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198910	199103
RI/FS.....	199502	200306

RC DATE: 200306

PICA-130 (PART OF PICA-091) POWDER PRESS/PELLETING(BLDG 252) SITE 130

SITE DESCRIPTION

Building 252 was constructed in 1918 as an explosives pressing facility, and had been used until recently for this purpose. Wastes generated at the building included scrap explosives, waste solvents and wastewater. The building was recently renovated, but is currently inactive. According to the PTA transformer database, three transformers, located on the eastern side of the building, leaked; however, none of the transformers were contaminated with PCBs. Building 252 contains an UST, which was connected to a wet vacuum system that collected particulates from the work station area. The UST was closed in place around 1990. As part of closure activities, the tank was cleaned and then filled with gravel.

Several internal investigations have been conducted in and around the building, including an environmental assessment in 1994. It is reported that these studies concluded that the building area was not contaminated. The Phase II RI activities completed in 1996 included the installation of three monitoring wells and the collection of soil and groundwater samples. Marginal exceedances of LOCs were detected for PCE and arsenic in the groundwater and soil, respectively. Results of a HHRA for soil exposure at the site indicated that the risks and hazard indices are below the respective target levels of 1×10^{-4} and 1.

Additional RI activities were completed in 2000 to investigate the PCE identified in groundwater. A groundwater sample collected by the low-flow sampling method did not contain any VOCs in excess of LOCs. An FS has been recommended to address soil contamination above LOCs.

In 2003, PICA-123, 124, 125, 126, 127, 128, 129, 130, 131 and 132 were listed as response complete in AEDB-R and will be addressed under PICA-091.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI.....	198910.....	199103
RI/FS.....	199502.....	200306

RC DATE: 200306

PICA-131 (PART OF PICA-091) FORMER ORDNANCE MANUFACTURE (BLDG 266)

SITE DESCRIPTION

Building 266 served as an explosives production facility from the time of its construction in 1903 until the early 1950s. Explosives production ceased here sometime before 1953, when the building was converted to its current use as a wind tunnel research facility. The wind tunnel research facility has been used to simulate and study the flight characteristics of small projectiles. At one time, operation of the wind tunnel resulted in the generation and dispersion of mercury condensate in and around the wind tunnel exhaust area.

An internal investigation conducted in 1991 included the collection of 23 soil samples around Building 266. In general, the results showed elevated levels of PAHs and metals. In response to an accidental mercury release in February

1992, two soil samples were collected from areas that had been excavated following the release. Results of the post-excavation samples did not detect mercury concentrations above the LOC. Phase II RI activities conducted in 1996 included the installation of three monitoring wells and the collection of soil and groundwater samples. Analytical results from the RI identified VOCs in groundwater, and SVOCs and arsenic in the soil at concentrations above LOCs.

Additional RI activities performed in 2000 included the collection of soil and groundwater samples at the site. Additional LOC exceedances were reported for TCE in groundwater and arsenic in the soil. Results of the HHRA indicate the risk and hazard from exposure to surface soil are above the target risk level of 1E-4 and the target hazard level of 1. Modeled risk and results of a soil bioassay indicate minimal ecological risk to terrestrial species. Further investigation of groundwater concentrations will be conducted as part of the Mid-Valley investigation. Feasibility studies are recommended to address the soil contamination and area-wide groundwater contamination.

In 2003, PICA-123, 124, 125, 126, 127, 128, 129, 130, 131 and 132 were listed as response complete in AEDB-R and will be addressed under PICA-091.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

Phases	Start	End
PA	197607	198105
SI.....	198910.....	199103
RI/FS.....	199502.....	200306

RC DATE: 200306

PICA-132 (PART OF PICA-091) FORMER LOAD FACILITY (BLDGS 271/271I-N)

SITE DESCRIPTION

This site included seven buildings: Building 271, an explosives press loading facility, and Buildings 271-I through 271-N, lead azide primer, dry house, and general ordnance facilities. Operations at Building 271 involved the use of pneumatic presses to press explosive primers into loading cups. A portion of Building 271 was also used as a magazine for in-processing munitions. Building 271-I was used as a lead azide primer building, supporting explosives production operations at Building 271. Building 271-J was used as a dry house for delay and pyrotechnic compositions, in support of explosives production operations at Building 271. Building 271-K was used as a heater house. Building 271-L was used as a dry house for lead azide primers used in explosives manufacturing at Building 271. Building 271-M was used as a dry house for the processing of initiating powders. Building 271-N was used for drying lead styphenate. Explosives contaminated wastewater from floor wash-down activities, if any, was likely discharged directly onto the ground outside the doors since the accessory buildings did not have a wastewater conveyance system.

The Phase II RI conducted in 1996 included the installation of two monitoring wells and the collection of soil, groundwater and sediment samples. The RI identified concentrations of RDX and metals in the groundwater, in excess of LOCs as well as concentrations of metals in soil above LOCs. Following the RI, the buildings at the site were demolished, and the site regraded under TECUP. As a result, NJDEP requested additional sampling to re-characterize the surface soil at the site.

In 2000, ten surface soil samples and six groundwater samples were collected as part of additional RI activities. Elevated levels of metals were detected in the soil. RDX and manganese continue to be present in the groundwater samples at concentrations above LOCs. Results of a HHRA indicate risks and hazards from soil exposure are below the target levels of 1E-4 and 1, respectively. There is little potential risk to mammalian and avian species based on food-chain analysis.

In 2003, PICA-123, 124, 125, 126, 127, 128, 129, 130, 131 and 132 were listed as response complete in AEDB-R and will be addressed under PICA-091.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: SVOCs, Explosives, Metals

MEDIA OF CONCERN: Soil, Sediment, Surface Water

Phases	Start	End
PA	197607	198105
SI.....	198910.....	199103
RI/FS.....	199502.....	200306

RC DATE: 200306

WASTE BURIAL AREA NEAR SITES 19 & 34 (180)

SITE DESCRIPTION

The waste burial area is situated in a low marshy area formerly containing several debris piles of drums, concrete rubble, scrap, metal, lumber, railroad ties, and trees. A drainage ditch discharges to the southeast corner of the site, causing localized ponding and marshy conditions. Extensive landfilling operations have taken place in this portion of Area C over the years. Materials were disposed of in large burial pits and in surface piles. The proximity of Site 180 to the burning ground made it a convenient location to dispose of/store items that could not be burned or did not require burning. Since this was an unregulated disposal site, the years of operation are unknown. It is believed that most disposal activities took place in the 1960s and 1970s.

The site was the subject of a remedial investigation in 1994. As part of the remedial investigation a geophysical survey was conducted, surface, subsurface soil, surface water, sediment, and groundwater samples were collected. All samples were analyzed for VOCs, SVOCs, metals, explosives, PCBs, dioxins/furans, and gross alpha, gross beta, and gamma radiation. The geophysical survey did not identify any burial areas. Other results indicated that levels of concern were exceeded for BNAs in soil and sediment, metals in surface water and sediment and metals and dioxin in groundwater. The HHRA determined that cancer risk was in the range of 1×10^{-4} to 1×10^{-6} . As part of an extensive trenching investigation in 1998, additional soil, sediment, and surface water samples were collected and analyzed for VOCs, SVOCs, metals, pesticides, explosives, dioxins/furans and PCBs. During this investigation, SVOCs, metals and PCBs were occasionally detected in surface soil above the LOC and carbon tetrachloride was detected above the level of concern in one subsurface soil sample. The trenching investigation also removed some debris piles and asbestos found at the site and restored native vegetation to the area. During trenching investigation, live 90-mm grenades were discovered buried at the site. The site was also the subject of a risk management evaluation that recommended a feasibility study for mitigation of human health risk and no action for ecological concerns. HHRA found risk within the 1×10^{-4} to 1×10^{-6} risk range and non-cancer HI below one. Impacts to groundwater will be covered under an area-wide action addressed in PICA-206.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
PAHs, PCBs, Potential UXO

MEDIA OF CONCERN: Soil

Phases	Start	End
PA.....	197607	198105
SI.....	198707	198906
RI/FS	199309	200701
RD	200604	200704
RA(C)	200604	200706
LTM	200707	203706

RC DATE: 200706

WASTE BURIAL AREA NEAR SITES 19 & 34 (180)

(PAGE 2 OF 2)

A proposed plan is currently being finalized that includes institutional and engineering controls.

Groundwater is addressed under Area C.

CLEANUP STRATEGY

The area of concern will be marked with signs. The site is included in the PBC with ARCADIS Inc.

BLDG 22, PRECISION MACHINE SHOP (SITE 117)

SITE DESCRIPTION

This is the consolidated site that includes all the sites in the 25 Site Feasibility Study.

Building 22 is a one-story, 4,220 ft² structure, which was constructed in 1918 as a precision machine shop. Over the years, various activities conducted at Bldg 22 included machining of DU and machining of other metals (e.g., aluminum and copper) to manufacture appurtenances for antitank weapons, rocket launchers, and explosive antitank shells. Precision machining activities were conducted at Bldg 22 until 1988. Since 1988, Bldg 22 has not housed any manufacturing operation or been used for any other purpose. Reportedly, Bldg 22 was cleaned after precision-machining activities had ceased.

The site underwent a RI in 1994 that included a radiological survey and the collection of surface soil samples for VOCs, SVOCs, metals/cyanide, explosives, pesticide/PCBs, uranium and gross alpha, beta and gamma radiation. The only LOC exceedances were for beryllium in surface soil.

The radiological survey did not identify any areas of concern. In 2000, a risk management plan was written to evaluate human health and ecological risk and determine the best path forward. The human health risk assessment determined that risks for three modeled receptor populations were between 1x10⁻⁴ and 1x10⁻⁶. Hazard indices were below one for two populations and exactly one for the third population. Ecological risk assessment work included terrestrial receptor modeling, earthworm studies, plant studies, mammal trapping, mammal community assessments, and tissue analyses. The conclusion was that although the site currently has low habitat value, the site could pose risks that are sufficiently elevated to warrant risk management attention, if impacted portions are allowed to return to more attractive habitat. The risk management evaluation determined that it was not in the best interest of the site to actively remediate the site for ecological concerns, however the site should proceed to FS for human health concerns.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: VOCs, BNAs, PCBs, Pesticides, Radiologicals, Metals

MEDIA OF CONCERN: Soil, Sediment

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	197607	198105
SI.....	198707	198906
RI/FS	199309	200808
RD	200604	200901
RA(C)	200604	200905
LTM	200906	203905

RC DATE: 200905

BLDG 22, PRECISION MACHINE SHOP (SITE 117)

PICA-096
(PAGE 2 OF 2)

Potential groundwater contamination associated with the site is being addressed under PICA-076.

CLEANUP STRATEGY

A PP and ROD will be completed.

Land use controls will be implemented as appropriate for PICA-029, 053, 069, 094, 096, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207.

PICA-029 (SITE 96) (PART OF PICA-096) BUILDINGS IN 300 AREA

SITE DESCRIPTION

This site encompasses Buildings 301, a paint shop and 301-A, an oil house. Building 301 was built in 1943 as a post-engineering storehouse. Although the type of material stored in the past is unknown, it is highly likely that hydraulic oils, solvents, paints, and paint thinners were stored at Building 301. Currently, Building 301 is being used as a sign shop and houses a paint booth area.

The building was constructed in 1943 as an oil house and is presently used for the same purpose. Building 301-A was originally constructed to store drums of used and unused oils. In the past, drums of waste oil and solvents have been stored north of Building 301-A.

According to PTA personnel, this storage pad area was also used by the laundry facility (Building 336) for temporary storage of explosive-contaminated clothing.

PTA personnel also indicated that drums of hydraulic oil located at the storage pad area have leaked in the past, and may have impacted soil at Site 96. Currently, no drums are being stored on the asphalt pad area.

During the Phase I RI, thallium was detected above its LOC in a surface soil sample. No exceedances were reported in the surface water samples, but PAHs, metals, pesticides and PCBs were detected in the sediment samples at concentrations in excess of LOCs. Human health risk falls within the target range (1×10^{-4} to 1×10^{-6}). Aroclor 1260 and arsenic were identified as the primary risk drivers in soil. The hazard index is below the target level of 1. The adult lead model results indicate lead in soil is not a health concern. Since this site is situated in a high human use, industrialized portion of PTA, the site offers little risk to wild species. In response to regulatory comments on the RI, additional soil sampling was performed at this site in 2000. No sample concentrations were detected above LOCs, and no further sampling is proposed for this site.

In 2003, PICA-089, 117, 119, 121, and 188 were closed and will be addressed under this site.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI.....	198707	198906
RI/FS	199309	200506

RC DATE: 200506

PICA-089 (PART OF PICA-029) PETROLEUM LEAK AREA (BLDG 305) SITE 52

(PAGE 1 OF 2)

SITE DESCRIPTION

This site encompasses Building 305 and a swampy area on the south side of the building. The northern section of the building is presently being used as a garage for conducting vehicle maintenance operations. The northern section may have also been used as an explosive manufacturing area during World Wars I and II, as an ice production facility, and as a storage area for drums containing waste oil and solvents. In 1986, all storage tanks were decommissioned when a petroleum release occurred from one of the tanks. The southern section has been used as a refrigeration unit, and for the storage of photographic films and paper. Drums, potentially containing oil/solvents, have been stored at the outdoor drum storage pad.

On February 20, 1986, a petroleum spill involving approximately 400 gallons of diesel fuel occurred at the site. Following the spill, oily materials were removed from the area including Green Pond Brook and the associated drainage ditch. Analytical results of samples collected from the spill area indicated high levels of explosives in soil. In response to the explosives contamination, a drainage collection system was installed to capture impacted sediments. The contaminated surface water/sediment was pumped into tank trucks for off-site disposal. The cleanup action was completed in June 1986. Confirmatory soil samples indicated total petroleum hydrocarbon (TPH) concentrations below the LOC.

During the Phase I RI, elevated levels of metals and DDT were reported in the surface soil samples collected at the site. In surface water, metals, pesticides and PCBs were detected at concentrations above LOCs. In the associated sediment samples, PAHs, metals, pesticides and PCBs exceeded LOCs. Human health risk falls within the target range (1×10^{-4} to 1×10^{-6}). Aroclor 1260 and arsenic were identified as the primary risk drivers in soil. Benzo(a)pyrene was identified as the primary risk driver in sediment. The adult lead model results indicate lead in soil is not a health concern. The hazard index does not exceed the target criterion of 1. Since this site is situated in a high human use, industrialized portion of PTA, the site offers little risk to wild species. In response to regulatory comments on the RI, additional soil sampling was performed at this site in 2000. No sample concentrations were detected above LOCs and no further sampling is proposed for this site.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:

VOCs, BNAs, PCBs, Pesticides, Radiologicals, Metals

MEDIA OF CONCERN: Soil, Sediment

Phases	Start	End
PA	198409.....	198412
IRA	198501.....	198512
SI.....	198910.....	199103
RI/FS.....	199309.....	200306

RC DATE: 200306

PICA-089 (PART OF PICA-029) PETROLEUM LEAK AREA (BLDG 305) SITE 52

(PAGE 2 OF 2)

In 2003, PICA-089, 117, 119, 121 and 188 were listed as response complete in AEDB-R and will be addressed under PICA-029.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

PICA-117 (PART OF PICA-029)

BLDG 302, SERVICE SHOPS (SITE 134) (PAGE 1 OF 2)

SITE DESCRIPTION

Bldg 302 was constructed in 1905 as a maintenance and service shop. Bldg 302 has housed two different divisions of ARDEC - the DEH and the Logistic Management Division (LMD). These divisions operated and maintained various shops including a tin shop, paint shop, machine shop, and millwright shop. Vehicle maintenance operations have been conducted in the northern corner of Bldg 302. Historically, Bldg 302 has been primarily used as a storage and machine shop bldg. Available documents also indicate that portions of this bldg may have been used as a laundry facility to wash explosive contaminated clothing.

In the past, a disposal pit, adjacent to Bldg 303, was used to bury waste oil and metal parts. This disposal pit area was reportedly covered with asphalt. In addition, wash-water, generated at Bldg 302, was collected in two large above ground holding tanks. The wash-water was regularly emptied from the tanks into a wetland area located southeast of the building. This wetland area empties into a drainage ditch, which discharges into Green Pond Brook.

Environmental samples, collected during the Phase I RI, indicated that beryllium was detected above its LOC in the surface soil samples. VOCs and metals were detected at concentrations exceeding their LOCs, in a groundwater sample, collected down-gradient of the site. A soil gas survey was also conducted at the site, and two samples had high levels of PCE. Human health risk falls within the target range (1×10^{-4} to 1×10^{-6}). The hazard index does not exceed the target level of 1. The adult lead model results indicate lead in soil may be a potential health concern. The Phase I ERA concluded that this site offers little real risk to wildlife populations or communities. In order to investigate the high soil gas levels, soil borings were drilled and subsurface soil samples collected in 2000. Soil samples were also collected from three small intermittent drainage ditches at the site. Lead and PCE were detected at concentrations above LOCs in the subsurface soil samples. Soil sample analysis from the drainage ditches identified that metals exceeded regulatory limits. Additional sampling performed in 2000 completed the delineation of soil contamination at the site and no further sampling is proposed.

An interim removal action for SVOCs, copper and lead was conducted within the three drainage ditches at Site 134 from November to December 2003. Approximately 26 cy of

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS.....	199309	200306

RC DATE: 200306

PICA-117 (PART OF PICA-029) BLDG 302, SERVICE SHOPS (SITE 134) (PAGE 2 OF 2)

soil were removed from the site. Post-excavation results indicated concentrations of SVOCs, copper and lead were below LOCs.

In 2003, PICA-089, 117, 119, 121 and 188 were listed as RC in AEDB-R and will be addressed under PICA-029.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

PICA-119 (PART OF PICA-029)

BLDG 355, METALLURGY LAB (SITE 136) (PAGE 1 OF 2)

SITE DESCRIPTION

Bldg 355 was constructed in 1940 as a storehouse, although the types of materials stored are unknown. Since the late 1960s, Bldg 355 has primarily housed the Engineering Division, the Research and Development Division, Physical Sciences Laboratories, and Metallurgical Laboratories. Tests performed in the metallurgical laboratory include salt spray exposure tests, fracture tests, and mechanical tests. Additionally, Bldg 355 houses a photography and an x-ray laboratory for the analysis of fractured materials. Mechanical testing conducted at Bldg 355 included testing of DU. Although Bldg 355 is still currently active as a metallurgy laboratory, no DU testing is being conducted. Most of the wastewater generated at Bldg 355 was reportedly discharged into sanitary sewers. However, drain pipes from several rooms discharge onto the ground surface outside the building.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199309	200306

RC DATE: 200306

Environmental samples collected during the Phase I RI contained LOC exceedances in the surface soil and groundwater samples. Mercury concentrations, detected in the soil samples, exceeded the LOC. Several LOC exceedances were reported for VOCs and metals in the groundwater samples collected up-gradient and down-gradient of the site. The non-carcinogenic human health hazard equals and exceeds the HI criterion of 1 for future industry/research workers and future construction/excavation workers, respectively. Mercury was identified as the primary hazard driver. Carcinogenic risk does not exceed 1×10^{-6} . In order to delineate the extent of the mercury contamination in the soil, additional soil samples were collected at the site in 2000. Results of this sampling have successfully delineated the extent of contamination, and no additional sampling is proposed for this site.

An interim removal action for mercury in soil was performed at Site 136 between November 2003 and October 2004. Approximately 4 cy of soil were removed from two excavations. Based on the post-excavation results, the mercury contamination was removed from the site. Results of the screening level ERA conducted in 2005 concluded that based on the lack of suitable habitat and the removal of the sole COPEC, no further ERA was warranted for the site.

In 2003, PICA-089, 117, 119, 121 and 188 were listed as RC in AEDB-R and will be addressed under PICA-029.

PICA-119 (PART OF PICA-029) BLDG 355, METALLURGY LAB (SITE 136) (PAGE 2 OF 2)

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

PICA-121 (PART OF PICA-029) BLDG 336 – EXPLOSIVE LAUNDRY

SITE DESCRIPTION

Former Bldg 336 was constructed in June 1956 to serve as a laundry facility for explosive-contaminated clothing. Laundry operations, at Bldg 336, were terminated in 1979 and the bldg was demolished in October 1982. During its operational period, the wash-water generated, at Bldg 336, was discharged into a holding tank to settle the explosive residues. The clarified wash-water, from the holding tanks, was then emptied onto the ground, and flowed along a drainage ditch that discharged into the swampy discharge pond located at RI Site 52. The exact nature and quantity of wash-water generated at the laundry facility is unknown. Based on the sampling data, collected along the drainage ditch, it is highly probable that the wash-water contained explosives.

Environmental samples collected during the Phase I RI contained elevated levels of benzo(b)fluoranthene and metals in the surface soil. In sediments, PAHs, pesticides, PCBs and metals exceeded their respective LOCs. Human health risk falls within the target of 1×10^{-4} to 1×10^{-6} for future research workers. The non-carcinogenic hazard is below the hazard criterion of 1. The adult lead model results indicate lead in soil is not a health concern. The main risk and hazard drivers are arsenic and PCBs. Since this site is situated in a high human use, industrialized portion of PTA, the site was not evaluated in the Phase I ERA. However, this site is expected to offer little risk to wild species. In response to regulatory comments on the RI, additional soil sampling was performed at this site in 2000. No sample concentrations were detected above LOCs and no further sampling is proposed for this site.

In 2003, PICA-089, 117, 119, 121 and 188 were listed as RC in AEDB-R and will be addressed under PICA-029.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199309	200306

RC DATE: 200306

PICA-188 (PART OF PICA-029) FORMER LABORATORY IN BLDG 350 SITE 185

SITE DESCRIPTION

Building 350 was constructed between 1938 and 1940 for use as a concepts and applications laboratory. Laboratory operations included photography, electronics, dynamics, solid state, ceramics, and optical laboratories. An acid drain filter, located in the western portion of the building, discharged wastewater from the sinks, fume hoods, and floor drains into a storm sewer north of the building. The building was converted to office space, its current use, prior to 1971.

According to the Foster Wheeler Discharge Report, the potential for contaminated discharge from the building is low. As part of a RRSE performed by USACHPPM, two wells were installed and sampled for VOCs, SVOCs, metals, explosives, and pesticides. Lead was detected in both wells in exceedance of the LOC.

However, it was determined that the well screen for one well was cracked and leaking filter pack sand into the well. In 2000, an additional groundwater sample was collected from the undamaged well and analyzed for lead. Lead was not detected. The damaged well was abandoned in accordance with NJDEP protocol. One surface soil sample was collected from the concrete vault, located on the southeast side of Building 350, in October 2004. No sample concentrations were detected above LOCs, and no further sampling is proposed for this site. Since no chemical concentrations were detected above screening criteria in the one groundwater sample collected during the Phase I 2A/3A RI, risk and hazards were not quantified for the site. The surface soil sample was collected subsequent to the risk screening process. A screening level ERA was conducted for the site in 2005. Since the single soil sample did not indicate contamination and the site is located in a highly urbanized portion of the arsenal, no further ERA was deemed necessary.

The acid drain filter and approximately 5 cy of soil were removed from the northwest side of Building 350 in November 2003. Post-excavation results indicated concentrations of metals and explosives were below LOCs.

In 2003, PICA-089, 117, 119, 121 and 188 were listed as response complete in AEDB-R and will be addressed under PICA-029. In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI	199509	199806
RI/FS	199809	200306

RC DATE: 200306

PICA-053 (PART OF PICA-096) MUNITS & PROPLTS TEST AREA/CHEM BURIAL

SITE DESCRIPTION

The former range area, referred to as Building 1242, is located west of Lake Denmark on Green Pond and Copperas Mountains. Building 1242 is located near the end of Gorge Road in an unused former testing area of the arsenal. The site covers approximately 37 acres, was constructed in 1964, and consists of two firing lines for the testing of recoilless rifles. The two lines share a single firing point, but have two impact areas. The firing point has a berm for the safety of the operators and a gun turret, which functioned as a safe house. Presently, the firing point of the former range area is located in a clearing that contains a large berm, a battleship gun turret, some water-tank cradles, and the remnants of the electrical system, which at one time was run by a generator powered by gasoline or diesel fuel brought in by small containers. The gun turret was placed behind the berm from the firing point, and was used as a safe house for the operators in the area. The impact area of the 900-yd range was a slug-butt constructed of I-beams, a large corrugated pipe, and sand. Materials used at Building 1242 include fuel for the generator and ammunition.

A PA/SI was conducted at this site in 1996. Explosives, VOCs, SVOCs, pesticides/PCBs, anions, and metals analysis of soil were conducted as part of this 1996 PA/SI. No samples had exceedances of NJDEP criteria. A screening-level ERA conducted in 2005 concluded a potential risk may exist; however based on the limited amount of contamination and the relatively low concentrations, additional ecological investigation is not warranted for the site.

In 2003, PICA-056 was listed as response complete in AEDB-R and will be addressed under PICA-053.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199606	200505

RC DATE: 200505

PICA-056 (PART OF PICA-053) FORMER CHEMICAL BURIAL AREA (SITE 10)

SITE DESCRIPTION

The Chemical Burial Pit, Site 10, is located along Berkshire Trail in the northwestern portion of the Arsenal. Containers of unknown chemicals were reportedly placed in the 25 x 25 x 5 ft pit, then covered with fill material and a concrete slab and/or rocks. Exact dates of use of the Chemical Burial Pit are not known; however, PTA personnel indicated that no material had been buried at the site for the last 30 years. A water line is present at the site, coming from the southeast. The aboveground line was installed for fire safety and is empty until needed. Documentation regarding the chemical burial pit is limited. However, both cyanide and fluoroacetates were reportedly buried in the pit. During a 1996 site inspection, a dry water line was noted as terminated in the area of the Chemical Burial Pit. The presence of the line in this area is unusual, given the lack of any other site, such as a test area, along this section of Berkshire Trail.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199606	200306

RC DATE: 200306

A groundwater Site Investigation was conducted at this site from 1987 to 1989. Groundwater was collected for analysis of VOCs, BNAs, cyanide, and metals. No constituents of concern were detected above levels of concern. Remedial Investigation activities were conducted from 1998 to 1999. A geophysical survey, soil gas survey, and excavation of test pits were conducted as part of the RI, in order to determine the location of the chemical burial pit and its environmental impact. The location of the burial pit could not be ascertained through geophysical methods, and analysis of soil samples collected during test pit operations indicates no contaminants are present at concentrations greater than levels of concern for soil. Groundwater analysis was conducted, which indicated the presence of a very limited number of metals exceedences. HHRA results indicate risks and hazard are within the target levels. A screening level ERA was conducted in 2004. It was determined a baseline ERA is not warranted because little potential exists for exposure to contaminants due to the size of the site and low contaminant levels.

In 2003, PICA-056 was listed as response complete in AEDB-R and will be addressed under PICA-053. In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

PICA-069 (PART OF PICA-096) PROPELLANT/CHEM/MATERIAL STORAGE (SITE 27)

SITE DESCRIPTION

Site 27 consists of the former salt storage building, T-90, and the area surrounding the building. The site is located at the intersection of Shinkle Road and Fourth Avenue. Green Pond Brook is immediately adjacent to the site on the southeast. Building T-90 was a Quonset hut constructed of corrugated steel with an asphalt floor area of approximately 3,000 ft². The date of construction is unknown; however, it is known that it was constructed prior to 1970 and was demolished in 1993. All road salt and cinders were likely removed in the late summer/fall of 1983, and moved to the newly constructed salt storage dome (Building 307-A) built in August 1983 to avoid possible leaching of salt into Green Pond Brook. A small ditch to channel runoff from Shinkle Road, is immediately adjacent to the site on the southwest and discharges to Green Pond Brook near Shinkle Road, and a larger ditch is located approximately 350 ft to the northeast and discharges to Green Pond Brook upstream of Site 27.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199606	200506

RC DATE: 200506

There are no recorded spill/leak incidents at Site 27. However, during a 1989 site inspection conducted by Dames & Moore, it was reported that the walls of Building T-90 had corroded from the base in numerous places, providing an opportunity for entrance of precipitation and therefore leaching of the stored contents. Salt was visibly encrusted in the surface soil at this time. Soil samples were analyzed for VOCs, SVOCs, pesticides/PCBs, metals, and chloride during the 1996 PA/SI. Based upon beryllium and sodium concentrations greater than levels of concern, RI activities were conducted from 1998 to 1999 to investigate beryllium and sodium in groundwater and soil. Groundwater concentrations of sodium were at levels above levels of concern. HHRA results indicate risks and hazard are within the target levels. A screening level ERA was conducted in 2004 in which it was determined there is no significant impact on Green Pond Brook from Site 27 and a baseline ERA is not warranted.

In 2003, PICA-185, 186, 187 and 208 were listed as response completed in AEDB-R and will be addressed under PICA-069. In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

PICA-185 (PART OF PICA-069) PROP STORAGE (BLDGS 46, 47, 48) (SITE 119)

SITE DESCRIPTION

Site 119 consists of Buildings 46, 47, and 48. These buildings are all nearly identical in structure, and were all originally used to store propellant. The three buildings are located on First Avenue east of Phipps Road, in the southwestern portion of PTA.

All three buildings are one-story, 110 ft x 38 ft structures that were previously serviced by railroad, but are currently accessed by asphalt roads. Constructed in 1940, Buildings 46, 47, and 48 were originally designed as magazines to store smokeless powder, but have also stored other types of propellant and explosives. A 1974 supply form indicated that the class and type of material being stored at Building 46 consisted of Class 2, Ammonium Nitrate, DNT, and DNMA; materials at Building 47 consisted of Class 2 NC Wet; and material being stored at Building 48 consisted of Class 2, Propellant Charge 155 MM. In early 1978, the Safety Office conducted an inspection of Buildings 46, 47, and 48, and at that time, the building contained no explosives. All three buildings were certified as having no hazardous waste in undated building certifications. Presently, Buildings 46, 47, and 48 are used as general warehouses storing general supplies and office furniture.

Prior to the 1996 PA/SI, the only investigation conducted at Site 119 was a 1990 water discharge investigation, that identified no significant environmental concerns regarding water discharge activities. A PA/SI was conducted in 1996 for the analysis of VOCs, SVOCs, pesticides/PCBs, explosives, metals, and anions in soil. PAHs were detected at concentrations greater than LOC. The location of samples containing PAH contamination corresponds to the location of the former rail lines in this area. Thus, Buildings 46, 47, and 48 are included in the Arsenal-wide inactive railroad beds investigation. Though a potential for ecological risk exists, based on the limited amount of contamination and the relatively low concentrations, the SLERA concluded that additional ecological investigation is not warranted for the site.

In 2003, PICA-185, 186, 187 and 208 were listed as response completed in AEDB-R and will be addressed under PICA-069. In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI.....	198910.....	199103
RI/FS	199606.....	200306

RC DATE: 200306

PICA-186 (PART OF PICA-069) PROPELLANT STORAGE (BLDG 50) SITE 120

SITE DESCRIPTION

Building 50 is located on First Avenue southwest of the junction of First Avenue and South Fourth Street. There are five bays with steel doors hinged on the exterior loading platform set at railroad car height, a double metal door, a roll-up door and a concrete loading dock. The building was previously serviced by railroad. Building 50 was previously used to store smokeless powder and propellant, and to pack propellant surveillance samples. Presently, Building 50 is used as a general warehouse storing general supplies and office furniture.

PTA personnel indicated that Building 50 may have been used to store one or two 55-gallon drums of motor oil or other material in the 1950s. No leaks or spills reportedly occurred from these drums. Materials stored in Building 50 included Class 2, 2A, and 7 explosives. Class 2 and 2A propellants were also reportedly stored in the building. During interviews conducted by ANL, PTA personnel reported that containers of propellant were taken outdoors and opened on the ground.

Prior to the 1996 PA/SI, the only investigation conducted at Site 120 was a 1990 water discharge investigation that identified no significant environmental concerns regarding water discharge activities. A PA/SI was conducted in 1996 for the analysis of VOCs, SVOCs, pesticides/PCBs, explosives, metals, and anions in soil. PAHs were detected at concentrations greater than LOC. Building 50 is included in the Arsenal-wide inactive railroad beds investigation. Though a potential for ecological risk exists, based on the limited amount of contamination and the relatively low concentrations, the SLERA concluded that additional ecological investigation is not warranted for the site.

In 2003, PICA-185, 186, 187 and 208 were listed as response completed in AEDB-R and will be addressed under PICA-069.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI.....	198910.....	199103
RI/FS	199606.....	200306

RC DATE: 200306

PICA-187 (PART OF PICA-069) CHEMICAL STORAGE (BLDG 57) SITE 121

(PAGE 1 OF 2)

SITE DESCRIPTION

Building 57 is located on Third Avenue, at the intersection of Third Avenue and South Sixth Street. The building is a one-story, 110 ft x 38 ft rectangular structure previously serviced by railroad. Constructed in 1941, Building 57 was originally used to store smokeless powder. In 1964, it was converted into a packing and shipping building. The building currently functions as a packing and shipping building for non-hazardous materials. The building is divided into three sections: a storage area, a woodworking facility, and an office.

A June 15, 1973 SOP for the marking, packing, and shipment of Class ABC explosives indicated that only a portion of Building 57, the northern end, was used for these purposes. The woodworking area is used to build wooden boxes, pallets, and miscellaneous containers. A 1974 explosive allowance stated that the class and type of material being stored at Building 57 consisted of small quantities of Class 1-7 explosives for overnight storage. In 1978, a safety inspection determined that the building did not contain any explosives. In the 1980s, small quantities (approximately five pounds) of explosives were periodically stored in Building 57 for short periods of time, usually less than 24 hours. A 1980 memo indicated that storage in Building 57 was found to be in good condition, and storing inert material (metal parts, equipment, and general supplies).

Prior to the 1996 PA/SI, the only investigation conducted at Site 121 was a 1990 water discharge investigation, that identified no significant environmental concerns regarding water discharge activities. A PA/SI was conducted in 1996 for the analysis of VOCs, SVOCs, pesticides/PCBs, explosives, metals, and anions in soil. PAHs were detected at concentrations greater than LOC. The location of samples containing PAH contamination corresponds to the location of the former rail lines in this area. Building 57 is included in the Arsenal-wide inactive railroad beds investigation. Though a potential for ecological risk exists, based on the limited amount of contamination and the relatively low concentrations, the SLERA concluded that additional ecological investigation is not warranted for the site.

In 2003, PICA-185, 186, 187 and 208 were listed as response completed in AEDB-R and will be addressed under PICA-069.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:

VOCs, BNAs, PCBs, Pesticides, Radiologicals, Metals

MEDIA OF CONCERN: Soil, Sediment

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198910	199103
RI/FS	199606	200306

RC DATE: 200306

PICA-187 (PART OF PICA-069) CHEMICAL STORAGE (BLDG 57) SITE 121

(PAGE 2 OF 2)

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

PICA-208 (PART OF PICA-069)

D.U. SCRAP STORAGE AREA (PAGE 1 OF 2)

SITE DESCRIPTION

This site, commonly referred to as the former Dog Pound, is located southeast of Building 70, at the intersection of two overgrown fire break/power line access roads, in the swampy area just north of the Arsenal's golf course. The former Dog Pound consisted of an asphalt pad surrounded by a chain link fence. It was used to temporarily store depleted uranium scrap, from milling operations, in Buildings 31 and 22. Radioactive waste from Building 91, and perhaps other facilities, was also temporarily stored at the Dog Pound.

As part of USACHPPM's Relative Risk Site Evaluation, a radiation survey was conducted of the asphalt pad, and the access roads up to 100 feet from the pad. Radiation levels around and on the pad ranged from 6 to 10 mR/hr, which are below the off-post background radiation levels (13 mR/hr) established by CHPPM. Two anomalies were found along the access road. Both anomalies are associated with coal clinkers used as fill in the area. In addition to the radiation survey, several grid-based soil samples were collected for gross alpha and beta radiation determinations. A surface soil sample was collected from each anomaly, and one background location 100 feet northeast of the site. Soil samples were analyzed for metals, gross alpha and beta radiation. Arsenic was the only compound detected above LOCs. Groundwater samples, collected at the two radiation anomalies, contained concentrations of arsenic and lead in excess of LOCs.

Based on the results of the USACHPPM investigation, the following AOCs have been identified at the site: arsenic-contaminated surface soil, arsenic and lead-contaminated groundwater, and potential surface water and sediment contamination. In order to further characterize these AOCs, soil, GW, surface water and sediment samples were collected in 2000. The soil samples did not identify any site-related contamination. However, the sediment samples contained concentrations of several metals including uranium and PAHs above their respective LOCs. One GW sample contained an elevated arsenic level. One additional sediment sample, collected in 2001, delineated the down-gradient extent of the sediment contamination. Results of a HHRA indicated the risks and hazards from soil and sediment exposure at the site are below the target levels of 1E-4 and 1 respectively. The screening level ERA for the site concluded that although elevated metals and PAHs exist in a limited area in the drainage channel, the drainage channel does not represent a significant aquatic habitat and the size of the effected area (approximately 0.14 acre of the 1.1 acre site) would not be expected to result in significant exposure to wildlife. The

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	199309.....	199604
RI/FS	199608.....	200306

RC DATE: 200306

PICA-208 (PART OF PICA-069)

D.U. SCRAP STORAGE AREA (PAGE 2 OF 2)

concentrations of arsenic in soil are relatively low compared to the screening value (i.e., hazard quotient of 1.4). Thus, no additional ERA is recommended for the site.

In 2001, an additional radiological survey and soil sampling were conducted to characterize the magnitude of thorium-232 contamination related to the coal clinkers. Additional radiological characterization of the site is planned for 2006. Upon completion of the characterization phase, the final step will be to perform a final status survey (FSS) in accordance with the *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)*. The FSS will be used to determine whether the site may be released from radiological restrictions.

In 2003, PICA-185, 186, 187 and 208 were listed as response complete in AEDB-R and will be addressed under PICA-069.

In fiscal 2006, a characterization study of the 'dog pound area' was submitted to the NJDEP to respond to comments from the NJDEP about additional sampling. The characterization study also included a radiological survey that is consistent with Nuclear Regulatory Commission guidance. Following the NRC guidance was based on new information of the storage of radiological material at this site.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

PICA-094 (PART OF PICA-096) SURVEILLANCE LABORATORY (BLDG 92) SITE 69

(PAGE 1 OF 2)

SITE DESCRIPTION

Building 92 was constructed in 1969 as a Predictive Surveillance Laboratory. Building 92 also houses the Stockpile Reliability Testing (SRT) area, a controlled clean room where optical disks are cleaned and checked for quality. From 1969 to 1982, the primary wastes generated at the Predictive Surveillance Laboratory included nitric and hydrochloric acids. Sodium cyanide, potassium cyanide, chromium trioxide, acetone, and peroxide were also generated and all wastes were reportedly discharged to a concrete UST on the northwest side of the building via floor drains and sinks. According to PTA personnel, the UST discharged into Bear Swamp Brook through the outfall near Building 95, the Plating and Etching Wastewater Treatment Facility (ANL, 1991). A review of Picatinny environmental files revealed that fuel oil was discovered in the spent acid waste UST in 1989. Pads were used to absorb the oil. No information was provided in the spill report to indicate the origin of the oil. The UST was disconnected in 1989 and removed in 1992. Radiological sources associated with the building were routinely leak tested prior to their transfer to Building 320. Results were well below the allowable 0.005 microcuries.

Due to RCRA activity in the early 1990s, no investigation was performed as part of the Phase I RI. However, two RCRA closures have been completed. The first action consisted of decontamination of three areas inside the building and one area outside the building. Rinsate and wipe samples were collected from the decontaminated areas. This RCRA action (decontamination of four areas) is considered to be completed by NJDEP. The second RCRA action was the removal and decontamination of the UST. The NJDEP required additional investigation/action at the UST. To fulfill this requirement, CHPPM conducted a relative risk evaluation at the site consisting of a radiological survey, groundwater and soil sample collection, and an assessment of relative risk. The report gave the site a low potential site risk rating and selected groundwater as the only medium of concern. A risk management evaluation of the site was completed in 2000 where a screening risk evaluation determined that it was likely that the cancer risk was below 1×10^{-6} and HI less than one. This risk management evaluation recommended no further action.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN: VOCs, BNAs, PCBs, Pesticides, Radiologicals, Metals

MEDIA OF CONCERN: Soil, Sediment

Phases	Start	End
PA	197607	198105
SI	199509	199804
RI/FS	199809	200406

RC DATE: 200406

PICA-094 (PART OF PICA-096) SURVEILLANCE LABORATORY (BLDG 92) SITE 69

(PAGE 2 OF 2)

FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

The groundwater is covered in the Area D area wide groundwater feasibility study (PICA-076).

PICA-098 (PART OF PICA-096) METAL PLATING SHOP, BLDG 64 (SITE 123)

(PAGE 1 OF 2)

SITE DESCRIPTION

Over the years, Building 64 has housed various divisions of PTA including the ordnance facility that conducted metal plating operations. Available documents indicate that Bldg 64 may have also been used as: an ordnance shipping building, a cutting oils storage area, a nuclear materials operations building and a mechanical shop for performing drilling, metal cutting operations and encapsulation and decapsulation of electronic and mechanical components. Currently, Bldg 64 is used as an administrative building occupied by PTA's managed CCAC division, which houses the Light Armament Division, Light Weapons Branch, and Future Weapons Branch.

Reportedly, Bldg 64 was also used for handling materials containing beryllium and depleted uranium. Radioactive material storage including plutonium batteries occurred from ~1962 to 1990.

When Bldg 64 was used as a metal plating shop, flow in Bear Swamp Brook (BSB) reportedly was green and brownish red. Additionally, available documents indicate that the neutralization system located outside the building leaked. These reports suggest that release of wastewater into BSB occurred during this period.

During the Phase I RI, no LOC exceedances were reported in the soil samples. PAHs and metals were detected above their respective LOCs in the sediment samples. In addition, a radiological survey did not identify any areas of concern at the site. Human health risk falls within the target range (1×10^{-4} to 1×10^{-6}). The hazard index does not exceed the target level of 1. The Phase I ERA concluded that this site poses virtually no risk because the contaminant levels are too low, and the area is spatially insignificant. In response to regulatory comments, additional RI sampling was conducted in 2000 to characterize potential sources at the site. Results of a soil gas survey and soil samples did not identify any potential sources.

As part of the remediation of adjacent Site 122 (PICA-011), a 40-ft portion of BSB bordering this site was excavated in early 2000. The excavated sediment was disposed off site. In 2001, additional excavation was performed at Site 123, parallel to the BSB shoreline, to investigate an oily layer identified during the Site 122 remediation. No evidence of oil was observed, such as staining or petroleum odor, however, PCBs were detected above the LOC in the soil sample collected immediately adjacent to BSB. Since the PCBs are

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:

VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198707	198906
RI/FS	199309	200506

RC DATE: 200506

PICA-098 (PART OF PICA-096)
METAL PLATING SHOP, BLDG 64 (SITE 123)
(PAGE 2 OF 2)

probably associated with other contaminants identified in BSB, no further sampling is proposed at Site 123, and environmental monitoring is proposed for this portion of BSB.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

PICA-101 (PART OF PICA-096) BLDG 163, PHOTOGRAPHY LAB (SITE 60)

SITE DESCRIPTION

Building 163 was constructed in 1942 as a high explosives laboratory. The photography laboratory in Building 163 currently generates small quantities of developer, bleach/fixer, as well as black-and-white fixer and stop bath solution. Prior to 1984, these waste streams were drained, via a 2-inch PVC pipe, from two sinks with Building 163 to a 1,000-gallon concrete UST, located adjacent to the northeast corner of the Building. In 1991, closure activities were performed on the UST. Closure activities involved excavation of the tank and associated piping. Excavated soil was shipped off-site for disposal. Confirmatory subsurface soil samples did not indicate any remaining chemical levels in excess of LOCs. NJDEP approved the closure, and no further action is required in relation to the UST. Currently, the spent photoprocessing chemicals are stored in containers, on a wooden floor, inside Building 163.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199309	200406

RC DATE: 200406

Groundwater samples collected from monitoring wells in the vicinity of the site contained PCE concentrations that exceeded LOCs. Explosives were also detected in the groundwater near the site. In response to NJDEP comments, additional soil characterization was performed, at the site to determine a potential source for the explosives. No sample concentrations exceeded any LOCs for explosives. One surface soil sample of the eight samples collected also was analyzed for VOCs, SVOCs, and metals. No concentrations were identified above LOCs. No further sampling is proposed for this site. Human health risks are within or below USEPA's target risk range of 1×10^{-4} to 1×10^{-6} . The hazard index does not exceed the target level of 1. The Phase I ERA concluded that the woodcock are at risk due to high levels of metals in the area. However, neither the small mammal studies, nor the earthworm toxicity studies found any significant impacts in this area. The residential risk scenario was also evaluated and the risk and hazards were below target thresholds.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators. The site was proposed as an NFA site and will not require a Proposed Plan or Record of Decision if EPA agrees with this recommendation in the Feasibility Study.

PICA-114 (PART OF PICA-096)

BLDG 477, EXPLOSIVE & PROPELLANT MIX AREA

SITE DESCRIPTION

Building 477 was constructed in 1945 for use in medium caliber projectile loading activities. The building was converted to a laboratory in the early 1960s for mixing and drying explosives, propellants, and pyrotechnics. Historically, explosives contaminated wastewater was generated daily at Building 477 from the wash-down of machines and walls following loading activities, and from dust control devices. The wastewater was discharged to a sand filter. This sand filter is located near the northeast corner of the building, in an area where engineering drawings indicate a drain and settling tank.

A remedial investigation was conducted at the site in 1994 including surface soil, subsurface soil, and groundwater sampling. Groundwater samples exceeded LOCs for metals. The HHRA did not calculate carcinogenic risk because slope factors were not available for the site COCs. The HI for the site exceeded 1 for one of the three populations. The Phase I RI recommended no further action for the site. However based upon regulatory comment, additional RI activity was performed in 1997 including Geoprobe, surface soil, surface water, and sediment analyses for metals and explosives. A revised risk assessment was performed which also returned an HI greater than one mainly associated with manganese inhalation. The human health risk is within USEPA's target range of 1E-4 to 1E-6 for all populations. An interim removal action was performed in December 2003 to remove the settling tank and sand filter on the northeast corner of the building. Post-excavation sampling results did not identify any concentrations of metals or explosives above LOCs.

The additional RI recommended that this site proceed to a feasibility study with the likely remedial alternative being institutional controls. Groundwater is being addressed in the Mid-Valley groundwater investigation.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199309	200506

RC DATE: 200506

PICA-158 (PART OF PICA-096) HELICOPTER MAINTENANCE (BLDG 3801) SITE 175 (PAGE 1 OF 2)

SITE DESCRIPTION

This site is frequently referred to as the Army Aviation Support Facility #2, which is operated by the New Jersey Army National Guard. The site was unimproved woodlands until the heliport was constructed in the late 1960s or early 1970s. The site is a fenced area that includes a helicopter maintenance and aviation building (Building 3801) and a heliport. In 2005 use of the site as a helicopter aviation and maintenance facility was discontinued. Currently, the site is used for truck maintenance and storage.

Petroleum spills, during product transfer and valve drips, frequently occurred at the USTs used to store the helicopter fuel until they were upgraded in the late 1990s. Discharge from Building 3801 floor drains terminates at a rip rap outside the southeast fence boundary. In November 1988, a 15,000 gallon UST, located west of the building, failed a pressure test. The tank was reportedly excavated, repaired and the excavation backfilled. In 1991, a RCRA closure was conducted of an outdoor 90-day drum storage area, located on the south side of the Building 3801. As part of the closure, contaminated soil beneath the storage area was excavated and disposed of at an off-site location. Post-closure soil samples exceeded the soil cleanup standards for base neutrals.

Potential sources of contamination, identified at the site, include three USTs used to store fuel for the helicopters, a solvent basin for cleaning helicopter parts, a 90-day RCRA outdoor drum storage area, a transformer located inside the building, discharge from floor drains, and two leaching pits used to collect runoff from the parking lot and heliport asphalt. In 1993 and 1994, the USTs were replaced with three ASTs. With the exception of the 90-day RCRA storage area, all these potential sources were investigated during the 1996 Phase II RI.

Phase II RI activities included the installation of three monitoring wells and the collection of soil, groundwater, surface water and sediment samples. Methylene chloride was identified, above its LOC, in one monitoring well at the site. No elevated chemical levels were detected in soil, surface water or sediment samples collected at the site. Since no chemical concentrations exceeded the screening criteria, risk and hazards were not quantified for the site. Additional sampling, performed in 2000, to investigate the RCRA closure area did not detect any elevated chemical levels. No further sampling is proposed.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199502	200506

RC DATE: 200506

PICA-158 (PART OF PICA-096) HELICOPTER MAINTENANCE (BLDG 3801) SITE 175 (PAGE 2 OF 2)

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

PICA-161 (SITE 174) (PART OF PICA-096) SEWAGE TRMT/CHEM LAB/FIREHOUSE/PRKG

SITE DESCRIPTION

Current Building 3420 is an active pumping station; the old sewage treatment plant and supporting structures have been demolished. A 1947 aerial photograph shows a pump station, at least two sludge holding tanks, and a square concrete structure partitioned into four sludge drying beds. Old Building 3420 accepted and processed all the runoff and waste waters from the 3300 and 3400 series buildings for an unknown period of time. It is likely that it received laboratory chemicals, metals, pyrotechnics, propellants, and high explosives that were conveyed through building discharge points and surface runoff. According to PTA inspection reports, sewage spills of up to 5,000 gallons were common at the site.

Treated water from this site was conveyed underground in 2-ft wide concrete pipes. Brick-lined wells, approximately 3 ft deep, connected the concrete pipes, which conveyed the water from the various stages of treatment. The treated water was discharged to a stream northeast of the site, which eventually drains to Green Pond Brook.

Phase II RI activities, conducted at the site in 1996, included the installation of one monitoring well and the collection of soil, groundwater, surface water and sediment samples. Elevated levels of SVOCs, pesticides, and metals were detected in the surface water and sediment samples collected from the stream, northeast of the site. The HHRA, completed for this site, indicated that the risk and hazard from soil exposure are below the target levels of 1×10^{-4} and 1. Results of a sediment bioassay conducted as part of the Phase II ERA did not indicate significant toxicity, as compared to the laboratory control and reference samples. The brick-lined wells, associated piping and any impacted soil were removed in 2003.

In 2003, PICA-159, 160 and 189 were listed as response complete in AEDB-R and will be addressed under PICA-161.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS.....	199502	200506

RC DATE: 200506

PICA-159 (PART OF PICA-161) (SITE 172) PARKING AREA ACROSS FROM BLDG 3328

SITE DESCRIPTION

Site 172 consists of an approximately 300-ft long asphalt parking area, located across from Building 3328. According to the 1991 ANL RI Concept Plan, PTA personnel reported that oil was purposely spilled on the parking area to make it look old for an inspection. Reportedly, many types of oil were spilled on the asphalt.

Soil samples collected beneath the asphalt parking lot during the Phase II RI did not detect any chemical levels above LOCs. Since no chemical concentrations exceeded the screening criteria, risk and hazards could not be quantified for the site. Due to the low habitat quality, the site was not evaluated in the Phase II ERA. No further sampling is proposed for the site.

In 2003, PICA-159, 160 and 189 were listed as response complete in AEDB-R and will be addressed under PICA-161.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI.....	198910.....	199103
RI/FS	199502.....	200306

RC DATE: 200306

PICA-160 (PART OF PICA-161) CHEM LAB & ADMIN BLDG (BLDG 3404) SITE 173

SITE DESCRIPTION

Originally built in 1952, Building 3404 was used as a maintenance shop and a test laboratory for solid propellant until 1967. Documents from 1967 to 1987 refer to the building as the Materials Preservation and Protection Lab, where flame retardant, mercury, solvents, acids, and wood preservatives were used. From approximately 1977 to 1987, the building was also used to store wood, paper, and cardboard boxes. In 1987, Building 3404 was emptied of its contents and renovated to provide equipment storage space for the New Jersey Army National Guard. According to PTA personnel, RCRA closure requirements were waived by the State of New Jersey because of renovations conducted inside the building by the New Jersey Army National Guard.

Phase II RI activities conducted at the site included the installation of one monitoring well and the collection of soil and groundwater samples. During the Phase II RI, PAHs were reported in excess of LOCs in one soil sample collected up-gradient of the site. Results of a HHRA for the site indicate the risks and hazards from exposure to surface soil and subsurface soil are below the target levels of 1×10^{-4} and 1. Due to its small size, low habitat quality and urban setting, this site was not evaluated in the ERA. No regulatory comments have been received on this site, and no additional RI sampling is proposed for the site.

In 2003, PICA-159, 160 and 189 were listed as response complete in AEDB-R and will be addressed under PICA-161.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199502	200306

RC DATE: 200306

PICA-189 (PART OF PICA-161) FIRE HOUSE (BUILDING 3316) SITE 186

SITE DESCRIPTION

The Firehouse (Building 3316) is a former vehicle maintenance facility. Horse stalls replaced vehicle garages in 1946. Both garages contained a grease pit that discharged directly to the underlying soil. Wash water from the primary vehicle bay drained into a dry well before the site was repaved. The dry well is no longer used, since all wastewater is channeled into the sanitary sewer. Installation spill files contain no spill reports for Building 3316.

As part of CHPPM's Relative Risk Site Evaluation (RRSE), three monitoring wells were installed and sampled in 1997. The VOC, PCE and the metals, chromium and silver were detected in excess of their respective LOCs. The RRSE scored the site a medium risk due to the potential groundwater hazard. In order to confirm the results of

CHPPM's investigation, groundwater samples were collected from the three monitoring wells in 2001 by the low-flow sampling method and analyzed for VOCs and metals. Aluminum, iron and manganese, which are attributable to the local geology, were the only compounds detected above LOC. A HHRA was performed to evaluate dermal absorption exposure to chemical in groundwater by construction/excavation workers. No carcinogenic COPCs were identified; thus no risks were quantified. The hazard was below the target level of 1.

In 2003, PICA-159, 160 and 189 were listed as response complete in AEDB-R and will be addressed under PICA-161.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI	199509	199806
RI/FS	199809	200306

RC DATE: 200306

PICA-176 (Part of PICA-096)

LITTLE LEAGUE BASEBALL FIELD SITE 176

SITE DESCRIPTION

The Little League Baseball Field, approximately 120 x 200ft, is bordered on the southwest by Swamp Road, and to the west by Schrader Road. This site has been used as a ball field for at least the last ten years. According to reports, dredge material from Green Pond Brook may have been dumped at either the Little League Baseball Field, the Baseball Fields (Area C, Site 163), or both. In addition, for three years (unknown specifically when), materials were reportedly disposed of in pits below the site. However, it is unclear as to whether these materials were disposed of at this site or Site 163. If contaminated material was landfilled here, it is not known if uncontaminated soil was brought in to cover the graded landfill during the conversion of the site to a ball field.

Eighteen surface soil samples were collected in 1991 for the analysis of acid/base neutral compounds, metals, and PCBs. No contaminants were detected at levels greater than LOC. Twelve additional samples were collected as part of a risk assessment in 1991. The risk assessment concluded the risks to individuals, playing at or using the field, were negligible for carcinogenic and non-carcinogenic constituents. In 1996, a PA/SI was conducted for the analysis of surface soil for VOCs, SVOCs, pesticides/PCBs, explosives, metals, and anions. No parameters were detected above LOC during the PA/SI. RI activities were conducted in 2000 as part of the Phase III 2A/3A RI to characterize the subsurface soil. No contaminants were detected at concentrations greater than LOC in subsurface soil. Since no chemical concentrations exceeded the screening criteria, risk and hazards were not quantified for current land use. Evaluation of future residential exposure to the soil indicates the risk and hazards are below the target levels of 1E-4 and 1, respectively. A SLERA was conducted in 2004. Since no contaminants were detected above LOCs, it was concluded that exposure to elevated concentrations of contaminants by wildlife receptors is unlikely at the ball field.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators. NFA is proposed for the site.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199606	200406

RC DATE: 200406

PICA-177 (PART OF PICA-096) SAN SEWER SYSTEM BREAKS/LEAKS SITE 177

(PAGE 1 OF 2)

SITE DESCRIPTION

The sanitary sewer system at Picatinny consists of vitrified clay, cast iron, asbestos cement, and galvanized pipes. Due to the age of the facility, some of the sewer pipes are extremely old and have experienced cracks, sags, misalignments, and root infiltration. The sanitary sewer system at PTA was not routinely used to receive industrial waste. Typically, the only building in a production area, with a sanitary connection, was the change house, which did not routinely handle hazardous materials. Beginning in the late 1970s, an infiltration problem was identified in the sewer system. The arsenal evaluated the problem and addressed it through re-lining pipes and replacing pipes. As a result of this construction, rubble has been generated and has been deposited in the former location of Building 276 (Area I, Site 100). The rubble consists primarily of broken concrete, asphalt, rocks, and soil. During the past 20 years, several assessments have been made of the condition of the sanitary sewer. Based upon the conclusions of these previous assessments, renovation of the PTA sewer line was conducted in three phases during the 1990s.

A PA/SI was conducted in 1996 to evaluate VOCs, SVOCs, pesticides/PCBs, explosives, metals and anions in surface soil. SVOCs were detected at concentrations greater than LOC during the PA/SI. As part of the sanitary sewer renovations conducted in the 1990's, IT Corp collected a total of 30 surface soil samples, at areas of suspected contamination as observed during excavation. PAHs were detected at concentrations greater than the NJNRSCC in samples collected at Buildings 717 and 321, and metals (lead and chromium) were detected above LOC in samples collected from the sewer trench at Building 321. Based upon results of the PA/SI, and additional trench sampling conducted during renovations, RI activities were conducted in 2001. Soil samples were collected at six locations identified by the New York District ACE, the sewer renovation manager. The subsurface soil samples were collected at the depth of the break/leak and analyzed for VOCs, SVOCs, metals, and explosives. No concentrations were detected above LOC in the samples. Since no chemical concentrations exceeded the screening criteria, risk and hazards were not quantified for this site. A SLERA was conducted in 2004. Due to the relatively low level of surface soil contamination with respect to background levels and the lack of significant exposure to wildlife for subsurface soil, the SLERA recommended no further ecological investigation.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:

VOCs, BNAs, PCBs, Pesticides, Radiologicals, Metals

MEDIA OF CONCERN: Soil, Sediment

Phases	Start	End
PA	197607	198105
SI	199104	199112
RI/FS	199606	200406

RC DATE: 200406

PICA-177 (PART OF PICA-096)

SAN SEWER SYSTEM BREAKS/LEAKS SITE 177

(PAGE 2 OF 2)

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators. NFA is proposed for the site.

PICA-183 (PART OF PICA-096) GEN PURPOSE MAGAZINE (BLDG 1217) SITE 164

SITE DESCRIPTION

Building 1217 is located on 24th Avenue approximately 600 ft southwest of Lake Denmark. Building 1217 is a rectangular one-story structure with a concrete foundation, hollow tile bearing walls, and a gable roof, covered with corrugated asbestos-protected metal. The interior is divided into six separate bays by five hollow tile walls.

Constructed in 1944, Building 1217 was originally used as a storage magazine. It also functioned as a propellant processing facility in the mid-1980s, packaging surveillance propellant samples for testing at a separate facility. In 1990, the building was being used as a propellant storage facility. All the propellant had been removed by March 1996. The building is currently empty.

Building 1217 stored a variety of explosives, ranging from 8,000 pounds of Class 7 explosives, to 48,000 pounds of Class 1 through 6 explosives. The most recent allowance, issued in 1988, indicated that the building could store 100 pounds of Class 1.1 explosives in Room 6, and up to 500,000 pounds of Class 1.3 explosives in the remainder of the building.

A 1992 General Safety Program Evaluation indicated that no hazardous waste was generated at this building. A water discharge investigation conducted in 1990 noted the only discharge at the building to be roof drainage to the ground. A PA/SI was conducted in 1996 for VOC, SVOC, pesticides/PCBs, explosives, metals and anions analysis of surface soil. Results of the PA/SI indicated no detections greater than residential or non-residential LOCs.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators. NFA is proposed for the site.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199606	200406

RC DATE: 200406

PICA-190 (PART OF PICA-096) OIL & ACID STORAGE (BLDG 67) SITE 187

SITE DESCRIPTION

Building 67 was constructed in 1957 as a chemical storage facility. The building has performed this mission since that time. There are several documented spills at the building. Engineering drawings indicate that floor drains at the building discharged to four dry wells on the building's north side. The loading areas are currently bermed for containment, but previously spills and storm water would discharge to BSB. Potential contaminants include VOCs, SVOCs, PCBs, and pesticides.

In 1998 USACHPPM conducted a RRSE including collection of groundwater samples via Geoprobe and surface soil. Groundwater contained lead, arsenic, and chromium above LOC. Traces of VOCs and SVOCs were also detected in these samples. No constituents were detected above LOCs in surface soil. Human health risks are within or below USEPA's target risk range of 1X10-4 to 1X10-6. The hazard index does not exceed the target level of 1. A screening level ERA will be conducted for the site in spring 2005. Results of this ERA will be used to determine if a baseline ERA is necessary. In 2000, a follow-up investigation was completed as part of the Phase I 2A/3A investigation. In this investigation, groundwater and surface soil were collected for arsenic and lead, and subsurface soil was collected for VOCs, SVOCs, and metals. Metals were detected above LOCs in the unfiltered groundwater samples. Only manganese was detected above the LOC in the filtered groundwater samples. Three of the four dry wells could not be located. The existing dry well was investigated in November 2003. Post-excavation results did not identify any concentrations of VOCs, SVOCs, pesticides, PCBs, or metals above LOCs. The dry well was backfilled with the excavated soil.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA	197607	198105
SI	199509	199806
RI/FS	199809	200506

RC DATE: 200506

PICA-207 (PART OF PICA-096) STORAGE BUILDING 63

SITE DESCRIPTION

Building 63 is a large, open shed, with no walls throughout most of its length, and a large second floor with a ramp at the northeast end leading to the second floor. The building was constructed in 1942 as a lumber and box storage area, and has always been used for storage. Currently, the building is being used for lumber and pipe storage, miscellaneous storage and storage of several military vehicles. Bear Swamp Brook is adjacent to the site about 40 feet away. Floor plans for the building indicate that storage of transformers and "toxic lumber" has taken place at the site.

In 1997, USACHPPM conducted a RRSE at the site. During this evaluation no evidence of spills or releases from the site were found. Six composite surface soil samples were collected from the two areas of concern (i.e., the former transformer storage area and the former toxic lumber storage area). Arsenic was the only compound detected above LOC. USACHPPM determined that the relative risk associated with the site was low.

In 2005, PICA-029, 053, 069, 094, 098, 101, 114, 158, 161, 176, 177, 183, 190 and 207 were listed as response complete in AEDB-R and will be addressed under PICA-096. The FS for the PICA-029, PICA-053, PICA-069, PICA-161 and PICA-096 sites is currently being reviewed by the regulators.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
VOCs, BNAs, PCBs, Pesticides,
Radiologicals, Metals

MEDIA OF CONCERN: Soil,
Sediment

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	199309.....	199604
RI/FS	199608.....	200506

RC DATE: 200506

PICA-097 (SITE 118)

BLDG 41, PESTICIDE STR & FORM OIL/W SEP

SITE DESCRIPTION

Bldg. 41 is located in the middle of the Golf Course. Prior to 1964, Building 41 was used for storage. In 1964, this building was reassigned for storage of fertilizer, lime and miscellaneous inert materials. Since then, the building has been predominantly used for storage of pesticides and herbicides that are applied on the golf course and lawn surrounding the site. Until 1988, it was a common occurrence for open bags of pesticides and herbicides, stored at Building 41, to leak onto the wooden floor due to a leaky roof.

Groundwater samples collected from site monitoring wells have consistently contained elevated levels of TCE and PCE. Groundwater at this site is covered under the Area D groundwater operable unit. During the Phase I RI, metals were detected at concentrations in excess of their respective LOCs in surface soil samples.

Sediment samples from the oil/water separator pond contained elevated levels of metals, cyanide, DDT, and PCBs. Sediment within the oil water separator pond is covered under the GPB/ROD. The Phase I ERA concluded that this site poses virtually no risk because the contaminant levels are too low, and the area is spatially insignificant. However, earthworm toxicity testing did indicate total mortality in one sample, probably due to pesticides. Human health risk falls within or below the target range (1×10^{-4} to 1×10^{-6}). The hazard index exceeds the target level of 1, primarily due to manganese and thallium. The adult lead model results indicate lead in soil may be a potential health concern. Additional RI sampling conducted in 2000 delineated the extent of most metals in the soil, but the delineation for arsenic, which is believed to be related to pesticide use on the golf course, is not ER,A fundable.

CLEANUP STRATEGY

A FS, PP and ROD will be completed. Maintenance of existing LUCs will be recommended as the remedy for this site.

Groundwater contamination is being addressed on an area-wide basis (Area D). The Site is included in the PBC.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals, TCE, DDT, PCB

MEDIA OF CONCERN: Soil,
Sediment

Phases	Start	End
PA.....	197607	198105
SI.....	198707	198906
RI/FS	199309	200808
RD	200604	200902
RA(C)	200604	200906
LTM	200907	203906

RC DATE: 200906

FORMER WASTE DUMP/CHEMICAL LAB(SITE 61)

SITE DESCRIPTION

Site 61 encompasses ~3 acres and consists of Buildings 171 and 176. Trash, including cars and unknown materials, were reportedly used to fill in the swamp area west of Bldgs 171 and 176 sometime prior to 1960. Bldg 171 was constructed in 1948 on what was originally the site of High Explosives Magazine #2. Since its construction, Bldg 171 has been used as an administrative building containing a graphics department, which included photo processing units. A RCRA closure plan was prepared for the photographic processing. The facility was to have been closed. However, the closure plan was never implemented because the building was renovated. NJDEP considers the renovation work to have completed closure of Bldg 171. Bldg 176 was constructed in 1944 for storage of laboratory equipment and sampling of ammunition. In 1959, Bldg 176 was converted to a Plastics Information Center and later converted to an administrative building.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:

Metals, VOCs, SVOCs, PCBs, Pesticides

MEDIA OF CONCERN: Soil, Sediment, Surface Water

Phases	Start	End
PA.....	197607	198105
SI.....	198707	198906
RI/FS	199309	200710
RD	200604	200803
RA(C)	200604	200807
LTM	200808	203807

RC DATE: 200807

The site underwent a remedial investigation in 1994 consisting of a geophysical survey, test pits, radiological survey, surface soil, surface water, sediment sampling for VOCs, BNAs, metals, cyanide, explosives, and pesticide/PCBs. BNAs and metals were detected above LOC in surface soil and sediment. The Phase I RI recommended that this site proceed to FS. However, additional RI work was completed in 1997 based upon regulatory comment. This RI consisted of test pits, the collection of subsurface soil, surface soil, surface water and sediment for VOCs, SVOCs, pesticide/PCBs, and metals. The risk management plan in 2000 determined that human health risk was within the 1×10^{-4} to 1×10^{-6} range for all three receptor populations. Two of three hazard indices were greater than one. Elevated hazard indices were largely caused by inhalation of manganese. An ecological risk assessment was performed, including terrestrial receptor modeling, earthworm bioassays, plan/mammal community assessments, and tissue sample analyses. The risk management decision was that the overall weight of evidence indicated that current conditions potentially posed ecological risk. The recommendation was for risk management attention or monitoring to be decided in a FS. The FS was submitted to regulators in August 2004. The feasibility study evaluated institutional controls, removal, and capping as remedial alternatives.

PICA-102 FORMER WASTE DUMP/CHEMICAL LAB(SITE 61) (PAGE 2 OF 2)

The FS for the site was completed in 2004. A proposed plan for the site is currently being drafted.

Metals contaminated soil was found between PICA-102 (Site 61) and PICA-103 (Site 104). Therefore, to address all contamination at PICA 102, 103 and within the stream between the two sites, an FS was written to address all of the contamination. The FS included all media at these sites with the exception of groundwater. Groundwater is being addressed under PICA-204.

In 2003, PICA-103 was listed as RC in AEDB-R and will be addressed under PICA-102.

CLEANUP STRATEGY

A PP and ROD (previously funded) will be completed for PICA-102 and PICA-103.

Hot-spot removal of ~29cy of metals contaminated soil will be completed for PICA-103.

LUCs will be recommended for both PICA-102 and PICA-103. The Site is included in the PBC.

PICA-103 (PART OF PICA-102) BLDGS 161&162, CHEMICAL LAB (SITE 104)

SITE DESCRIPTION

Site 104 occupies an area of ~1 acre and includes former Building 161 and Building 162. Bldg 161 was originally a railroad scale house built prior to 1942. A new Bldg 161 was constructed near the golf course for use as a pesticide storehouse. Bldg 162 is a three-story building constructed in 1942 as a physics/chemistry laboratory. Bldg 162 is currently the Applied Instrument Bldg whose primary operations include propellant and ammunition analyses. Past activities included chemical disposal in sewers and sinks, washing benches with carbon tetrachloride, using large quantities of mercury, and using solvent recovery cans. In the 1950s and 1960s, a lime pit for acid neutralization was located west of the building. This pit is no longer present. A catch basin, most likely draining to Green Pond Brook, is located on the southwest side of Bldg 162. Reportedly, propellants and chemicals were dumped in the swampy area, west of the building. In 1976, the pipes and sewers in and around Bldg 162 were removed and replaced in an attempt to control discharges.

A RI was completed for the site in 1994. Metals were detected above LOC in surface soil. BNAs and metals were detected above LOC in sediment and VOCs were detected above LOC in groundwater. The HHRA indicated that carcinogenic risk was between 1×10^{-4} & 1×10^{-6} , mainly from beryllium and PCBs. HIs were above 1 due to barium, mercury, and manganese. The ecological risk assessment indicated that terrestrial species were at risk from metals, and there was impact to plants. Follow-up investigation was conducted in 1997. Metals were detected in surface soil and sediment above LOC. VOCs and metals were detected above groundwater LOCs, and PCBs and metals were detected above surface water LOCs. Additional sampling of surface soil and sediment was conducted in 2000 to delineate metals contamination. Based on the results of this investigation, no further sampling is proposed.

A FS was completed in 2004. The proposed remedy for PICA-103 is hot-spot removal and institutional controls. A proposed plan for this site is currently being completed.

Potential groundwater contamination associated with the site is being addressed under the Mid-Valley operable unit. In 2003, PICA-103 was listed as response completed in AEDB-R and will be addressed under PICA-102.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Metals, VOCs, SVOCs, PCBs,
Pesticides

MEDIA OF CONCERN: Soil,
Sediment, Surface Water

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199309	200306

RC DATE: 200306

PICA-108 (SITE 139)

BLDGS IN 400/300 AREA (PAGE 1 OF 3)

SITE DESCRIPTION

This site consists of Building 424 and the surrounding area. Bldg 424 was constructed in 1903 as a high explosives plant. As a high explosives plant, operations at Bldg 424 involved the use of a nitrocellulose-based slurry. After production of explosives ceased, all production equipment was removed, except for the neutralization and acid tanks. The building was then used as a grains-dimensioning laboratory and as a storage facility. Recently, Bldg 424 was used for nitration and testing of combustible cartridge cases. The building is currently inactive.

According to a 1964 DEH engineering drawing (DP-141463), a sump was located inside Building 424 and was used for the collection of overflow production water. The sump discharged to the marsh area southwest of the building via an open trough and a small outfall ditch. The ditch, located to the south of Building 423, is associated with the open trench portion of the Guncotton Line, which received liquid waste containing nitrocellulose, referred to as guncotton.

Soil samples collected during the Phase I RI detected concentrations of PAHs, metals and PCBs in excess of LOCs. Surface water samples collected from the marsh detected LOC exceedances for metals. Corresponding sediment samples contained elevated levels of PAHs and metals. The VOC, methylene chloride and several metals were detected at concentrations in excess of LOCs in the groundwater samples. Human health risk falls within the target range (1×10^{-4} to 1×10^{-6}). The hazard index exceeds the target level of 1. Mercury was identified as the primary hazard driver in soil, sediment, and surface water. Results of the adult lead model indicated lead is a potential health risk in soil. The Phase I ERA concluded that this site poses a high risk to certain avian species and terrestrial invertebrates. Based on the results of the Phase I ERA, an additional ecological investigation was conducted at the site in Spring/Summer 2005. Though the food web exposure models indicated that adverse effects to terrestrial receptors could occur given sufficient exposure to site COPECs, the field investigations and RSA results indicated that affects, if any, were not impacting the local populations of small mammals or birds. For aquatic receptors, the results of the lines of investigation (i.e., vegetation and benthic

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

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

MEDIA OF CONCERN: Soil,
Sediment, Groundwater, Surface
Water

Phases	Start	End
PA.....	197607	198105
SI	198707	198906
RI/FS.....	199309	200808
IRA.....	200308	200410
RD.....	200604	200902
RA(C).....	200604	200906
LTM.....	200907	203906

RC DATE: 200906

PICA-108 (SITE 139) BLDGS IN 400/300 AREA (PAGE 2 OF 3)

surveys) provided sufficient weight-of-evidence to suggest that the aquatic ecosystems at the site are not adversely affected due to the presence of site-related COPECs in the sediment or surface water.

During the Phase II RI, sediment samples from the drainage ditch contained elevated levels of several explosive compounds and metals. In order to delineate the existing contamination, and investigate other potential sources at the site, additional samples were collected in 2000 and 2001.

Based on the results of these samples, and a recommendation from NJDEP, one monitoring well was installed to determine the impact of lead contamination in the soil on groundwater quality at the site. Lead was not detected in the groundwater sample. In 2006 this same well was sampled to determine the impact of the explosives contamination in the ditch on the groundwater quality downgradient of the ditch. No explosives concentrations were detected in excess of LOCs.

The neutralization tank and approximately 94 cy of soil were removed from the southern corner of Building 424 between June and September 2004. Additionally, approximately 1,759 gallons of water within the neutralization tank were drained, sampled, and disposed of off site as non-hazardous waste. Post-excavation samples indicated lead and SVOC concentrations were below LOCs.

The oil/water separator, concrete pad, and approximately 2 cy of soil were removed from the west side of Building 424 between June and September 2004. Post-excavation results indicated that no SVOCs, metals, or explosives were identified above LOCs. Nitrocellulose was identified at a final concentration of 9.3 mg/kg.

In 2003, PICA-104, 107, 109, 138, 147 and 210 were listed as response complete in AEDB-R and will be addressed under PICA-108.

Currently the ERA is being preformed at PICA-104, 107 and 108.

CLEANUP STRATEGY

A FS, PP and ROD will be completed in FY07.

It is assumed LUCs will be the remedy for PICA-104, PICA-109, PICA-138, and PICA-147. It is expected that annual chemical and biological monitoring of the marsh and intermittent drainage ditch will be conducted. Maintenance of the existing engineering cover at PICA-104, 109, 138 and 147 will be performed. The Site is included in the PBC.

No further action is recommended for PICA-210.

PICA-108 (SITE 139)

BLDGS IN 400/300 AREA (PAGE 3 OF 3)

Due to the numerous AOCs associated with PICA-108 and PICA-107, the varying degrees of contamination and the already completed removal actions, various remedies are likely to be implemented.

PICA-104 (PART OF PICA-108) (SITE 111) BLDGS 454&455, PROPELLANT BAG FLG AREA

SITE DESCRIPTION

This site includes Buildings 454 and 455 and encompasses an area of ~3 acres (former railroad track area). Bldg 454 was used to fill bags with black powder. The bags were manufactured in Bldg 455. Bldg 454 is currently used for storage of books and files, while Bldg 455 is used as an office building.

Analytical results of surface soil samples, collected at this site during the Phase I RI, indicated PAHs and metals were detected in some samples at concentrations above LOCs. Human health risk falls within the target range (1×10^{-4} to 1×10^{-6}). Nitroglycerine was identified as the primary risk driver in soil. The hazard index does not exceed the target level of 1. The adult lead model results indicate lead concentrations in soil may be a health concern. However, no lead concentrations exceeded the LOC of 600 mg/kg. A screening-level ERA conducted in 2005 concluded that based on the limited area of contamination and the lack of habitat, further ecological investigation was not warranted for the site. In order to delineate the extent of PAH contamination in the soil, additional samples were collected in 2000 and 2001. Nine out of the ten samples contained PAH compounds in excess of LOCs. Since the PAHs are associated with old railroad tracks at the site, no additional sampling will be conducted to complete the delineation.

In 2003, PICA-104, 107, 109, 138, 147 and 210 were listed as response complete in AEDB-R and will be addressed under PICA-108.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

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

MEDIA OF CONCERN: Soil,
Sediment, Groundwater, Surface
Water

Phases	Start	End
PA.....	197607	198105
SI	198707	198906
RI/FS.....	199309	200306

RC DATE: 200306

PICA-107 (PART OF PICA-108) (SITE 138) BLDGS 404, 407&408 CHMCL LAB&PROP PLANTS

(PAGE 1 OF 2)

SITE DESCRIPTION

This site has an area of ~7 acres and includes Bldgs 404, 407 and 408. Bldg 404 was originally constructed as a storehouse for sodium nitrate. The bldg was modified in the 1950s for use as a scientific lab. The lab was used for conducting physical research, including bomb testing and pyrometry. A physical-chemical laboratory was located in Bldg 404 from 1958 to 1975. Currently, Bldg 404 is used as a machine shop and for test burning propellants. Bldg 407 was originally used as an experimental chemistry lab, and was subsequently used as an energetics lab for propellant manufacturing. Bldg 407 is currently used for electronic testing. Bldg 408 was originally used for the experimental loading and nitrating of cottons, linens, and wood pulp for the production of NC. Bldg 408 was modified for use as a chemical research facility in the experimental pressing of explosives. In 1974, the bldg was used as a lead azide production facility. Currently, Bldg 408 is used for chemical storage.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:

VOCs, PAHs, PCBs, Explosives, Metals

MEDIA OF CONCERN: Soil, Sediment, Groundwater, Surface Water

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198707	198906
RI/FS	199309	200306

RC DATE: 200306

Well 410, an active drinking water supply well, located near Bldg 407, has contained elevated levels of VOCs and explosives. An investigation to determine the potential source of the contamination concluded that the most likely source of the VOCs was the former machine shop located near Bldg 407.

Environmental samples collected during the Phase I RI indicated surface soil exceedances for PAHs, metals, and pesticide, dieldrin. Surface water exceedances detected in samples from the drainage ditches include several metals. Associated sediment samples contained exceedances for PAHs, metals, and cyanide. Groundwater exceedances in the overburden aquifers include TCE and metals. Human health risk falls within the target range (1×10^{-4} to 1×10^{-6}). The hazard index exceeds the target level of 1. Manganese was identified as the primary hazard driver in soil. The adult lead model results indicate lead is not a health concern. The Phase I ERA concluded that this site poses a high risk to certain organisms such as birds and terrestrial invertebrates. Based on the results of the Phase I ERA, an additional ecological investigation was conducted in 2005. Though the food web exposure models indicated that adverse effects to terrestrial receptors could occur given sufficient exposure to site COPECs, the field investigations and RSA results indicated that affects, if

PICA-107 (PART OF PICA-108) (SITE 138) BLDGS 404,407&408 CHMCL LAB&PROP PLANTS

(PAGE 2 OF 2)

any, were not impacting the local populations of small mammals or birds. For aquatic receptors, the results of the lines of investigation (i.e., vegetation and benthic surveys) provided sufficient weight-of-evidence to suggest that the aquatic ecosystems at the site are not adversely affected due to the presence of site-related COPECs in the sediment or surface water. In order to delineate the extent of soil and sediment contamination, additional samples were collected in 2000 and 2001. Based on the results of these samples, the extent of contamination is widespread. The probable source of the PAH and metals contamination is believed to be the fill material used in this area.

In 2003, PICA-104, 107, 109, 138, 147 and 210 were listed as RC in AEDB-R and will be addressed under PICA-108.

PICA-109 (PART OF PICA-108) BLDGS 427&427B, PROPELLNT PROC (SITE 140)

SITE DESCRIPTION

Site 140 consists of Buildings 427 and 427-B, and has an area of about 1.3 acres. Bldg 427 is a one-story structure with a total area of 6,285 ft². Bldg 427 was constructed in 1938 as a manufacturing plant for propellants. Propellant manufacturing at Bldg 427 involved the blending of energetic materials (e.g., nitrocellulose (NC), nitroguanidine (NG), 1,3,5,7-tetranitro-1,3,5,7-tetrazacycloctane [HMX], hexahydro-1,3,5-trinitro-sym-triazine [RDX]) with solvents (e.g., acetone, ether) in order to decrease their sensitivity. Explosives contaminated wash-down water was stored in two catch tanks. According to PTA personnel, the catch tanks have been used since 1981. Prior to 1981, the wash down water was likely discharged directly to the ground surface. Bldg 427-B was constructed in 1939 as a dry house. Bldg 427-B has a storage space and three rooms where RDX, HMX, and other types of smokeless powders were dried prior to being processed into propellants in Bldg 427.

Site 140 underwent a remedial investigation in 1994. There were exceedances of metals, pesticides, PCBs, and BNAs in sediment. The HHRA indicated that carcinogenic risk falls between the 1x10⁻⁴ and 1x10⁻⁶ range. Hazard indices were all below one. In the Phase I RI, an ecological risk assessment was not performed at this site because neighboring sites had more representative habitat. In 2000, a risk management plan was written for this site. The plan compared Site 140 data to the neighboring site ERA and determined that there was ecological concern for avian receptors. The recommendation of the risk management plan was to proceed to FS to address human health and ecological concerns. As part of the sump investigation, two sumps and approximately 2 cy of soil were removed in December 2003. Post-excavation results did not identify any baseline explosives above their LOCs.

In 2003, PICA-104, 107, 109, 138, 147 and 210 were listed as response complete in AEDB-R and will be addressed under PICA-108.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

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

MEDIA OF CONCERN: Soil, Sediment, Groundwater, Surface Water

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199309	200306

RC DATE: 200306

PICA-138 (PART OF PICA-108) ELECTROMAG. GUN TEST SHED(BLDG329) (SITE 90)

SITE DESCRIPTION

Building 329 was constructed in 1903 as a storage magazine, but was utilized in the production of explosives during World War I and World War II. Currently, Building 329 is used as an electromagnetic gun test range. According to the PTA transformer database, the three 50-KVA transformers, located on the eastern side of Building 329, have Aroclor-1260 concentrations of 183, 324, and 376 ppm. In 1963, there was a production-related explosion at Building 329. The explosion appeared to have no environmental impact. There were also several small spills of oil in Building 329 between 1988 and 1989. According to PTA personnel, any contaminated soils were removed.

In 1991, a RCRA closure was performed on two detached sheds that were used to store solvents. According to NJDEP correspondence, no further action is required for the closure area. Phase II RI activities included the installation of one monitoring well and the collection of soil, groundwater and sediment samples. Several metals were identified at concentrations exceeding LOCs in the surface soil, on the eastern side of Building 329, during the Phase II RI. PCBs and SVOCs were also detected in excess of LOCs, in surface soil collected at a transformer pad. In addition, SVOCs and metals were reported above LOCs in a sediment sample collected from a swamp southeast of the building. Additional sampling performed in 2001 delineated the extent of the soil contamination at the site. One monitoring well was installed in 2002. Analytical data from the monitoring well indicate that the groundwater quality has not been impacted by the soil contamination at the site. The results of the HHRA indicated that the estimated cancer risk from exposure to surface soil by the site industrial research worker is within the target risk range of 1×10^{-4} to 1×10^{-6} . The estimated hazard from exposure to surface soil is below the target threshold level of 1. The estimated risk and hazard from exposure to subsurface soil are below the target levels. The adult lead model results indicate lead is not a health concern.

In 2003, PICA-104, 107, 109, 138, 147 and 210 were listed as response complete in AEDB-R and will be addressed under PICA-108.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:

VOCs, PAHs, PCBs, Explosives, Metals

MEDIA OF CONCERN: Soil, Sediment, Groundwater, Surface Water

Phases	Start	End
PA	197607	198105
SI.....	198910.....	199103
RI/FS	199502.....	200306

RC DATE: 200306

PICA-147 (PART OF PICA-108) ADMINISTRATION BLDG (BLDG 382) SITE 137

SITE DESCRIPTION

Building 382 was constructed in 1942 as a general-purpose administration building. According to engineering drawings from the mid-1960s, waste products, resulting from dredging operations in Picatinny Lake, were buried in disposal pits between Buildings 382 and 321, along with ammunition boxes and tubes.

Phase II RI activities conducted at the site in 1996 included the performance of geophysical surveys, the excavation of test pits, the installation of monitoring wells and the collection of soil and groundwater samples. The geophysical surveys were conducted to locate the waste disposal areas. Test pits, excavated to characterize the potential waste areas, did not uncover any buried ordnance. However, construction debris was identified in each pit, including large pieces of scrap metal, reinforced concrete and piping.

During the RI, elevated levels of SVOCs were identified in soil adjacent to a transformer pad; elevated levels of arsenic were detected in surface and subsurface soil near the waste disposal areas. Additional sampling was conducted in 2001 to delineate the extent of the soil contamination at the site. Results of a HHRA indicate the risks and hazards from surface soil exposure at the site are below the target levels of 1×10^{-4} and 1, respectively. The risk from subsurface soil exposure is also below 1×10^{-4} , while the hazard for this exposure is equal to 1. In addition, TCE was reported in both monitoring wells at the site.

In 2003, PICA-104, 107, 109, 138, 147 and 210 were listed as response complete in AEDB-R and will be addressed under PICA-108.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

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

MEDIA OF CONCERN: Soil, Sediment, Groundwater, Surface Water

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS.....	199502	200306

RC DATE: 200306

PICA-210 (PART OF PICA-108) BUILDING 321 (PAGE 1 OF 2)

SITE DESCRIPTION

Building 321, constructed in 1903, is located in the Powder Production Area. This building originally served as a storehouse for fused projectile "O." The building was adapted for laboratory and machine shop use in the early 1960s, and was converted to its present use as an administrative office in the early 1980s. The area around Building 321 is paved on the southeast side, with two abandoned railroad tracks running along the side of the building. The rail line closest to the building was most likely a loading and unloading area for the building, since there is a loading dock on this side of the building. Near one of the former loading docks, on the western side of the building, the porch floorboards are discolored, possibly oil soaked. It appears to be the result of spills occurring near the door area. USACHPPM collected two samples from the surface soil, under the 20 feet long by 6 feet wide oil stain on the porch. The samples were analyzed for metals, SVOCs, PCBs, pesticides and explosives. The analytical results indicated that arsenic and zinc exceeded their LOCs.

During excavation of the sewer line southeast of Building 321, hydrocarbon odors were noted from the excavated soil. Two samples were collected from the staged soil piles and the trench. BTEX compounds were detected in the soil pile samples, but the concentrations were below LOCs. Soil samples collected from the sewer line trench also did not contain any VOC concentrations above LOCs, but lead and chromium were detected in excess of their LOCs.

In order to delineate the extent of the reported soil contamination, additional soil samples were collected near the oil stained floorboards, and on each side of the replaced sewer pipe in 2000. Results of the samples collected near the floorboards identified elevated levels of zinc. No exceedances were detected in the subsurface soil samples collected near the sewer pipe. No additional sampling is proposed for this site. Results of a HHRA indicate the risks from soil exposure at the site are within or below the target levels of 1E-4 to 1E-6. Arsenic was identified as a risk driver in surface soil. The non-carcinogenic hazard does not exceed the HI criterion of 1. A screening level ecological risk assessment was conducted for the site in 2005. Though a potential risk to wildlife could exist if there were sufficient exposures to COPECs, the fact that the majority of the 0.6 acre site is paved

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

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

MEDIA OF CONCERN: Soil,
Sediment, Groundwater, Surface
Water

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	199309	199604
SI	199608	199806
RI/FS.....	199809	200306

RC DATE: 200306

PICA-210 (PART OF PICA-108) BUILDING 321 (PAGE 2 OF 2)

and surrounded on three sides by roads and the lack of suitable habitat at the site restricts the need for any further ERA.

An interim removal action for zinc was conducted in November 2003 part of the facility-wide sump and dry well investigations. Approximately 24 cy of soil were removed from underneath the stained floorboards. Post-excavation results did not identify any zinc concentrations above LOCs.

In 2003, PICA-104, 107, 109, 138, 147 and 210 were listed as response complete in AEDB-R and will be addressed under PICA-108.

PICA-111 (SITE 142)

FORMER BLDG 435, PROPELLANT SOLV MIXING

(PAGE 1 OF 2)

SITE DESCRIPTION

This site is not included in the PBC.

This site consists of former Building 435 and the surrounding area. Bldg 435 was constructed in 1918. Information regarding the use of Bldg 435 was unavailable between the years of 1918 and 1950. In the early 1950s, the building was used for pulverizing operations in the preparation of experimental propellants. The activities involved the mixing of potassium nitrate with sulfur and charcoal to form black powder. Potassium perchlorate was then mixed with the black powder to make a detonating agent. Pulverizing operations at Bldg 435 ceased in 1976. The building was subsequently used to mix solvents for propellant production. The 1991 ANL RI Concept Plan indicated that ethyl acetate and acetone were potentially used in Bldg 435. No information was available on when solvent mixing operations were discontinued. Bldg 435 was demolished under TECUP in Sept 2000.

A RCRA closure was performed at Bldg 435 in 1991. Two surface soil samples were collected outside the building. The analytical results indicated that copper was the only compound detected above its LOC. In December 1992, correspondence to PTA, NJDEP stated that the closure was incomplete and would require further investigation under CERCLA. In order to delineate the extent of soil contamination at this site, four soil samples were collected in 2000. No LOC exceedances were identified in the soil samples. A very high lead concentration was detected in the sediment sample collected from the seep vat. Metals and perchlorate were detected at concentrations exceeding LOCs in the groundwater sample. Lead and perchlorate (600 ppb) contamination was delineated in 2001. Estimated cancer risks are below or within USEPA's target range of 1E-4 to 1E-6 for all exposure scenarios. The estimated non-cancer hazards are all below USEPA's target threshold of 1. However, results of the site specific lead exposure assessment indicated lead is a concern at the site. The adult lead model indicated that lead poses a health risk. A screening level ERA was conducted for this site in the Spring/Summer 2005. With the removal of the lead contamination (as noted below), the only apparent contamination at the site is perchlorate in groundwater. Samples from Green Pond Brook, the potential discharge point for groundwater did not contain detectable levels of perchlorate in the

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals, Perchlorate

MEDIA OF CONCERN: Soil,
Groundwater

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199309	200709
IRA	200308	200410
LTM	200710	203809

RC DATE: 200709

PICA-111 (SITE 142) FORMER BLDG 435, PROPELLANT SOLV MIXING (PAGE 2 OF 2)

surface water. Thus, there is no complete exposure pathway for ecological receptors from groundwater or Green Pond Brook, and further ecological investigation is not warranted.

An interim Removal action for lead and perchlorate was conducted between May and June 2004 as part of the facility-wide lead removal investigation. Approximately 15 cy of soil were removed from the site of the former wooden seep vat and trough. Post-excavation results did not identify any lead concentrations above the LOC.

In 2003, PICA-106, 113, 115, 144 and 203 were listed as response complete in AEDB-R and will be addressed under PICA-111.

CLEANUP STRATEGY

A FS to include a PP and ROD is currently being prepared for PICA-111.

LTM to include performance monitoring and LUCs is recommended for Green Pond Brook and GW at PICA-111. Three wells will be monitored quarterly for two years and annually for eight years for perchlorates and metals. The LUCs will include maintenance of existing engineering covers at PICA-106, 113, 115 and 144. NFA is proposed for PICA-203

PICA-106 (PART OF PICA-111) BLDGS 172 & 183 (SITE 125) & BLDGS IN 400 AREA

SITE DESCRIPTION

This site is approximately 1.5 acres in area, and consists of Buildings 172 and 183. Building 172 was constructed in 1942 as an ordnance administration building, and is currently still used for administrative purposes. Building 183, constructed in 1945, is a lubricant testing area.

According to PTA documentation, two PCB-containing transformers were located at Building 183. One of the transformers caught fire in March 1989, and subsequently spilled PCBs. This spill was reportedly cleaned up; however, specific information regarding this action was unavailable.

Surface soil samples collected during the Phase I RI did not contain any concentrations in excess of LOCs. Carcinogenic human health risk was below 1×10^{-6} . Likewise, the non-carcinogenic hazard was below the target level of 1. Based on the results of the Phase I 2A/3A RI, no COPCs were selected for PICA-106. A screening level ERA was conducted for this site in Spring/Summer 2005. Though there is a potential for risk to wildlife, if exposures were significant, very little suitable habitat exists for most species, and as a result, restricts the need for further ERA. However, in response to NJDEP's request for further investigation of the PCB remediation area, four subsurface soil samples were collected in this area, and analyzed for PCBs. No samples contained PCBs at concentrations above LOCs. No further sampling is proposed for this site.

In 2003, PICA-106, 113, 115, 144 and 203 were listed as response complete in AEDB-R and will be addressed under PICA-111.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals, Perchlorate

MEDIA OF CONCERN: Soil,
Groundwater

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS.....	199309	200306

RC DATE: 200306

PICA-113 (PART OF PICA-111) BLDG 462, PROPELLANT FINISHING (SITE 144)

SITE DESCRIPTION

Bldg 462 has been used for various munitions manufacturing processes since its construction. In the 1940s, finished gun bags were transported from Building 462 via railroad to various storehouses, packing, and shipping buildings for final preparations before shipment off post. In 1947, Building 462 was temporarily converted to a rocket facility. During the Vietnam War, the building was used as a solventless propellant finishing facility. According to PTA safety files, Building 462 was used for explosive chemical manufacturing in November 1993. The building is currently used in the research and development of energetic materials.

Four surface soil samples were collected at this site during the Phase I RI and analyzed for VOCs, SVOCs, explosives, metals, and cyanide. The analytical results indicated no analytes were detected above LOCs. However, an evaluation of area-wide groundwater results indicated that PCE and TCE exceeded their LOCs. Carcinogenic human health risk does not exceed 1×10^{-6} . Likewise, non-carcinogenic hazard is below the target level of 1. Based on the results of the Phase I 2A/3A RI, no COPCs were selected for PICA-113. A screening level ERA was conducted for this site in Spring/Summer 2005. Though a potential risk may exist to wildlife if there were significant exposures to COPECs, based on the lack of habitat and the lack of significant contamination, exposures are expected to be significantly limited and a BERA is not recommended for the site. In response to NJDEP's request for additional samples, one soil boring was drilled down-gradient of the catch tank, at the southern side of the building, and a soil sample was collected from a rock-lined drainage ditch. The soil samples were analyzed for VOCs, SVOCs, PCBs, metals, and explosives. No samples contained concentrations in excess of LOCs and no further sampling is proposed for this site.

In 2003, PICA-106, 113, 115, 144 and 203 were listed as response complete in AEDB-R and will be addressed under PICA-111.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals, Perchlorate

MEDIA OF CONCERN: Soil,
Groundwater

Phases	Start	End
PA	197607	198105
SI.....	198707	198906
RI/FS.....	199309.....	200306

RC DATE: 200306

PICA-115 (PART OF PICA-111) BLDG 497, POWDER PRESSING (SITE 146)

SITE DESCRIPTION

Building 497 was constructed in 1956 as a mix house. In 1971, Building 497 was used for powder pressing operations. The building was demolished in September 2000 under TECUP. A dumping and debris area is located in the woods southwest of the building.

Surface soil samples collected during the Phase I RI were analyzed for VOCs, SVOCs, explosives, metals, and cyanide. Analytical results of the surface soil samples indicated lead concentrations in excess of its LOC. Human health risk is below the target range (1×10^{-4} to 1×10^{-6}). The hazard index exceeds the target level of 1. The primary hazard driver was identified as antimony. Results of the lead risk model indicate lead is a potential health concern at the site. Modeled risk to certain avian species was deemed high. Based on the results of the Phase I ERA, an additional ERA was conducted for this site in Spring/Summer 2005 to address potential risks to birds. The data from the breeding bird nesting success surveys provided sufficient information to suggest that the birds are not significantly affected by exposures in the soil or food items (e.g. earthworms) to have adverse effects on the local populations. In response to NJDEP comments on the Phase I RI report, additional soil samples were proposed for this site, but due to demolition and regrading activities at the site, only one sample was collected in the dumping and debris area. This sample did not contain elevated chemical concentrations. No further sampling is proposed for this site.

In 2003, PICA-106, 113, 115, 144 and 203 were listed as response complete in AEDB-R and will be addressed under PICA-111.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals, Perchlorate

MEDIA OF CONCERN: Soil,
Groundwater

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI.....	198707	198906
RI/FS.....	199309.....	200306

RC DATE: 200306

PICA-144 (PART OF PICA-111) PYROTECHNIC PLANT (BLDG 445) SITE 109

SITE DESCRIPTION

This 1.6-acre site consists of Buildings 445 and 445-D. Both buildings were used for the mixing, manufacturing and storage of pyrotechnics to include single-, double-, and triple-base propellants. Building 445 was originally constructed as a gun-bag loading facility, where propellants were loaded into gun-bags. Sumps located down-gradient of each building, received wash-down water, which eventually discharged to Picatinny Lake. Wash-down water was also discharged to an evaporation bed. Solid residues from the evaporation bed were disposed at the PTA Burning Ground. Both buildings were declared structurally unsound, and demolished under TECUP in 1997.

Phase II RI activities conducted at this site included the installation of three monitoring wells and the collection of soil, groundwater and sump samples. The RI results identified surface water and sediment contamination in the sumps, and 2,4-DNT and metals in the soil at concentrations greater than LOCs. Results of a risk assessment, to evaluate humans' exposure to contaminated surface water and sediment within the sumps, indicate that the cancer risks are below the target level of 1×10^{-4} but the non-cancer hazard exceeds the threshold value of 1. However, actual exposure to the impacted media within the sumps is expected to be minimal.

Additional sampling conducted in 2001 has delineated the extent of the soil contamination. The sump was removed in 2003 along with any impacted soil. The results of the HHRA for the soil exposures indicate the estimated total cancer risk for the industrial research worker is equal to the upper end of the USEPA's target risk range of $1E-4$ to $1E-6$. The primary risk drivers identified in the surface soil are PAHs. The estimated total hazards for surface soil exposure are below USEPA's target non-cancer hazard threshold of 1. The estimated total risk for the construction excavation worker is within USEPA's target risk range. However, the total hazard for subsurface soil exposure is above the threshold of 1. The primary hazard driver identified in the subsurface soil is arsenic.

In 2003, PICA-106, 113, 115, 144 and 203 were listed as response complete in AEDB-R and will be addressed under PICA-111.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals, Perchlorate

MEDIA OF CONCERN: Soil,
Groundwater

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS.....	199502	200306

RC DATE: 200306

PICA-203 (PART OF PICA-111) FORMER POISON GAS LAB

SITE DESCRIPTION

From about 1922 until 1926, former Buildings 333 and 347 were used as a poison gas laboratory and sample handling house, respectively. Work at these facilities included laboratory testing using normal poisonous gases in experiments for propellants. Following an explosion in 1926, the buildings were never rebuilt. The current Building 445 complex likely overlies most if not all of the former buildings.

In 1918, a 10-foot by 12-foot concrete solvent vault was located near Building 332. No information is available on the depth or volume of the vault. It is not known whether the vault is still present or how it was abandoned.

Environmental samples collected, during the CHPPM investigation in 1997, detected arsenic and lead in the groundwater in excess of their respective LOCs. No exceedances were reported for the soil samples. In order to confirm the results of the CHPPM investigation, investigate the concrete vault area, and obtain additional data to perform a HHRA, three soil borings were drilled at the site in 2001. Surface and subsurface soil samples were collected and analyzed for VOCs, SVOCs, explosives, metals, and cyanide. No exceedances of LOCs were reported in the soil samples. Results of the HHRA indicate that the estimated total cancer risks for exposure to surface soil and subsurface soil are within USEPA's target cancer risk range of 1E-4 to 1E-6, and the estimated total hazards from surface soil and subsurface soil exposure are below USEPA's target non-cancer hazard threshold of 1. There is little cover for terrestrial species at PICA Site 203. Thus, foodchain effects are unlikely.

In 2003, PICA-106, 113, 115, 144 and 203 were listed as response complete in AEDB-R and will be addressed under PICA-111.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals, Perchlorate

MEDIA OF CONCERN: Soil,
Groundwater

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	199309	199604
SI	199608	199806
RI/FS	199809	200306

RC DATE: 200306

PROPELLANT TESTING (BLDG 197) SITE 126

SITE DESCRIPTION

Building 197 is in an area of PTA used for chemistry and other testing laboratories. The building was constructed in 1942 for surveillance testing. The building is now used for propellant testing, which is conducted in a conditioning chamber in the building. The building had an explosives allowance for up to 5 lbs of explosives.

The Phase I RI conducted in 1994 included the collection of surface soil samples for analysis of VOCs, BNAs, metals, cyanide, explosives, and pesticide/PCBs. Metals were detected in exceedance of LOC. In 2000 and 2001, additional investigation was performed for the Phase I 2A-3A Sites RI. This investigation consisted of the collection of surface and subsurface soil for arsenic, copper, and cadmium in soil. The Phase I ERA concluded that neither the small mammal studies, nor the earthworm toxicity studies found any significant impacts in this area.

Estimated risks for the realistic exposure scenarios are within or below USEPA's target range of 1E-4 to 1E-6. The estimated hazards for the construction worker exceed the target threshold of 1. The primary risk and hazard drivers are arsenic and cadmium in soil.

CLEANUP STRATEGY

A FS to include a PP and ROD will be completed. Maintenance of existing LUCs will be recommended as the remedy for this site.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals

MEDIA OF CONCERN: Soil

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198910	199103
RI/FS	199309	200809
RD	200604	200902
RA(C)	200604	200902
LTM	200907	203906

RC DATE: 200906

SITE DESCRIPTION

This site consists of Building 3028, a research and development laboratory, and Building 3029, a general purpose warehouse. Bldg 3028 operated as a supply-storehouse until 1980. Between 1980 and 1982, the building was renovated to be used as laboratories and offices. Use of the research and development laboratories began in 1982. Bldg 3028 is currently used as an explosive chemistry laboratory. The transformer, located on the western side of Bldg 3028, had an Aroclor-1260 concentration of 194 ppm. The transformer was removed.

Mercury vapor was discovered in one of the laboratories during air sampling in 1990. It was suspected that the mercury came from damaged test equipment. The mercury contamination was remediated. Small amounts of mercury may have also gone down sink and floor drains, as a result of periodic mercury spills that occurred during routine laboratory activities. Radioactive material and equipment with radioactive sources were periodically used in the building. All radioactive materials have reportedly been removed from the building. In 1991, a RCRA closure was performed for specific laboratory areas inside Bldg 3028. As part of the closure, the designated areas were cleaned. In 1992, NJDEP approved the closure. Bldg 3029 is connected to the north end of Bldg 3028. The building, currently vacant, once operated as an unofficial warehouse for storage of chemicals and equipment used in Bldg 3028. In 1991, a RCRA closure was performed to remove chemicals and equipment from the building. The building was demolished and a surveillance facility was constructed in its place. A clean closure was approved by NJDEP in 1992.

Phase II RI activities were conducted in 1996. The radiological survey detected two samples with radiological concentrations above LOCs. During the RI, beryllium and PAHs were detected above LOCs in soil. Results of a HHRA indicated that the risks and hazard indices associated with exposure to soil, at the site, do not exceed the target levels. In response to regulatory comments on the RI report, one soil sample was collected for PAHs during additional RI activities in 2001. No exceedances of PAH LOCs were reported in the sample. No further sampling is proposed.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
PAHs, Beryllium

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199502	200808
RD	200604	200902
RA(C)	200604	200906
LTM	200907	203906

RC DATE: 200906

PICA-134 (SITE 70)

R&D LAB/CHEM STORAGE 3000-AREA (PAGE 2 OF 2)

In 2003, PICA-012 and 018 were listed as response complete in AEDB-R and will be addressed under PICA-134.

CLEANUP STRATEGY

A FS, PP and ROD will be completed. LUCs are expected at PICA-012, 018 and 134. The site is included in the PBC.

PICA-012 (PART OF PICA-134) BLDG 3022 PHYS ANALYSIS LAB/ENERG (SITE 83)

SITE DESCRIPTION

The majority of Bldg 3022 is currently a laboratory where chemistry and physics research is conducted for energetics development and testing. The northern wing of Bldg 3022, formerly Building 3021, is currently used to store radioactive source materials. All radioactive materials are stored in double-sealed containers, and there have been no reported detections of radiation leaks.

In 1991, a RCRA closure was performed for specific laboratory areas within the building. The closure included removing waste from the first-floor laboratories, and washing the walls and floors. NJDEP reported that no further action was required for the closure area. Phase II RI

activities included a radiological survey and collection of soil samples. No soil samples collected during the radiological survey exceeded the LOC of 11 pCi/g. Marginal exceedances of LOCs were identified for arsenic and lead in surface soil samples collected during the Phase II RI at the site. Results of a HHRA for soil exposure at the site indicated that the risks and hazard indices are below the target levels of 1×10^{-4} and 1, respectively. The adult lead model results indicate lead concentrations in surface soil and subsurface soil are not a health concern.

NJDEP and EPA have not requested any additional sampling and no additional RI activities are planned for the site. An FS has been recommended to address soil contamination above LOCs.

In 2003, PICA-012 and 018 were listed as response complete in AEDB-R and will be addressed under PICA-134.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
PAHs, Beryllium

MEDIA OF CONCERN: Soil

Phases	Start	End
PA.....	197607	198105
SI	198707	198906
RI/FS	199502	200306

RC DATE: 200306

PICA-018 (Part of PICA-134) FLUOROCHEMICAL STRG (BLDG 3045) (SITE 30)

SITE DESCRIPTION

Building 3045 consists of an earth-covered concrete structure constructed in 1918 as a magazine to store ammunition and gas cylinders. Building 3045 was formerly used to store rocket propellant fuels in the 1960s. Following a 1991 RCRA closure, the building has been inactive. According to NJDEP correspondence, the closure area does not require further action.

Phase II RI activities, conducted in 1996, included the collection of surface and subsurface soil samples around the magazine. SVOC and arsenic soil contamination was identified during the RI, in a small area, in front of the magazine and behind the blast wall. Additional samples, collected in 2001, completed the delineation of the arsenic and SVOC contamination. Results of the HHRA performed for this site indicate that the risk from exposure to surface soil exceeds the target level of 1×10^{-4} , with arsenic and PAHs the primary risk drivers.

In 2003, PICA-012 and 018 were listed as response complete in AEDB-R and will be addressed under PICA-134.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
PAHs, Beryllium

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199502	200306

RC DATE: 200306

BLDGS IN THE 900-AREA (PAGE 1 OF 2)

SITE DESCRIPTION

Building 910 was constructed in 1950 for use as a storage magazine. The building, located on the northwestern shore of Picatinny Lake, was utilized until the 1970s for the environmental testing of munitions, to determine the effect of temperature and humidity on propellants and explosives. As of 1991, the building was empty except for five walk-in ovens used for drying propellants and explosives.

In 1991, RCRA closure activities were performed at Building 910 by washing down the walls and walk-in areas, and removing any remaining debris. The subject area received a clean closure from NJDEP in 1992. The RI conducted at the site in 1996 included the collection of soil, groundwater and sediment samples. Analytical results identified PAHs and metals in the surface soil, as well as metals in the sediment at concentrations in excess of their respective LOCs.

In response to regulatory comments on the RI report, additional soil samples were collected in 2001 to delineate the extent of soil contamination. Based on these results, the PAH contamination has been delineated. One additional sample, collected in 2002, completed the arsenic delineation. Results of a HHRA for soil, sediment and surface water exposures at the site indicated that the risks and hazard indices are below the target levels of 1×10^{-4} and 1, respectively. An FS will be necessary to address soil contamination above LOCs. Institutional controls will be considered as a potential remedy. The sediment contamination will be evaluated as part of Site PICA-057 (Picatinny Lake).

In 2003, PICA-137, 153 and 154 were listed as response complete in AEDB-R and will be addressed under PICA-135.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
Metals, PAHs

MEDIA OF CONCERN: Soil

Phases	Start	End
PA.....	197607	198105
SI.....	198910	199103
RI/FS	199502	200808
RD	200604	200906
RA(C)	200604	200906
LTM	200910	203909

RC DATE: 200906

BLDGS IN THE 900-AREA (PAGE 2 OF 2)

CLEANUP STRATEGY

NFA is proposed for PICA-153. Surface water and sediment contamination identified at the site will be addressed as part of Picatinny Lake (PICA-057).

A FS to include a PP and ROD will be completed for the other sites. A combination of existing LUCs will be recommended as a remedy for the sites. The Site is included in the PBC.

PICA-137 (PART OF PICA-135) X-RAY PHOTOPROCESSING LAB (BLDG 908) SITE 82

SITE DESCRIPTION

Building 908 was constructed in 1918 for use as a general purpose magazine. In 1945, a request was made to equip Bldg 908 with a radiographic inspection laboratory that would x-ray loaded shells for manufacturing defects. By 1964, several x-ray units were in operation in the building. There have been numerous concerns for high-energy gamma rays produced by the betatron x-ray units at the building. During periods of operation, despite the thick protective barriers and increased shielding, high levels of radiation were recorded in the building during radiation surveys conducted by PTA. Building 908 also housed a silver recovery unit from 1963 to 1983.

Phase II RI activities performed at this site included a radiological survey and the collection of soil, surface water and sediment samples. The radiological survey identified elevated alpha radiation and radium-226 levels near the southeastern portion of the building. Radium-226 has also been detected in soil at elevated levels, and is a contaminant of concern due to the radiological nature of operations performed at the site.

Additional samples were collected in 2001 to delineate the arsenic contamination in the soil. HHRA results indicate that the chemical risks and hazards associated with soil, sediment and surface water exposure at the site are below the target levels of 1×10^{-4} and 1, respectively. Radiological risk from exposure to surface soil exceeds the target level. Five radiological compounds were identified as risk drivers. An FS will be prepared to evaluate remedial alternatives for the residual soil contamination.

In 2003, PICA-137, 153 and 154 were listed as response complete in AEDB-R and will be addressed under PICA-135.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals, PAHs

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199502	200306

RC DATE: 200306

PICA-153 (PART OF PICA-135) HIGH-EXP MAGAZINE (BLDG 926) SITE 158

SITE DESCRIPTION

Building 926, located along the northern shore of Picatinny Lake, was built in 1922 as a high-explosive magazine. Building 926 was used to store lead azide, lead styphenate, and mercury fulminate until the mid 1960s. According to PTA documentation, all styphenates and azides were removed in the early 1980s. Concerns for contamination at Building 926 are a result of explosives being stored above or actually in Picatinny Lake. This storage method was utilized to decrease the electrostatic sensitivity of explosives by maintaining a humid environment.

Phase II RI activities conducted in 1996 included the collection of soil, surface water and sediment samples. Elevated levels of various metals were detected in two sediment samples, collected from Picatinny Lake, adjacent to the site during the Phase II RI. Risks and hazards from exposure to impacted media are below the target levels of 1×10^{-4} and 1, respectively. Results of a sediment bioassay did not indicate significant toxicity or adverse effects to the test organisms. Additional sampling performed in 2001 has characterized the extent of the sediment contamination at this site. No further sampling is proposed.

In 2003, PICA-137, 153 and 154 were listed as response complete in AEDB-R and will be addressed under PICA-135.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
Metals, PAHs

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS.....	199502	200306

RC DATE: 200306

PICA-154 (PART OF PICA-135) SUPPLIES & SER. BLDG (BLDG 975) SITE 159

SITE DESCRIPTION

Building 975 was constructed in 1942 for use as a bomb shelter. It was later utilized as the main office for the 800 building area. Building 975 was also used to store packed shells and explosives prior to shipment. In 1998, the building was demolished under TECUP. PTA engineering drawings indicated that a sump, on the south side of the building, may have received water from building wash-down activities. Lead azide was reportedly taken from Building 926 in 1983, and buried behind Building 975.

Phase II RI activities conducted in 1996 included performance of geophysical surveys, excavation of one test pit, performance of a radiological survey, installation of one monitoring well, and the collection of soil, groundwater, surface water and sediment samples. The geophysical surveys were conducted to locate the sump and the lead azide disposal pit. Samples collected from the sump during the Phase II RI indicated elevated levels of several metals in the sediment. A test pit and soil boring were used to characterize the anomaly, believed to be the lead azide pit, but no physical or chemical evidence of the pit was uncovered. Samples collected from the stormwater outfalls at Green Pond Brook (GPB) contained concentrations of SVOCs, pesticides, and metals above their respective LOCs. A bioassay conducted on sediment collected from GPB indicated significant mortality in one test species, but no adverse effect to the other test species, suggesting there is some potential for the sediment to affect certain benthic organisms. Human health risks and hazards from exposure to impacted surface water and sediment, within the sump and GPB, are below the target levels of 1×10^{-4} and 1, respectively. One additional sediment sample was collected from GPB in 2001 to delineate the vertical extent of contamination. In 2003, the sludge was removed from the sump, and the sump was demolished. Results of the HHRA evaluating risks and hazards from soil exposure indicate the risks and hazards are below the target levels.

In 2003, PICA-137, 153 and 154 were listed as response complete in AEDB-R and will be addressed under PICA-135.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals, PAHs

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199502	200306

RC DATE: 200306

HIGH PRESSURE BOILER (BLDG 3013) SITE 79

SITE DESCRIPTION

Built in 1901, Building 3013 was originally used as a main boiler house, but is currently used as an auxiliary boiler house. The building was also utilized in the production of explosives during World War I and World War II, and was expanded in the 1940s to include a water treatment system. In 1967, two 20,000-gallon USTs were installed for storage of fuel oil for the boiler. These USTs were in service until their removal in 1990. Discolored soil was noted after the tanks were removed. Currently, Bldg 3013 is inactive.

In 1991, a RCRA closure was performed that included removing waste material from the building, and decontaminating the waste storage area, in the westernmost corner of the building. In 1992, NJDEP approved the closure area. As a result of the identification of discolored soil during the removal of the two USTs, ~1,500 tons of contaminated soil were removed from a 15-ft deep excavation. Elevated levels of TPH were detected in the soil samples; VOCs and SVOCs were detected in the groundwater. In response to recommendations from the previously mentioned investigation, additional soil and groundwater samples were collected in 1994 to better define the contamination near the former USTs. No contaminant concentrations were reported above LOCs.

Phase II RI activities were conducted at the site in 1996. During the RI, TPHs were detected at high levels in three wells. Lead was reported at concentrations above LOCs in groundwater and soil. SVOCs and arsenic were also detected at concentrations in excess of LOCs in the soil. Additional investigations performed in 2000 delineated the extent of the arsenic and lead contamination in soil; however, additional samples were collected in 2001 to complete the PAH delineation in soil. The results of the HHRA indicated that the estimated cancer risk from exposure to surface soil is above the target risk level of 1E-4. The estimated hazard from exposure to surface soil is below the target threshold level of 1. The estimated risk from exposure to subsurface soil is within the target risk range of 1E-4 to 1E-6. The hazard from subsurface soil exposure is below the target level. The adult lead model results indicate lead concentrations in surface soil are not a concern as the average lead concentration (312 mg/kg) does not exceed the lead model-derived PRGs. In 2004 additional GW samples did not detect contamination above LOCs.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
SVOCs, TPH, Metals

MEDIA OF CONCERN: Soil

Phases	Start	End
PA.....	197607	198105
SI	198910	199103
IRA.....	199001	199208
RI/FS	199502	200808
RD	200604	200902
RA(C).....	200604	200906
LTM	200907	203906

RC DATE: 200906

HIGH PRESSURE BOILER (BLDG 3013) SITE 79

CLEANUP STRATEGY

A FS to include a PP and ROD will be completed. Excavation of ~44 cy of lead/arsenic contaminated soil will be evaluated. Following the excavation, LUCs will be implemented. The Site is included in the PBC.

ORDNANCE FAC (BLDGS 717,722,732) SITE 108

SITE DESCRIPTION

This large site consists of Building 717, an ordnance facility, former Building 722, a physics and flare-testing laboratory, and former Building 732, a physics laboratory and ordnance facility. All three buildings were located along the southwestern shore of Picatinny Lake. Building 717 was used as a major-caliber loading facility. In the 80s, the building was converted to ARDEC's Electromagnetic and Electrothermal/Chemical Armament Research Facility. This experimental station examines physical thrusts generated by addition of high electrical current to chemical oxidizers. Building 717 is currently still used for this purpose. Flares were tested on a peninsula (Flare Island), approximately 300 ft northeast of Building 717, from WWII until the 1970s. Several transformers at the site had contained PCBs. Building 722 was originally used as an office and testing laboratory, but was later converted to a flare testing facility. In 1991, Building 722 was turned over to the Fire Support Armaments Center, to support the operations of the Electric Gun Laboratory/Range in Building 717. A dark room, operated in Building 722, reportedly disposed of photographic processing chemicals down sinks and drains, which discharged to Picatinny Lake. Radiation surveys of the flare tunnel, performed because of the presence of a radiological source, indicated radiation readings above background. Building 722 was demolished under TECUP in 2004. Building 732 was used as a pyrotechnic facility. Wastewater from Building 732 was reportedly discharged to Green Pond Brook. Building 732 was demolished under TECUP in 2004.

Phase II RI activities included performance of a soil-gas survey, performance of a radiological survey, installation of three monitoring wells, and the collection of soil, groundwater, surface water, sediment and sump samples. RI results have identified several AOCs at the site, including metals contamination at Flare Island, metals and mirex contamination in the catch basins and sumps of Building 732, soil contamination on the south side of Building 722, and PCB contamination near a transformer pad. Results of bioassays conducted on site samples found significant toxicity to aquatic organisms, but no adverse effects on soil invertebrates. Additional sampling was performed in 2001 to delineate the extent of contamination at the various AOCs. The sumps at Building 732

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: SVOCs, PCBs, Metals

MEDIA OF CONCERN: Soil, Sediment

Phases	Start	End
PA.....	197607	198105
SI.....	198910	199103
RI/FS	199502	200710
RD.....	200604.....	200804
RA(C).....	200604.....	200808

RC DATE: 200808

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ORDNANCE FAC (BLDGS 717,722,732) SITE 108
(PAGE 2 OF 2)

were removed in 2003. Post-excavation sample results indicate additional soil will have to be removed adjacent to the former sumps.

As part of the Bldg 722 demolition, the flare tunnel clean-out sump was also removed. Approximately 2.5 cy of the soil contamination on the south side of the bldg were removed in 2004 prior to the demolition of the bldg. The risks and hazards from exposure to Picatinny Lake surface water and sediment adjacent to the site are below the target levels of 1×10^{-6} and 1, respectively. However, the risks of surface soil exposure exceed the upper target level of 1×10^{-4} ; the hazard from surface soil exposure also exceeds the target threshold level. The risk drivers identified in the surface soil are PAHs, PCBs and arsenic. The hazard driver in surface soil is Aroclor-1254.

CLEANUP STRATEGY

A FS to include a PP and ROD will be completed. Due to the numerous AOCs associated with the site, the varying degrees of contamination and the already completed removal actions, various remedies are likely to be implemented. Excavation of up to ~591cy of soil and sediment are likely followed by LUCs for the remaining contamination. The site is included in the PBC.

TECUP BUILDINGS SITE 178

SITE DESCRIPTION

Site 178 consists of buildings that have been demolished under TECUP. TECUP was instituted in the 1980s to safely demolish buildings, which were potentially contaminated. The buildings were used for a variety of purposes ranging from munitions production to inert storage. The majority of TECUP operations were performed in the 1980s. Prior to 1981, formal records of building demolition operations were not maintained. Between 1981 and 1989, approximately 145 buildings at PTA were demolished under TECUP, after being decontaminated by fire or washing. After the decontamination process, the buildings are demolished and the area graded. In the past, buildings were sometimes demolished and buried in place without any preparatory decontamination measures. After 1989, the frequency of TECUP operations dropped off until recently. Since 1998, TECUP operations have resumed and nearly all buildings, along the eastern shore of Picatinny Lake, have been demolished.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
SVOCs, Dioxins, Lead

MEDIA OF CONCERN: Soil

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	197607	198105
SI.....	198910	199103
RI/FS	199502	200805

RC DATE: 200805

During the Phase II RI, three former building areas were investigated. Soil samples were collected at Building 269, a former primer loading facility; Building 557, a former propellant plant; and Building 565, a former propellant plant. SVOCs, dioxins and lead were detected above LOCs in the soil at these former buildings. The SVOC and dioxin concentrations may be related to the use of diesel fuel and/or treated wood to burn the buildings. Additional samples were collected at all three former building areas in 2001 to delineate the existing soil contamination. HHRAs were completed for each former building. Results of the HHRAs for each former building indicate risk and hazard levels below the target levels of 1E-4 and 1, respectively. Lead was not identified as a health concern in surface or subsurface soil at any of the former buildings with the exception of subsurface soil at former Bldg 565. Results of the ERA suggest that there is little potential risk to terrestrial species from soil exposure at the site.

CLEANUP STRATEGY

A FS to include a PP and ROD will be completed. LUCs will be recommended as a remedy for this site. The site is included in the PBC.

PICA-162 (SITE 5)

SHELL BURIAL AREAS NEAR SITE 5

(PAGE 1 OF 2)

SITE DESCRIPTION

The Site 5 Shell Burial Area is located northwest of Building 3150, at the intersection of Schrader Road and Gately Road. The shell burial area is in the area of an explosion crater caused by the 1926 Lake Denmark explosion. Exploded and unexploded ordnance, as well as building debris from the explosion, was deposited in the crater. The 1.5-acre area, under the control of the U.S. Naval Ammunition Depot, continued to be used as an ordnance dumping area until 1945. The area was then covered with ~20 ft of fill material, fenced, and marked with warning signs. Approximately 25 tons of debris and ordnance were deposited in both this shell burial area and the shell burial area located near Bldg 3100. Ordnance in the shell burial areas included: mines, depth charges, fuses, projectiles, explosives, ammunition, propellants, and possibly rocket fuels. A 1981 Installation Assessment addendum stated that the shell burial areas also contained acids, pickling liquors, cyanide, phenol, and metals.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:

Cyanide, VOCs (PCE), SVOCs, Metals

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199603	200808
RD	200604	200902
RA(C)	200604	200906
LTM	200907	203907

RC DATE: 200906

Dames and Moore performed a SI in 1989 to investigate groundwater VOC contamination at Site 5 detected in one well installed and sampled in 1981. Included, as part of the SI, was analysis of groundwater for VOCs, explosives, metals, and components of solid propellants. No compounds were detected at levels greater than levels of concern during the 1989 SI. RI activities were conducted from 1998 to 2001, including the installation and sampling of groundwater monitoring wells. Groundwater, surface soil, and subsurface soil samples were analyzed for VOCs, SVOCs, explosives, metals, cyanide, and anions. Three rounds of groundwater sampling have been conducted to date at Site 5, as part of the Phase III-1A RI. Cyanide and VOCs were detected at concentrations exceeding the LOC in groundwater, during the first round of sampling. One VOC (PCE) was present in excess of levels of concern during the two subsequent rounds of groundwater sampling. Results of the HHRA indicated the risk and hazards from exposure, at the site, are below the target levels of 1E-4 and 1, respectively. A baseline ERA was performed for this site in the spring/summer of 2005. Though the food web models indicated that adverse effects on reproduction in small mammals or birds could occur given sufficient exposure to site COPECs in northeastern Area L, the field

PICA-162 (SITE 5) SHELL BURIAL AREAS NEAR SITE 5 (PAGE 2 OF 2)

investigations and RSA results indicated that affects, if any, were not impacting the local populations of small mammals or birds.

In 2003, PICA-052 was listed as response complete in AEDB-R and will be addressed under PICA-162.

Engineering controls (limited access) have been implemented at this site to address soil contamination. The site is included in the PBC.

CLEANUP STRATEGY

A FS, PP and ROD will be completed. A monitoring plan will be completed. LTM is expected. LUCs will be maintained to address soil contamination.

PICA-052 (PART OF PICA-162) SHELL BURIAL AREA NEAR BLDG 3100 (SITE 6)

SITE DESCRIPTION

The Site 6 Shell Burial Area is located northwest of Building 3100, at the intersection of Belt Road and Main Road. The Shell Burial Area is in the area of an explosion crater caused by the 1926 Lake Denmark explosion. Exploded and unexploded ordnance, as well as building debris from the explosion, was deposited in the crater; which continued to be used as an ordnance dumping area until 1945. The area was then covered with approximately 20 ft of fill material, fenced, and marked with warning signs. Access to Site 6 is limited. Approximately 25 tons of debris and ordnance were deposited in both this shell burial area and the shell burial area, located near Building 3150 (PICA-162). Ordnance in the shell burial areas included: mines, depth charges, fuses, projectiles, explosives, ammunition, propellants, and possibly rocket fuels. A 1981 Installation Assessment addendum stated that the shell burial areas also contained acids, pickling liquors, cyanide, phenol, and metals.

Explosives, VOCs, SVOCs, pesticides/PCBs, anions, and metals analysis of soil was conducted as part of the 1996 PA/SI. Based upon results of the PA/SI, RI activities were conducted from 1998 to 2000 to investigate VOCs, SVOCs, explosives, metals, cyanide, and anions in surface soil, subsurface soil, and groundwater. Metals, VOCs, and SVOCs were detected at concentrations exceeding levels of concern in groundwater, and a limited number of SVOCs were detected in soil at concentrations greater than LOC. Human health risk assessments results indicated the non-cancer hazard index of 1 was not exceeded for industrial research and construction excavation worker scenarios. The estimated total cancer risk is below the target range of 1E-4 to 1E-6 for the construction excavation worker scenario, and within the target risk range for the industrial research worker scenario (9.8E-5). A baseline ERA was conducted in the spring/summer of 2005. Though the food web models indicated that adverse effects on reproduction in small mammals or birds could occur given sufficient exposure to site COPECs in northeastern Area L, the field investigations and RSA results indicated that affects, if any, were not impacting the local populations of small mammals or birds.

Groundwater contamination is currently being investigated as part of the Mid-Valley investigation under PICA-204. In 2003, PICA-052 was listed as response complete in AEDB-R and will be addressed under PICA-162.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Cyanide, VOCs (PCE), SVOCs,
Metals

MEDIA OF CONCERN: Soil,
Groundwater

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	197607	198105
SI	198707	198906
RI/FS	199606	200306

RC DATE: 200306

PICA-163 (SITE 91)

PROPELLANT/ROCKET PROD 1300/1400 AREA

(PAGE 1 OF 2)

SITE DESCRIPTION

Building 1301, constructed in 1945, was a one-story structure consisting of eight separate one-story buildings, under one continuous roof approximately 1/5-mile long. The individual buildings formed a propellant finishing plant and are located off of Double Base Road. Sections of Building 1301 were renovated in 1954 for the production of rocket powder and antipersonnel mines during the Korean and Vietnam wars. From approximately 1980 to 1993, portions of Building 1301 were used for the assembly/disassembly of rocket motors. Building 1301 had been inactive since 1993 and was demolished in 2005. During its many activities, explosives, solvents, alcohols, paints, paint thinners, kerosene, lubricant oil, and spent fixer and developer from film processing have been used at Building 1301.

Historically, the rooms of Building 1301 were washed down daily to remove residual explosives. The wash-down water flowed into lead-lined troughs leading to lead-lined catch basins and tanks, located on the east and west sides of the building. The catch basins and tanks contained perforated metal baskets for collecting waste propellant to be disposed at the PTA Burning Ground (PICA-002). The wastewater from the catch basins and tanks discharged in the woods, west of Building 1301. A RCRA closure was conducted in 1990 for the walkway, formerly used as a temporary solvent storage area for vapor degreasing operations.

A PA/SI was conducted in 1996 for the analysis of VOCs, SVOCs, pesticides/PCBs, explosives, metals, and anions in soil and sediment. Metals, PAHs, and PCBs were detected at levels greater than levels of concern in surface soil and sediment. Based upon results of the PA/SI, RI activities were conducted from 1998 to 2000. Included as parts of the remedial investigation were a soil gas survey and VOC, PAH, PCB, explosives, and metals analyses of surface soil, subsurface soil, surface water, sediment, and groundwater. Lead was detected at concentrations in excess of LOC in paint chip samples and numerous soil samples collected in the vicinity of the catch basin discharges, in the woods west of Building 1301. Results of the HHRA indicated the risks and hazards at the site are below the target risks. A baseline ERA was conducted in the spring/summer of 2005. Though the

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: Cyanide, VOCs (PCE), SVOCs, Metals

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
PA.....	197607	198105
SI.....	198910	199103
RI/FS	199606	200710
RD.....	200604.....	200804
RA(C).....	200604.....	200804

RC DATE: 200808

PICA-163 (SITE 91) PROPELLANT/ROCKET PROD 1300/1400 AREA (PAGE 2 OF 2)

food web models indicated that adverse effects on reproduction in small mammals or birds could occur given sufficient exposure to site COPECs in southern Area L, the field investigations and RSA results indicated that affects, if any, were not impacting the local populations of small mammals or birds. All lead-lined troughs and catch basins were removed in 2002 and lead contaminated soil (62 cy) directly adjacent to Building 1301 was removed as part of the facility wide sump and dry well investigation. Metals contaminated soil remains in the vicinity of the catch basin discharges in the woods west of Bldg 1301.

In 2003, PICA-021, 168, 169, 172 and 174 were listed as response complete in AEDB-R and will be addressed under PICA-163.

CLEANUP STRATEGY

PICA-021 – FS, PP, and ROD (previously funded) will be required to address metals, PCBs, and PAHs in soil and sediment. Excavation of contaminated soil and sediment is likely.

PICA-163 – FS, PP and ROD (previously funded) will be completed to address metals contamination in soil. Upon excavation of metals contaminated soil, LUCs will be the only remedy required.

PICA-168 – FS, PP, and ROD (previously funded) will be required to address metals, explosives, and PAHs in soil and sediment. Excavation of metals-contaminated soil followed by ICs will be required.

PICA-169 – FS, PP, and ROD (previously funded) will be required to address impacted media. LUCs will be required to maintain the existing cover. Monitor 2 wells for explosives annually.

The site is included in the PBC.

PICA-172 – NFA required.

PICA-174 – Land use controls will be proposed for this site.

PICA-021 (PART OF PICA-163) FORMER NG PROC AREA (BLDGS 1361A-1365) SITE 35

SITE DESCRIPTION

Site 35 consists of Buildings 1361, 1361-A, 1363, 1363-A, and 1365. All five buildings are between South N.G. Road and Upper X.H.E. Road, in the southeastern portion of PTA. Building 1361 was a NG buggy storage and block breaker building. Building 1361-A housed an AST that received explosives-contaminated wastewater from NG mixing operations at Building 1373. In 1996, a RCRA closure of Building 1361-A was performed. Following closure activities, Building 1361-A was demolished under TECUP. Building 1363 was a neutralizing building for NG produced in Building 1362 and 1367. Building 1363 was decontaminated to the 3X condition in 1989. Building 1363-A was a slum house used to separate excess NG from a mixture of nitric and sulfuric acid following neutralization at Building 1363. A non-time critical removal of soil and lead lined troughs was conducted at Building 1363-A in 1995. Building 1365 was used to store spent nitric and sulfuric acids generated at Buildings 1362 and 1367. In 1991, Building 1365 underwent RCRA closure and demolition, including the disposal of 2,000 lbs. of explosively contaminated acid as hazardous waste “discovered” in the storage tanks. All five buildings are currently inactive.

A remedial investigation was conducted from 1998 to 2000. The investigation included the analysis of surface water, sediment, surface soil, subsurface soil, and groundwater for VOCs, SVOCs, PCBs, explosives, metals, and anions. Sediment analysis indicates the presence of metals, PCBs, and PAHs in excess of levels of concern. Metals (including lead) and PCBs are present at elevated levels in soil, and groundwater contains concentrations of metals greater than levels of concern. Groundwater contamination is currently being addressed as part of the Mid-Valley GW Investigation. HHRA results indicated the non-cancer hazard index of 1 is exceeded for the on-site youth visitor scenario, and the estimated total cancer risks for the industrial research worker and the on-site youth scenario are within the target risk range of 1E-4 to 1E-6. Though the food web models indicated that adverse effects on reproduction in small mammals or birds could occur given sufficient exposure to site COPECs in southern Area L, the field investigations and RSA results indicated that affects, if any, were not impacting the local populations of small mammals or birds. In 2003, PICA-021, 168, 169, 172 and 174 were listed as response complete in AEDB-R and will be addressed under PICA-163.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Cyanide, VOCs (PCE), SVOCs,
Metals

MEDIA OF CONCERN: Soil,
Groundwater

Phases	Start	End
PA	197607	198105
SI	198707	198906
RI/FS	199606	200306

RC DATE: 200306

PICA-168 (PART OF PICA-163) (SITE 168) PROPEL PLTS/PRESS HOUSE BLDGS 1400,1402- 1403 (PAGE 1 OF 2)

SITE DESCRIPTION

Site 168 consists of Buildings 1400, 1402, and 1403. All three buildings were constructed in 1948 and used for the processing of solventless propellants, and are located along Rocket Production Road, southwest of its intersection with Farley Avenue. Since 1986, Building 1400 has been used to store new equipment for the RDX fine grind facility. Explosives-contaminated wastewater generated at Building 1400 was collected by concrete troughs, which discharged to a catch basin located on the north side of the building that subsequently discharged to the woods north of Building 1400, and the ground near the northwest and southeast corners of Building 1400. Since 1986, Building 1402 has been used to store decontaminated propellant processing equipment formerly used in the 1400 Area. Standard operating procedure for propellant processing buildings included periodic wash-down of the equipment and flooring to remove residual explosive material. Since no records of troughs or catch basins exist at Building 1402, the wash-down water likely flowed out the doors, located on all four sides of the building and discharged directly onto the ground. Building 1403 was renovated in 1987 for the installation of a twin screw mixer/extruder, as part of a pilot process for the production of LOVA propellants (75% RDX and 25% wax). Two lead-lined concrete catch basins are located on the interior of Building 1403, for the collection of explosives-contaminated wastewater generated from wash-down activities, which formerly discharged via a concrete trough to a catch tank, located on the west side of the building. Presently, the catch basins discharge non-energetics and solvents to a 5,000-gallon AST installed, in 1993, prior to being transported to Building 809 for treatment.

Surface soil was analyzed for VOCs, SVOCs, explosives, pesticides/PCBs, metals, and anions as part of the 1996 PA/SI. Explosives, metals, and PAHs were detected at concentrations greater than LOC. Based upon results of the PA/SI, RI activities were conducted from 1998 to 1999 as part of the Phase III-1A RI. Metals were detected in surface water at marginally high concentrations; PAHs and metals were detected in sediment at concentrations marginally greater than LOC; and explosives, metals, and PAHs were detected in soil at concentrations greater than LOC. RDX was detected in one well at a concentration slightly above LOC. HHRA results indicated the risks and hazards are within target levels. Though the food web models indicated that adverse effects on reproduction in small mammals or birds could occur given sufficient exposure to site

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Cyanide, VOCs (PCE), SVOCs,
Metals

MEDIA OF CONCERN: Soil,
Groundwater

Phases	Start	End
PA	197607	198105
SI.....	198910.....	199103
RI/FS	199606.....	200306

RC DATE: 200306

PICA-168 (PART OF PICA-163) (SITE 168) PROPEL PLTS/PRESS HOUSE BLDGS 1400,1402- 1403 (PAGE 2 OF 2)

COPECs in southern Area L, the field investigations and RSA results indicated that affects, if any, were not impacting the local populations of small mammals or birds.

One catch tank and 8 cy of soil at Bldg 1403 and 12 cy of soil at Bldg 1400 were excavated as part of the 2004 facility-wide sump and dry well investigation. Metals, explosives, and PAHs still remain at the site in soil above LOCs.

In 2003, PICA-021, 168, 169, 172 and 174 were listed as response complete in AEDB-R and will be addressed under PICA-163.

PICA-169 (PART OF PICA-163) (SITE 169) PROP PLTS (BLDGS 1408, 1408A-C, 1409, 1411)

(PAGE 1 OF 2)

SITE DESCRIPTION

Site 169 consists of Buildings 1408, 1408-A, B, C, 1409, and 1411. Four of the six buildings performed propellant processing operations, while the remaining two served as storage buildings for propellant operations conducted in the 1400 Area.

Bldg 1408 had three mixing rooms, that were used to mix propellants. In 1982, two catch tanks were installed for the collection of explosives-contaminated wash-down water, which was previously discharged to the ground outside the room. Bldg 1408-A and B were used as shipping, receiving, and storage buildings for propellant operations. Bldg 1408-B was also used to store and weigh flammable solvents used in propellant manufacturing. Bldg 1408-C had lead-covered concrete floors, and had been used for propellant glazing. All four buildings (Bldgs 1408 and 1408A-C) were demolished under TECUP in

2005. Bldg 1409 was used as a propellant extrusion press building until around 1987, when renovations began for the installation of a RDX fine grind operation. However, an extensive fire in April 1989 resulted in the RDX fine grind operation being moved to Bldgs 1461 and 1462. Bldg 1409 has since been demolished. Five lead-lined catch basins were located at Bldg 1409 for the collection of explosives-contaminated wastewater, generated from wash-down activities. Bldg 1411 has been used for the extrusion and cutting of solvent-based propellants, since its construction. The wastewater from wash-down of equipment and floors, following propellant extrusion and cutting operations, was historically discharged to a catch tank located on the west side of Bldg 1411 near the southwest corner.

One soil and two sludge samples from tanks were collected at Building 1408, as part of the 1992 Foster Wheeler Water Discharge Investigation, for VOC, SVOC, TCLP metals, and explosives. No contaminants were detected above LOC, however, nitrocellulose, for which no LOC is available, was detected in the 2 sludge samples at elevated concentrations. A PA/SI was conducted in 1996 for the analysis of soil for VOCs, SVOCs, pesticides/PCBs, metals, and anions. Lead was detected in soil at concentrations in excess of the LOC during the PA/SI. Based upon results of the PA/SI, Site 169 was included as part of the Phase III 2A/3A RI. RI activities included the analysis of soil, surface water, sediment, and groundwater for VOCs, SVOCs, perchlorate, explosives, and metals. Lead has been detected at concentrations above LOC in surface soil, metals and RDX have been detected

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:

Cyanide, VOCs (PCE), SVOCs, Metals

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199606	200306

RC DATE: 200306

PICA-169 (PART OF PICA-163) (SITE 169)
PROP PLTS (BLDGS 1408, 1408A-C, 1409, 1411)
(PAGE 2 OF 2)

in surface water and sediment above LOCs, and RDX has been detected in groundwater at concentrations greater than LOC. Nitrocellulose, which does not have a LOC, was also detected at elevated levels in the soil. Sampling performed in 2000 has delineated the extent of the soil, surface water and sediment contamination. In 2004 an additional monitoring well was installed. Groundwater sampling conducted in 2005 has delineated the extent of the groundwater contamination. Results of a HHRA indicate the risks and hazards from soil exposure at the site are below the target levels of 1E-4 and 1, respectively. Though the food web models indicated that adverse effects on reproduction in small mammals or birds could occur given sufficient exposure to site COPECs in southern Area L, the field investigations and RSA results indicated that affects, if any, were not impacting the local populations of small mammals or birds.

In 2003, PICA-021, 168, 169, 172 and 174 were listed as response complete in AEDB-R and will be addressed under PICA-163.

PICA-172 (PART OF PICA-163) (SITE 161) FORMER NITRATION BLDG (BLDG 1031) (PAGE 1 OF 2)

SITE DESCRIPTION

Building 1031 is a five-story building, located off of Upper X.H.E. Road. Building 1031 was originally constructed in 1952 for manufacturing RDX and HMX; however, other explosives including PETN, DATNB, DNT, TNT, BTTN, and NQ were also manufactured. The building has been shut down since the early 1980s, and is currently scheduled for demolition. Building 1031 primarily served as a research and development facility for pilot-scale explosives manufacturing operations. Two aboveground sumps are located northeast of Building 1031, adjacent to the covered walkway leading to Building 1033. One sump received explosives-contaminated wastewater from wash-down operations, while the second sump received process wastewater. The wastewater from both sumps was treated with caustic material to reduce the pH prior to its release into a wastewater trough, which connected to the Building 1033 trough system.

PTA personnel indicated that one spill had occurred at Building 1031. Acetic acid from a drown tank overflowed the reaction tank and spilled inside the building. All of the floors were flushed with water, both the acetic acid and the water discharged through the floor drains in the building to the process wastewater sump, where the waste was neutralized and discharged from the sump to the Building 1033 trough system.

A PA/SI was conducted in 1996 for the analysis of surface soil for VOCs, SVOCs, pesticides/PCBs, explosives, metals, and anions. VOCs, metals, and explosives were detected at concentrations greater than LOC. Based upon results of the PA/SI, Site 161 was included as part of the Phase III-1A RI in which surface soil, subsurface soil, surface water, sediment, and groundwater were analyzed for VOCs, explosives, and metals from 1998 to 1999. Lead was delineated in soil at concentrations in excess of LOC in the vicinity of lead lined troughs leading to Building 1033, and TCE is present in groundwater at concentrations in excess of LOC. TCE contamination in groundwater is being addressed on an area-wide basis as part of the Mid-Valley Groundwater Investigation. HHRA results indicate risks and hazard are within the target levels. Results of the adult lead model indicate lead in surface soil may be a concern for the industrial research worker. Baseline ecological risk was evaluated for Robinson Run as part of the Phase III Ecological Risk Assessment. The overall weight-of-evidence suggests that the aquatic ecosystem in Robinson Run is not adversely affected by the presence of site-related COPECs in the surface water or sediment.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Cyanide, VOCs (PCE), SVOCs,
Metals

MEDIA OF CONCERN: Soil,
Groundwater

Phases	Start	End
PA.....	197607	198105
SI	198910	199103
RI/FS	199606	200306

RC DATE: 200306

PICA-172 (PART OF PICA-163) (SITE 161) FORMER NITRATION BLDG (BLDG 1031) (PAGE 2 OF 2)

Two sumps and a total of 770 cy of lead-contaminated soil were excavated in 2004 as part of the facility-wide lead removal investigation. Land use controls have been recommended for this site.

In 2003, PICA-021, 168, 169, 172 and 174 were listed as response complete in AEDB-R and will be addressed under PICA-163.

PICA-174 (PART OF PICA-163) (SITE 166) FORMER PROP PLTS (BLDGS 1354,1357,1359)

(PAGE 1 OF 2)

SITE DESCRIPTION

Site 166 consists of Buildings 1354, 1357, and 1359. The buildings are located north of N.G. Road and south of Upper X.H.E. Road. The buildings were used, from the time of their construction until the mid-1960s, to air-dry NC-NG paste, produced in the NG production area (1300 Area), for use in solventless propellant manufacture. From the mid-1960s until sometime in the mid to late 1970s, these three buildings were used as dry houses for double-base and triple-base propellants. Since the 1970s, these three buildings have been used as explosives storage magazines, in support of operations conducted in the 1300 and 1400 areas. Each building has a sand-filled catch box, located along a stream, west of the buildings connected to wastewater troughs present at all three buildings. The catch boxes received wastewater from wash-down activities conducted at the buildings. As propellant and explosives dry houses and storage magazines, the following materials have been located at Buildings 1354, 1357, and 1359: RDX, HMX, NQ, NG, NC, liquid propellant, TMETN, DEGDN, triethylene glycol dinitrate (TEGDN), DANPE, nitromethane, liquid nitrate esters, and liquid nitramines. These buildings are scheduled for demolition.

In 1987, interior wall paint chip samples from Bldg 1357 were analyzed for nitroglycerin. No nitroglycerin was detectable in the samples collected. A PA/SI was conducted in 1996. Arsenic was detected in soil, at concentrations greater than the LOC, during PA/SI activities. Based upon results of the PA/SI, Site 166 was included as part of the Phase III 2A/3A RI for the analysis of surface soil for arsenic. Arsenic was not detected at levels greater than LOC during RI sampling activities. No further sampling is proposed. Results of a HHRA indicate the risk and hazard from soil exposure at the site are below the target levels of 1E-4 and 1, respectively. Results of the SLERA indicate further ecological investigation is not warranted for the soil, because the sole ecological COPC (i.e., arsenic) has been excavated and removed. The baseline ERA did evaluate ecological risk for aquatic receptors in adjacent Robinson Run. The overall weight-of-evidence suggests that the aquatic ecosystem in Robinson Run is not adversely affected by the presence of site-related COPECs in the surface water or sediment.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
Cyanide, VOCs (PCE), SVOCs,
Metals

MEDIA OF CONCERN: Soil,
Groundwater

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	197607	198105
SI.....	198910	199103
RI/FS	199606	200306

RC DATE: 200306

PICA-174 (PART OF PICA-163) (SITE 166)
FORMER PROP PLTS (BLDGS 1354,1357,1359)
(PAGE 2 OF 2)

Subsequent to the Phase III 2A/3A field investigation, the wooden catch box at Bldg 1357 was removed along with the catch boxes at Bldg 1354 and 1359 in 2004. One soil sample was collected beneath each catch box and analyzed for explosives, arsenic and lead. No LOC exceedances were reported in the samples collected at Bldgs 1354 and 1359. Thus, no soil was excavated at these locations. The sample from Bldg 1357 had an arsenic concentration of 99.6 mg/kg. Thus, soil was removed from a 3 ft by 3 ft area corresponding to the dimensions of the catch box to a depth of 1 foot bgs. The subsequent bottom sample did not contain any LOC exceedances.

In 2003, PICA-021, 168, 169, 172 and 174 were listed as response complete in AEDB-R and will be addressed under PICA-163.

PICA-171 (SITE 171)

ORDNANCE BLDG/EXPLOSIVES PROD (PAGE 1 OF 2)

SITE DESCRIPTION

Site 171 consists of Buildings 3106, 3109 and 3111. All three buildings were used as magazines while under naval ownership. Currently, the buildings are used for physical and environmental testing of ordnance items.

Bldg 3106 was used to store magnesium powder, oxidizers, explosives, and rocket fuels. Bldg 3106 was modified for use as an environmental test facility in 1964-65, and is still used to evaluate packaging materials and ammunition components such as fuses. Three dry wells are located on the north side of Bldg 3106. Bldg 3109 was constructed by the Navy in 1943 as a magazine, and renovated in 1960 for use as an environmental testing facility. A 100ft tall drop tower (Bldg 3145) is located northeast of the building, and is used to test durability and performance of packaging materials, unloaded ordnance components, and similar materials. Two dry wells were associated with Bldg 3109, which only received steam condensate. The Navy constructed Bldg 3111 in 1943 for use as a smokeless powder storage building. In the early 1960s, the building was converted for use as an air gun facility, and has served that purpose since that time. Bldg 3111 also houses a “dynamic machine,” which was designed to simulate the forces inflicted on a shell upon conventional firing. A TPH contaminated soil removal was conducted in the early 1990s, in an area of an old oil vapor containment drum, at Bldg 3111.

A PA/SI was conducted in 1996. Metals and PAHs were detected in soil at concentrations exceeding the LOC. Based upon results of the PA/SI, Site 171 was included as part of the Phase III 2A/3A RI. RI activities included the analysis of surface soil, subsurface soil, and groundwater for VOCs, SVOCs, explosives, PCBs, metals, and perchlorate. Metals, PCBs and PAHs were detected at concentrations greater than LOC in surface soil, and TCE was detected in groundwater at concentrations greater than LOC. Sampling performed in 2000 and 2001 has characterized the potential sources and delineated the extent of the soil contamination. Results of a HHRA indicate the risks and hazards from soil exposure are below the target levels of 1E-4 and 1, respectively. However, lead in the soil is a potential concern. The BERA performed in 2005 concluded that although the food web models indicated that adverse effects on reproduction in small mammals or birds could occur given sufficient exposures to site COPECs in northeastern Area L, the field investigations and

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Metals, PAHs

MEDIA OF CONCERN: Soil

Phases	Start	End
PA.....	197607	198105
SI.....	198910	199103
RI/FS	199606	200710
RD.....	200604.....	200804
RA(C).....	200604.....	200808

RC DATE: 200808

PICA-171 (SITE 171)

ORDNANCE BLDG./EXPLOSIVES PROD. (PAGE 2 OF 2)

RSA results indicated that affects, if any, were not impacting the local populations of small mammals or birds.

Groundwater contamination is being addressed on an area-wide basis as part of the Mid-Valley Investigation. Approximately 180 cy of metals-contaminated soil were removed in 2004. Post-excavation data indicate that elevated lead levels have been eliminated. In 2003, PICA-173 was listed as response complete in AEDB-R and will be addressed under PICA-171.

CLEANUP STRATEGY

A FS to include a PP and ROD will be completed. Excavation of approximately 120 cy of explosives-contaminated soil is recommended for PICA-173. Upon completion of the interim removal action, LUCs will be required. LUCs are recommended for PICA-171. The site is included in the PBC.

PICA-173 (PART OF PICA-171) (SITE 162) FORMER EXP MAINT/STOR (BLDGS 1070, 1071, 1071C) (PAGE 1 OF 2)

SITE DESCRIPTION

Site 162 consists of three buildings formerly used in the production of high explosives, located off 19th Avenue, north of its intersection with 12th Street. Former Bldg 1070 consisted of four tanks of varying size, that were used to store spent acid from tetryl production. Materials associated with Bldg 1070 were spent acids (most probably nitric acid) from tetryl production. Former Bldg 1071 was a three-story structure, constructed in 1942 as a crystallizing building for tetryl production. The building also housed Haleite production; tetryl and TNT recrystallizing processes; a NQ precipitation process; and most recently, slurring, wax coating, and drying of RDX. Operations at Bldg 1071 ceased in the mid-1980s. Former Bldg 1071-C, constructed in 1943, stored solvent for use in production operations in Bldg 1071. Materials stored in Bldg 1071-C were acetone and alcohol. After a 1988 inspection, Bldg 1071-C was listed as exempt from RCRA regulations, because no hazardous waste was stored or generated at the building. Demolition activities for Bldgs 1071 and 1071C were completed in 2004 and 2002, respectively.

A PA/SI was conducted in 1996. Metals, PAHs, and explosives were detected in soil at concentrations greater than the respective LOCs. RDX has been detected at concentrations greater than LOC in surface soil, and an isolated detection of arsenic in soil marginally above LOC was found. Soil sampling performed in 2001 has delineated the horizontal extent of explosives contamination in soil. The vertical extent will be evaluated based on impact to groundwater, which is currently being addressed on an area-wide basis as part of the Mid-Valley GW RI. Results of a HHRA indicate the risks from soil exposure are below the target level of 1E-4. The hazards from soil exposure are equal to or below the target level of 1. A SLERA, conducted in 2004, concluded that further ecological investigation is not warranted due to the lack of contamination related to Bldgs 1070 and 1071C and the removal of all potential contamination sources near Bldg 1071.

Subsequent to the Phase III 2A/3A RI field operations, the wooden filter box used to filter explosives-contaminated wastewater was dismantled. The suspected dry well at Bldg 1071C was excavated and determined to be an exhaust pipe for an underground steam trench. In addition, the concrete catch tank at Bldg 1071 was removed. Initial post-excavation bottom samples collected at the base of the former catch tank contained RDX and HMX concentrations in excess of LOCs. Additional soil was removed to directly above

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals, PAHs

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS.....	199606	200306

RC DATE: 200306

**PICA-173 (PART OF PICA-171) (SITE 162)
FORMER EXP MAINT/STOR (BLDGS 1070, 1071,
1071C) (PAGE 2 OF 2)**

the bedrock surface at 14 ft bgs. The concentrations of explosives detected below the catch tank indicate the discharge of explosive-contaminated wastewater from Bldg 1071 to the catch tank has contributed to subsurface contamination in the area and may be the primary source of the explosives plume being investigated in the Mid-Valley RI.

In 2003, PICA-173 was listed as response complete in AEDB-R and will be addressed under PICA-171.

PICA-175 (SITE 115)

ORDNANCE BLDGS IN 600-AREA (PAGE 1 OF 2)

SITE DESCRIPTION

Building 611, constructed in 1965, has been used for the testing of small munitions since its construction. According to an undated transformer inventory, there are three 75-KVA transformers located inside the building. The transformers are considered to be PCB transformers. According to the PTA transformer database compiled in 1988, the transformers were in fair condition at that time and contained 34 gallons of dielectric fluid.

Although little information exists regarding the testing practices at the range area, interpretation of historic maps and aerial photographs indicate that guns were placed in the area southwest of Bldg 611, and fired into the slug-butt near Bldg 611-A. The slug-butt is still on the hillside in a deteriorated condition. This range area was used from the late 1920s to the 1940s. Currently, the ground floor of Building 611 is divided into two steel-lined blast chambers and a work area. The southern blast chamber is used only for storage and parking of vehicles, while the northern blast chamber is used to test warheads, fuzes, and primers. Building 611 is also equipped with a portable X-ray unit and a darkroom for the development of X-ray films. The darkroom is located on the second floor above the work area at the south end of the building. Building 611 has a RCRA-permitted satellite waste accumulation area located inside the building. Materials stored in the area include used spray paint cans, x-ray developer and fixer.

Dye tests performed in 1991 indicate that all water from Building 611, including the darkroom sink, discharges to the sanitary sewer system (Foster Wheeler, 1991). A PA/SI was conducted in 1996. No contaminants were detected at concentrations greater than LOC. In 2000, RI sampling was performed to characterize the slug butt area and the depleted uranium test area at Building 611B. Elevated levels of metals were reported at the slug-butt; subsequent sampling has delineated the extent of the soil contamination. A monitoring well was installed in 2001, and sampled in 2002 to determine the groundwater quality down-gradient of the slug-butt. Analytical results indicate the groundwater has not been impacted by the former testing operations at the site. Results of a HHRA indicate the risks and hazards from soil exposure at the site are below the target levels of 1E-4 and 1, respectively. However, lead in the surface soil is a potential health concern.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals, Explosives

MEDIA OF CONCERN: Soil

Phases	Start	End
PA.....	197607	198105
SI.....	198910	199103
RI/FS	199606	200808
RD	200604	200902
RA(C)	200604	200906
LTM	200907	203906

RC DATE: 200906

PICA-175 (SITE 115) ORDNANCE BLDGS IN 600-AREA (PAGE 2 OF 2)

Although several contaminants have been identified that could pose a risk to wildlife at the site if there was significant opportunity for exposure, the size of the affected area, the poor habitat (a slope littered with metallic debris and devoid of vegetation), as well as its location far from other contaminated sites within the Installation, suggest that any further ecological investigations beyond the SLERA are not warranted.

In 2003, PICA-133, 178, 179 and 180 were listed as response complete in AEDB-R and will be addressed under PICA-175.

CLEANUP STRATEGY

A FS to include a PP and ROD will be completed. LUC are recommended for this site. PICA-133, 178, 179 and 180 are considered response complete. The site is included in the PBC.

PICA-133 (PART OF PICA-175) CHANGE HOUSE (BUILDING 600) SITE 151

SITE DESCRIPTION

Building 600 was constructed in 1942 as a change house. Because personnel who used these facilities worked with explosives, wastewater from the washing operations may have been contaminated with explosives. The explosives-contaminated wastewater was discharged to a dry well before Building 600 was connected to the sanitary sewer system sometime in the 1960s. Sometime around 1978, Building 600 was used as a training ground for military training maneuvers. The training maneuvers involved the use of hand grenades, rockets, and other small-scale explosives. In 1992, Building 600 underwent an asbestos abatement and was demolished.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals, Explosives

MEDIA OF CONCERN: Soil

Phases	Start	End
PA.....	197607	198105
SI	198910	199103
RI/FS.....	199502	200306

RC DATE: 200306

Phase II RI activities at this site included the installation of one monitoring well, and the collection of soil and groundwater samples. During the RI, lead was detected above its LOC in the groundwater sample collected from monitoring well 151MW-1. Results of a HHRA for soil exposure at the site indicated that the risks and hazard indices are below the respective target levels of 1×10^{-4} and 1. No further action is proposed for the soil at this site.

An additional monitoring well was installed, and additional groundwater samples collected as part of continued RI activities in 2000. Elevated lead levels continue to be detected at monitoring well 151MW-1. RDX was detected in the new well at a concentration marginally above the LOC.

In 2003, PICA-133, 178, 179 and 180 were listed as response complete in AEDB-R and will be addressed under PICA-175.

PICA-178 (PART OF PICA-175) ORDNANCE FAC (BLDGS 604, 604C) SITE 152

SITE DESCRIPTION

Site 152, Building 604(ordnance physical testing facility) and Building 604-C (ammunition teardown facility) is located off of 20th Avenue, northeast of its intersection with Tenth Street. Building 604 was originally constructed (1928) as a fragmentation tub house, and converted to a physical testing facility in 1943. The building is currently used as a physical testing/inert storage facility. Materials used in the building include hydraulic fluid, mines, grenades, projectiles, fuses, calcium carbide, propellants, and small arms ammunition. The area, south of Building 604, was used for the firing of hand grenade fuses. There is no storage of energetic materials in the building at this time. Building 604-C was constructed in 1928 as an ammunition teardown facility. In 1942, an addition, to the west end of the building, was made to house a saw room and a control room for sectioning operations. In 1958, a milling machine room was added, bringing Building 604-C to its present size. The building has been used for the same purpose since its construction. Two underground storage tanks (T1 and T2) were formerly located on the south side of Building 604-C. The tanks were installed in late 1979, and were first used for the collection of red water from the sectioning saw in April 1980. Weston removed these tanks in Spring 1991. Currently, the red water is discharged through a pipe into a plastic aboveground tank, inside a hazardous materials cabinet.

Soil samples were collected from the bottom of the excavation, in the area of the former tanks during the removal action in 1991, and analyzed for VOCs, BNAs, metals, and nitrites. No contaminants were detected at concentrations above LOC, and PTA wrote a Closure Certification Letter in December 1991. A PA/SI was conducted in 1996 to evaluate VOCs, SVOCs, pesticides/PCBs, explosives, metals and anions in surface soil. Explosives were detected at concentrations in excess of LOC, and the site was included as part of the Phase III 2A/3A RI for the analysis of explosives in surface soil. No explosives were detected in soil at concentrations greater than LOC during the Phase III 2A/3A investigation. Since no chemical concentrations exceeded the screening criteria, risks and hazards were not quantified for this site. Ecological risk was addressed in a SLERA completed in 2004. Based on chemical concentrations detected in soil and sediment samples, no further ecological investigation is warranted.

In 2003, PICA-133, 178, 179 and 180 were listed as response complete in AEDB-R and will be addressed under PICA-175.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals, Explosives

MEDIA OF CONCERN: Soil

Phases	Start	End
PA.....	197607	198105
SI	198910	199103
RI/FS	199606	200306

RC DATE: 200306

PICA-179 (PART OF PICA-175) ORDNANCE FACILITY (BLDG 606) SITE 153

SITE DESCRIPTION

Building 606 was constructed in 1960 as an electronics lab and explosive testing support facility. The building's use has remained essentially unchanged since the time of its construction. Current activities are limited to electronics development, small indoor tests on ordnance components, storage of electronic equipment, and administrative activities. The building is also equipped with a dark room for the development of X-ray films. Materials presently used in the building include Freon, compressed gasses, X-ray developer, and X-ray fixer. Building 606 has a RCRA-permitted satellite waste accumulation area. Hazardous waste generated in the building is limited to X-ray developer, in quantities of 30 gallons per year, and rinse water in quantities of 150 gallons per year, generated in a darkroom on the building's west side. Prior to the late 1980s, the rinse water from the X-ray developing process was rinsed down a sink, which discharges directly onto the ground on the building's west side. According to the 1991 ANL RI Concept Plan, waste generated during the development of X-ray film (5 gallons per month of both fixer and developer) was stored outside of the building. According to a DEH engineering drawing (DP-143692), Building 606 is equipped with two underground water storage tanks. The tanks were used for the storage of water that was trucked in until 1966, when the building was connected to water service by a line from Building 611. The water storage tanks (which hold 500 and 800 gallons) are located on the northeast side of the building.

A UXO clearance was performed in 1992 on the north and west sides of the building for the purpose of installing surface water drainage swales. No UXO was found as a result of the survey. A PA/SI was conducted in 1996 to evaluate VOCs, SVOCs, pesticides/PCBs, explosives, metals and anions in surface soil. No contaminants were detected at concentrations greater than LOC.

In 2003, PICA-133, 178, 179 and 180 were listed as response complete in AEDB-R and will be addressed under PICA-175.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
Metals, Explosives

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199606	200306

RC DATE: 200306

PICA-180 (PART OF PICA-175) FIELD OFF, DISASS (BLDGS 617, 617G) SITE 154

(PAGE 1 OF 2)

SITE DESCRIPTION

Site 154 consists of Buildings 617, an administration building, and Building 617-G, a disassembly facility and machine shop. Building 617 was constructed in 1928, and was originally designed as a gun building that shot into the slugbutt behind Building 611. The building was also used as an ammunition assembly house for the gun test range (Building 611). As an ammunition assembly house, activities at Building 617 included shell cleaning, storage, offices, assembly, and photography until the late 1950s. In the 1960s, Building 617 was equipped with a temperature-conditioning oven for the short-term conditioning of projectiles. It was used as an environmental test facility which ceased in the 1970s. The building is presently used as an office. The building is equipped with a septic tank and cesspool, located on the east side that is still in use.

Building 617-G was constructed in 1928 as a gun and powder shed for storage of howitzers, used in a nearby range and powder for the howitzers until the late 1950s. Since the 1950s, the building has principally been used as an ordnance machine shop. Operations carried out in the building include machining, grinding, painting, assembly, calibration, and testing. Currently, the machine shop is not used for the machining of loaded ordnance. Materials used in the building include fuses, grenades, mines, and projectiles; as well as trichloroethane, for the cleaning of parts. Building 617-G is equipped with a RCRA-permitted satellite waste accumulation area, in which small quantities of aerosol paint cans, oil, and oily rags are stored. According to a radiation survey, Building 617-G was used for disassembling DU containing projectiles. No measurable contamination was present after disassembly.

According to a radiological survey conducted at Buildings 617 and 617-G, DU penetrators were stored in Building 617 in 1982, and Building 617-G was used in 1978 for the disassembly of projectiles equipped with DU cones. Results of the surveys indicated the penetrators were stored safely and no measurable contamination was present after disassembly. A PA/SI was conducted in 1996 at Buildings 617 and 617-G for VOC, SVOC, pesticides/PCBs, explosives, metals and anions analysis of surface soil. No contaminants were detected at concentrations greater than LOC. The Army currently recommends NFA for this site; however, NJDEP commented that additional sampling is required to investigate the septic system. Sampling around the septic tanks and septic system will be proposed as part of the FS. Though there is a potential risk to wildlife if sufficient exposures were to

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
Metals, Explosives

MEDIA OF CONCERN: Soil

Phases	Start	End
PA.....	197607	198105
SI.....	198910	199103
RI/FS	199606	200306

RC DATE: 200306

PICA-180 (PART OF PICA-175)
FIELD OFF, DISASS (BLDGS 617, 617G) SITE 154
(PAGE 2 OF 2)

occur, the small size of the site (< 1 acre) and the site conditions (mowed lawns, roads, active buildings) make it unlikely that such exposures would occur.

In 2003, PICA-133, 178, 179 and 180 were listed as response complete in AEDB-R and will be addressed under PICA-175.

PICA-184

BUILDINGS (1600,1601,1609,1610) SITE 94

SITE DESCRIPTION

Site 94 consists of Bldgs 1609 North, Bldg 1909 South, and 1610 and former Bldgs 1600, 1601, 1604. Bldgs 1601 and 1604 were demolished in 2001. Bldg 1600 was demolished in 2005. Bldg 1600 was used for explosives testing since its construction in 1949 as a test chamber. Until 2001, Bldg 1600 was being used for physical testing of high explosives. Bldg 1601 was once used for explosives testing, but was used as a photographic laboratory since the 1970s. A small pit/sump existed at the northeast corner of the building that was ~2 x 2 x 2 ft.

Bldg 1604 was built in 1942 as a flare and pyrotechnics assembly plant and was listed as an ordnance facility in 1977. However, an extension to the north added a plating facility in 1949. Bldg 1604 was inactive except for several rooms that are used for storage in recent years. Bldg 1609 South was constructed in 1942 as a machine shop, while Bldg 1609 North was constructed in 1951 as a physics laboratory. From 1962 until the present, Bldg 1609 has been used as a powder metallurgy laboratory. PTA personnel also indicated that from approximately 1970 to the mid-1980s, Bldg 1609 made tungsten cubes for use in the warhead of the Patriot missile. Bldg 1610 was constructed in 1942 as a change house and office building for workers in the 1600 Area. Change house operations were discontinued at Bldg 1610 around 1973. The entire building has been used as an office building for various government and private agencies.

A PA/SI was conducted in 1996. Metals were detected in soil at concentrations greater than LOC. A soil gas survey, as well as surface soil, subsurface soil, surface water, sediment, and groundwater sampling for VOCs, explosives, and metals was conducted from 1998 to 1999. Metals were detected in soil at concentrations greater than LOC. ~ 25 cy of metals-contaminated soil were removed from the area of the former sand basin on the south side of Bldg 1601. HHRA results indicate risks and hazard are within the target levels. A SLERA was conducted in 2004 and it was determined no further ERA is warranted due to the small size of the affected area, its location far from other contaminated sites and the removal of metals-contaminated soil in select areas.

CLEANUP STRATEGY

A FS to include a PP and ROD will be completed. LUCs are planned for the existing natural cover. The site is included in the PBC.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199606	200805

RC DATE: 200805

APPLE TREES RECREATIONAL AREA

SITE DESCRIPTION

This site is an apple orchard and recreational area. It is bordered to the west by Building 34 (Post Cafeteria), to the north and east by residences, and to the south by a parking lot. The exact age of this site is unknown. However, a 1938 PTA map indicates that this site is an apple orchard.

In 1992, the USAEHA performed a health risk assessment study at the site. As part of the study, surface soil samples were collected from the orchard and analyzed for VOCs, SVOCs, and metals. Arsenic was the only compound that exceeded its LOC. The source of the arsenic is believed to be the application of arsenic-based pesticides to control insect predation on the apples. USAEHA concluded that arsenic concentrations in surface soil, at the Apple Orchard, posed a human health risk.

In 2000, an extensive soil sampling program was conducted to determine the extent of arsenic contamination at the orchard. The sampling determined that the arsenic contamination was widespread throughout the orchard. However, the contamination appears to be limited to the top one to two feet of soil, because subsurface soils (2-3 ft below ground surface) did not contain elevated levels of arsenic. As a result, an Engineering Evaluation and Cost Analysis (EE/CA) was prepared to provide a recommendation for a removal action at the site. The EE/CA evaluated two alternatives (a multi-layer cap and excavation with off-site disposal). The EE/CA was never implemented. Preliminary results from a phytoremediation treatability study have indicated arsenic levels in the ferns ~4 to 7 times the levels in the soil. Results of a HHRA for industrial worker exposures indicate risk from surface soil exposure at the site exceeds the target level of 1E-4. The hazards from surface soil exposure are below the target level of 1. Risks and hazards from subsurface soil exposure are below the target levels.

In the spring of 2004, this site was re-classified by the Army from an apple orchard to a recreational area. In response to regulatory comments on the RI report and the re-classification of the site, additional sampling was conducted at the site in the summer of 2004. Six surface soil samples were collected and analyzed for pesticides and lead.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Arsenic

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197607	198105
SI	199202	199204
RI/FS	199502	200710
RD	200604	200804
RA(C)	200604	200808

RC DATE: 200808

PICA-192

APPLE TREES RECREATIONAL AREA

(PAGE 2 OF 2)

Organochlorine pesticides (DDE, DDD and DDT- were detected in all six samples, but only the samples collected adjacent to the apple trees had LOC exceedances.

Based on the current use of the site as a recreational area, a HHRA was conducted for worker and residential recreational exposures. Results from the recreational HHRA indicate risks and hazards are below the target levels. Based on the results of the recreational exposure HHRAs, a FS will be prepared to evaluate remedial alternatives for the contaminated soil. The site is included in the PBC.

CLEANUP STRATEGY

A FS to include a PP and ROD will be completed. A combination of existing LUC (i.e. maintained vegetative cover) will likely be the remedy for this site.

GREEN POND AND BEAR SWAMP BROOK SITE 190

SITE DESCRIPTION

The Green Pond Brook Study area begins at the outfall of Picatinny Lake and extends to the southern installation boundary. The Bear Swamp Brook Study area begins on Green Pond Mountain and extends until BSBs confluence with GPB. These two brooks are the main drainage way for the watershed on the southern portion of Picatinny. These two brooks flowed past several industrial areas that previously had surface water discharges.

There have been numerous investigations of GPB/BSB since 1983. Investigations were carried out by USGS (1988, 1990, and 1991), Metcalf and Eddy (1991), USAEHA (1991), and Dames and Moore (1989). These investigations cumulatively collected over 100 surface water and sediment samples. The site underwent an RI in 1994 and 34 additional surface water/sediment samples were collected and analyzed for VOCs, BNAs, metals, cyanide, explosives, pesticides, PCBs, and TPH. A subset of these samples was

analyzed for dioxins and radionuclides. The HHRA calculated a risk of 8×10^{-6} for trespasser swimmers (PCBs), and dioxins/furans), 2×10^{-4} for fish consumers (arsenic and PCBs). The ERA determined that there did not appear to be any grossly evident contaminant related impacts, but the contaminant food chain model suggests a potential for impacts.

In 1999, a feasibility study data gap investigation took place and an additional 13 surface water/sediment samples and 42 sediment samples were collected and analyzed for VOCs, SVOCs, pesticides, PCBs, explosives, metals, anions, and radiologicals with a smaller number of samples analyzed for dioxins. There were exceedances of VOCs, SVOCs, pesticides, PCBs, explosives, anions, and metals criteria in surface water, and VOCs, SVOCs, pesticides, PCBs, and metals criteria in sediment. Potential effect levels were calculated and based upon the number and severity of the effect level exceedances AOCs were identified and an FS was performed. The areas of concern in three regions are: Region 2 - Site 52, 95, and 96 impacted with SVOCs, PCBs, and pesticides; Site 101 with copper; Region 3 - Area H containing mercury and pesticides and Area D basins containing metals, SVOCs, pesticides and PCBs; and Region 4 – containing copper. The FS

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Metals, PCBs, Pesticides, PAHs

MEDIA OF CONCERN: Sediment, Surface Water

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS	199309	200507
IRA	200308	200410
RD	200108	200612
RA(C)	200604	200702
LTM	200703	203702

RC DATE: 200702

PICA-193
GREEN POND AND BEAR SWAMP BROOK SITE 190
(PAGE 2 OF 2)

recommends chemical and biological monitoring for Regions 2 and 4, and excavation and off-site disposal for Region 3. The FS has been approved by the regulators.

A Proposed Plan and public meeting were completed in December 2003.

PICA-194 has been combined with PICA-193, Bear Swamp Brook, and both are being addressed concurrently under PICA-193. Thus, PICA-194 is considered response complete.

Remediation of the sediment basins (as an IRA) was completed in late 2003.

The ROD for this site was signed in July 2005. An RD was submitted to the regulators in April 2006.

CLEANUP STRATEGY

Remedial activities at the other areas of concern will be performed. The remaining AOCs in Region 3 will be excavated subsequent to the sedimentation basins.

AOCs in Region 3 will be dredged and the remaining AOCs in Regions 2 and 4 will be chemically and biologically monitored. The site is included in the PBC.

PICA-194 (PART OF PICA-193) GREEN POND BROOK

SITE DESCRIPTION

This site consists of Bear Swamp Brook from its headwaters on Green Pond Mountain to the confluence with Green Pond Brook. This area is also referred to as Region 2 in the Green Pond Brook remedial investigation. All environmental issues in Bear Swamp Brook are being addressed in PICA-193. Therefore this site is considered response complete.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Metals, PCBs, Pesticides, PAHs

MEDIA OF CONCERN: Sediment,
Surface Water

Phases	Start	End
PA.....	197607	198105
SI	198910	199103
RI/FS	199309	200007

RC DATE: 200008

PICA-195 (SITE 77)

BLDGS IN 1400/1300/3100/1000 AREAS

SITE DESCRIPTION

Building 3150 is on the southeastern PTA boundary. Building 3150 was constructed in 1942 as a storage building. Currently it houses a precision machine shop (85,592 ft²) and a gymnasium (8,285 ft²). The metal fabrication machine shop, which also has a waste storage area, is at the north corner of the basement of the building.

A document review has been completed for this site to investigate the potential for impact to groundwater from the site. The document review indicated materials handled in the building included lubricating oils, metal cuttings and degreasers. This site is adjacent to Site 5 (Shell Burial Area). Chlorinated solvent contamination has been detected at Site 5, and Site 77 could be a potential up-gradient source. No remedial investigation has taken place at the building.

In 2003, PICA-037, 080, 081, 082, 164, 165, 166, 167 and 170 were listed as response completed in AEDB-R and will be addressed under PICA-195.

CLEANUP STRATEGY

A historical records search at PICA-195 will be documented in the FS.
 PICA-037, 081, 082, 166, 170 – NFA
 The site is included in the PBC.

PICA-080, 164, 165, 167 – A FS, PP, ROD will be completed and followed by LUCs.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
PCBs

MEDIA OF CONCERN: Soil

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	197607	198105
SI.....	198910	199103
RI/FS	199606	200805

RC DATE: 200805

PICA-037 (PART OF PICA-195) FORMER HAZ WST TANK STOR (1380) (SITE 51)

SITE DESCRIPTION

Building 1380 is located on the north side of South N.G. Road. Two ASTs were located approximately 50 ft west of Building 1380. The tanks were used to store a 60/40 percent mixture of nitric and sulfuric acids, for use in the production of NG at Building 1362. The mixed acids were fed to Building 1362 via a 1-inch overhead stainless steel product transfer line. The installation date of the tanks is unknown, but Building 1380 was constructed in 1949. No information was available on the actual date when use of the tanks was terminated, but a 1987 PTA Final Safety Site Plan indicated that Building 1380 was inactive.

The two mixed acid storage tanks were removed in 1992, as part of a RCRA closure performed by Weston. Three 75-KVA pad-mounted transformers (TR-1380) are located east of Building 1380. According to the PTA transformer database, two of the transformers were not PCB-contaminated, while the third had a total PCB concentration of 140 ppm.

Explosives, VOCs, SVOCs, pesticides/PCBs, anions, and metals analysis of soil were conducted as part of the 1996 PA/SI. No detections were identified at concentrations greater than LOC. Due to the low amount of contamination present in the SI samples collected, no RI/FS work will be conducted at this site.

In 2003, PICA-037, 080, 081, 082, 164, 165, 166, 167 and 170 were listed as response completed in AEDB-R and will be addressed under PICA-195.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
PCBs

MEDIA OF CONCERN: Soil

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	197607	198105
SI	198707	198906
RI/FS.....	199606	200306

RC DATE: 200306

PICA-080 (PART OF PICA-195) FORMER LAB PACK FAC (B-1094) SITE 41

(PAGE 1 OF 2)

SITE DESCRIPTION

Building 1094 was constructed in 1942 as a screening and pulverizing building for nitroguanidine (NQ), and is located west of the intersection of 17th Avenue and Main Road. In 1981, the building was renovated to store solid and liquid flammable waste. Building 1094 operated as one of three RCRA-permitted hazardous waste storage facilities at Picatinny Arsenal until 2000, when it was converted to a hazardous waste supply building. Materials used, prior to the building renovation in 1981, were acid (SO₂), NQ, and Haleite (ethylenedinitramine).

Two spent acid USTs, set in concrete, were formerly located between Buildings 1094 and 1052. A 500-gallon stainless steel UST was installed during 1981 renovations. The tank is encased in a concrete basin, underground, 30-ft from the southwest side of the building. The tank was connected to floor drains in Building 1094 and a 130 ft² attached shed. The UST was reportedly taken out of service in 1990. Two dry wells are reported to have been in use at Building 1094; one was connected to the floor drain in the center of bldg and a second dry well received steam condensate. Neither dry well was located during the ICF KE site inspection in March 1996. A 4 x 3 x 3 ft area of stained soil was identified at Building 1094 during a site inspection in December 1992, attributed to the storage and leakage of equipment containing non-hazardous lubricating oil. The PTA waste-handling contractor removed, containerized, and disposed of the contaminated soil.

A PA/SI was conducted in 1996, including the collection of soil samples for the analysis of VOCs, SVOCs, pesticides/PCBs, metals, explosives, and anions. PAHs were detected in surface soil at concentrations greater than levels of concern. Based upon results of the PA/SI, RI activities were initiated in Fall 2000 as part of the Phase III 2A/3A RI. RI activities included soil sampling for PAH contamination detected in PA/SI samples and geophysical surveys to locate the former dry wells. No chemicals were detected at concentrations greater than levels of concern. Based upon results of the geophysical surveys, the dry wells could not be identified, but subsurface soil samples were collected at two anomalies to investigate potential contamination from former USTs. Lead was detected at a concentration slightly above the LOC. No further sampling is proposed. Results of a HHRA indicate the risk and hazard from soil exposure at the site are below the target levels of 1E-4 and 1, respectively. However, lead in the subsurface soil is a potential concern. The SLERA concluded that the small area of the site (about 0.2 acres), the limited degree

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
PCBs

MEDIA OF CONCERN: Soil

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	197607	198105
SI.....	198707	198906
RI/FS	199606	200306

RC DATE: 200306

**PICA-080 (PART OF PICA-195)
FORMER LAB PACK FAC (B-1094) SITE 41
(PAGE 2 OF 2)**

of surface soil contamination, and the lack of exposure to subsurface contaminants make the potential for significant ecological exposure to be unlikely.

In 2003, PICA-037, 080, 081, 082, 164, 165, 166, 167 and 170 were listed as response completed in AEDB-R and will be addressed under PICA-195.

PICA-081 (PART OF PICA-195) FORMER PCB STORAGE AREA (B-3114) SITE 42

SITE DESCRIPTION

Building 3114 is located at the intersection of South Woods Road and East Tower Road. The building was constructed in 1934 by the Navy, as a flammable materials storage facility, on the remnants of the foundation of a storage magazine, which was demolished by the 1926 Lake Denmark disaster. Building 3114 has been used as a storage facility since the time of its construction. Although, little documentation exists from the time of Naval ownership, it is believed that Building 3114 was historically used for the storage of nitrocellulose (NC) and solvents. Building 3114 has been used for the storage of used electrical equipment since the early 1980s, including pieces of PCB-contaminated equipment. Building 3114 was utilized as one of the RCRA-permitted storage facilities at PTA until 2000. According to a 1981 PTA memorandum, storage of PCB-contaminated electrical equipment, on the northeast side of the building, was permitted until 1983. After this time, all storage took place inside the building.

A wastewater discharge investigation was conducted in 1991, including the collection of storm water and soil samples. No significant detections were present in samples collected, except one sample containing Aroclor 1254, at a concentration approaching levels of concern. A PA/SI was conducted at this site in 1996. Included as part of the PA/SI was analysis of soil samples for VOCs, SVOCs, pesticides/PCBs, metals, explosives, and anions. No compounds were detected above levels of concern. Due to the low amount of contamination present in the SI samples collected, no RI/FS work will be conducted at this site.

In 2003, PICA-037, 080, 081, 082, 164, 165, 166, 167 and 170 were listed as response completed in AEDB-R and will be addressed under PICA-195.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
PCBs

MEDIA OF CONCERN: Soil

Phases	Start	End
PA.....	197607	198105
SI	198707	198906
RI/FS	199606	200306

RC DATE: 200306

PICA-082 (PART OF PICA-195) PESTICIDE STORAGE AREA (B 3157) SITE 43

SITE DESCRIPTION

Building 3157 was built in 1896 as a pump house for the U.S. Naval Ammunition Depot, and is located at the intersection of Schrader Road and Jenkins Road. The building was subsequently converted to a general storehouse, and in the early to mid 1970s, was converted to the pesticide storage and mixing facility. In 1991, Building 3157 underwent a RCRA closure, and in 1994 a secondary containment area, located immediately adjacent to the east side of the building, was constructed to adhere to best management practices for spill containment.

Two outside storage areas are located east of the building. One was used to store a pesticide application truck, while the other was formerly used to store gasoline for the truck. A RCRA satellite hazardous waste storage area was located in the mixing room for pesticide rinsate from mixing and equipment cleaning operations, and pesticide/herbicide residue. Since 1980, no spills have been reported as a result of pesticide activities at Building 3157. The floor drain in the mixing room formerly discharged to a dry well, under the current bathroom added in the early 1990s. This drain also handled the regularly utilized shower in the building. The floor drain in the mixing room is currently sealed to prevent releases from spills during mixing. A floor drain, now covered with concrete, was also located in the large storage room. The discharge point of this drain is not known. Building 3157 is still utilized for pesticide storage.

RI activities were conducted at Building 3157 in 1998 and 2004. Included as part of RI activities were geophysical surveys and soil sampling for VOCs, SVOCs, pesticides, and cyanide. The location of the dry well could not be ascertained via geophysical surveys and no exceedences of levels of concern were detected in soil samples. No COPS were selected during HHRAs for realistic exposure scenarios. The estimated risk and hazards were assumed to be below the target risk of 1E-4 and target non-cancer hazard threshold of 1. A screening level ERA was conducted in 2004. Based on the low levels of contamination identified and its location in a high traffic area, a baseline ERA is not recommended.

In 2003, PICA-037, 080, 081, 082, 164, 165, 166, 167 and 170 were listed as response completed in AEDB-R and will be addressed under PICA-195.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
PCBs

MEDIA OF CONCERN: Soil

Phases	Start	End
PA.....	197607	198105
SI.....	198707	198906
RI/FS	199606	200306

RC DATE: 200306

PICA-164 (PART OF PICA-195) RESERVOIR NEAR BLDG 3159 SITE 103

SITE DESCRIPTION

The 16,000,000-gallon reservoir (EOD pond), located near Building 3159, was constructed some time between 1951 and 1953. Prior to its construction, the reservoir was an undeveloped marsh area. The reservoir is encased by a berm, ranging from one to at least ten feet in height, and the maximum depth of the reservoir is seven ft. The reservoir has one inlet, from a stream on the southeast side, and one formal outlet to a culvert on the north side, that is controlled by an overflow valve. The reservoir also has a second, overflow outlet located on the east side. Buildings 3137, 3155, 3157, and 3159, along with several foundations remaining from the 1926 Lake Denmark explosion surround the reservoir. No spills have been documented from the four surrounding buildings into the reservoir. Materials associated with the area surrounding the reservoir may include pesticides (variety), flammable materials (unknown), PCBs, and possible ordnance.

A USAEHA investigation was conducted at the reservoir in 1984, and at nearby Building 3157 in 1988. Elevated levels of chromium and copper were detected in sediment from the reservoir, and mirex was detected in one surface soil sample collected near Building 3157. As part of the 1996 PA/SI, surface soil, surface water, and sediment were analyzed for VOCs, SVOCs, pesticides/PCBs, metals, and anions. Metals were detected in surface soil and surface water at concentrations greater than levels of concern. Based upon results of the PA/SI and USAEHA investigations, RI activities were conducted between 1998 and 2000. Activities conducted as part of the RI included geophysical surveys and surface water/sediment sampling for VOCs, pesticides/PCBs, explosives, and metals. The geophysical survey suggested the presence of several areas likely to possess ferrous objects. However, results of the surface water and sediment sampling revealed limited number of metals detections in sediment, slightly above levels of concern and no exceedences in surface water. Results of the HHRA indicate risks and hazards are below the target levels for the on-site youth visitor. A baseline ERA was conducted for the aquatic ecosystem in the spring/summer of 2005 as part of the Phase III ERA. The overall weight-of-evidence suggests that the aquatic ecosystem in the reservoir Run is not adversely affected by the presence of site-related COPECs in the surface water or sediment.

In 2003, PICA-037, 080, 081, 082, 164, 165, 166, 167 and 170 were listed as response completed in AEDB-R and will be addressed under PICA-195.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:
PCBs

MEDIA OF CONCERN: Soil

Phases	Start	End
PA.....	197607	198105
SI	198910	199103
RI/FS	199606	200306

RC DATE: 200306

PICA-165 (PART OF PICA-195) FORMER EXPLOSIVES LOADING BLDG 1033 SITE

114 (PAGE 1 OF 2)

SITE DESCRIPTION

Building 1033, constructed in 1952, is located at the intersection of Upper X.H.E. Road and 12th Street, and was used as a melt-pour building until the early 1980's. Chemicals and materials used in Bldg 1033 included: TNT, Amatex, Composition B, octol, acetone, possibly CTC, Lock-tite (adhesive), cycloctol, varsol, and "visatol". Materials loaded were 105-mm shells, 155-mm shells, 8-inch shells, M456 shells, and BLU 92 hand grenades. A settling tank was formerly located beneath the northern addition of Bldg 1033, that received explosives-contaminated process and wash-down water from Bldgs 1033, 1071, and 1031, via an open trough system, as well as explosives-contaminated wastewater from Bldg 1033-A. The tank was replaced in 1967 with a tank located on the west side of the building when the northern addition was constructed. Final discharge of the wastewater was to Bldg 1036 or Robinson Run. Bldg 1033 was a permitted discharge source under a NPDES permit from 1975 until 1980. The permit was for the discharge of treated scrubber water from the assembly of explosive devices in Bldg 1033.

In 1993, an ARDEC investigation, of an open underground settling tanked, indicated no TCLP metals above reportable limits. A PA/SI was conducted in 1996. RDX and copper were detected at concentrations greater than LOC. HMX, for which no LOC exists, was also detected at elevated levels. Sampling activities are currently ongoing for the analysis of soil, surface water, and sediment for VOCs, SVOCs, PCBs, explosives, and metals. To date, RDX has been detected at concentrations above LOC in surface soil, arsenic has been detected in sediment above LOC, and TCE has been detected in surface water at concentrations greater than LOC. The extent of the soil and surface water contamination has been delineated, as a result of the sampling performed in 2000-01. Results of a HHRA indicate the risk and hazard from soil exposure at the site are below the target levels of 1E-4 and 1, respectively. A SLERA, conducted in 2004, concluded no further ecological investigation of this site is warranted. However, Robinson Run was evaluated in a BERA including the areas of TCE contamination identified in the surface water. The overall weight-of-evidence suggests that the aquatic ecosystem in Robinson Run is not adversely affected by the presence of site-related COPECs in the surface water or sediment.

Subsequent to the RI sampling, Building 1033 was demolished, debris removed and the area regraded. The elevated RDX levels may have been relocated to the subsurface

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
PCBs

MEDIA OF CONCERN: Soil

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198910	199103
RI/FS	199606	200306

RC DATE: 200306

**PICA-165 (PART OF PICA-195)
FORMER EXPLOSIVES LOADING BLDG 1033 SITE
114 (PAGE 2 OF 2)**

during the site regrading or consumed in the demolition/decontamination by fire under TECUP.

Groundwater and surface water contamination are being addressed on an area-wide basis as part of the Mid-Valley Investigation.

In 2003, PICA-037, 080, 081, 082, 164, 165, 166, 167 and 170 were listed as response completed in AEDB-R and will be addressed under PICA-195.

PICA-166 (PART OF PICA-195) (SITE 160) FORMER ORDNANCE FACILITY (BLDG 1029)

(PAGE 1 OF 2)

SITE DESCRIPTION

Building 1029 is located off Upper X.H.E. Road, northwest of its intersection with N.G. Road. Completed in 1974, Building 1029 was intended to house a propellant analytical laboratory, and a control room for TNT production operations in Building 1031. However, a fire in 1979 destroyed the computer control equipment, and the control room area was renovated to expand the lab area. The building operated as a liquid propellant laboratory until 1998, and is currently inactive. The initial lab operations included drying and weighing the explosives generated in Building 1031, such as RDX and HMX. Explosive waste (containing 5% or more explosives) was sent to the PTA Burning Ground for appropriate off-site disposal. Two rooms were designated RCRA satellite hazardous waste accumulation areas, and were active since 1986. The building is connected to a septic tank and leach field, consisting of two underground crushed stone drainage channels and drain tiles.

An ARDEC water discharge report indicated the major concern with this building was a sink drain, which discharges directly to the ground and brook via a metal sump. A PA/SI was conducted in 1996, for the analysis of surface soil, for VOCs, SVOCs, pesticides/PCBs, explosives, metals, and anions. The sink drain was sampled as part of this investigation. No compounds were detected at concentrations greater than level of concern (LOC). Based upon regulatory comment, Site 160 was included as part of the Phase III 2A/3A RI for the analysis of subsurface soil for VOCs, explosives, and metals. No contaminants were detected above LOC during the RI. Groundwater contamination is being addressed on an area-wide basis as part of the Mid-Valley Investigation. Since no chemical concentrations exceeded the screening criteria, risk and hazards were not quantified for this site. Based on the general lack of contamination detected in association with Bldg 1029, and the small size (~ 0.1 acre), a SLERA concluded that no further ecological investigation is warranted.

In November 2003, the concrete basin used for the acid pit was removed from the ground along with some surrounding soil. A soil sample was collected at the bottom of the excavation beneath the acid pit at 4.5 to 5.0 ft bgs as well as from the excavated soil pile. The two soil samples were analyzed for VOCs, SVOCs, explosives and metals. VOCs, SVOCs and explosives were not detected in the samples; all metal concentrations were less than their respective LOCs. The concrete catch basin was demolished and disposed of off-site as non-hazardous debris. The excavated soil was used to backfill the excavation.

In 2003, PICA-037, 080, 081, 082, 164, 165, 166, 167 and 170 were listed as response completed in AEDB-R and will be addressed under PICA-195.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
PCBs

MEDIA OF CONCERN: Soil

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	197607	198105
SI	198910	199103
RI/FS	199606	200306

RC DATE: 200306

PICA-167 (PART OF PICA-195)(SITE 167) FORMER PROP PLT/ORD FAC(BLDGS 1373,1374)

SITE DESCRIPTION

Site 167 consists of Buildings 1373 and 1374. Building 1373 was a NG mixing building, while Building 1374 was a propellant blending building. Both buildings are located between South N.G. Road and Upper X.H.E. Road. Building 1373 was constructed in 1948 and used as a NG emulsifier and mixer building until 1981. The building was decontaminated to the 3X condition in 1989. Building 1373 discharged wastewater through four troughs to two sumps, formerly located on the north side of the building. A removal action was conducted at Building 1373 in 1994-1995, which included removing both sumps. During a 1996 site inspection, the NG storage room was sealed from access and the trough system along the Building 1373 northern platform remained.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
PCBs

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS.....	199606	200306

RC DATE: 200306

Building 1374 was constructed in 1948 and used as a propellant processing building for NG- and NC-based propellants until the early- to mid-1970s. Operations consisted of blending NG and NC pastes to obtain uniformity and consistency. A trough system inside Building 1374 was used to capture explosives-contaminated wastewater generated from washdown operations. The trough system discharged to a concrete sump located in the northwestern corner of the building. The sump then discharged to a nearby stream. A drain, in the pit, discharged to an earthen ditch running along the northern side of the building. Bldg 1374 was demolished in 2003. Further, the sump located at the northwestern corner of the building and 8 cy of soil were excavated in 2004 as part of the facility-wide sump and dry well investigation. All detections in confirmatory samples were below LOCs.

Site 167 was included as part of the Phase III-1A Remedial Investigation. Sampling activities conducted included the analysis of soil, surface water, sediment, and groundwater for VOCs, explosives, metals, and anions. Metals were detected at concentrations above LOC in surface soil, sediment, and surface water. HHRA results indicate the risks and hazards are within the target levels. A baseline ERA was conducted in the spring/summer of 2005 as part of the Phase III ERA. Though the food web models indicated that adverse effects on reproduction in small mammals or birds could occur given sufficient exposure to site COPECs in southern Area L, the field investigations and RSA results indicated that affects, if any, were not impacting the local populations of small mammals or birds.

In 2003, PICA-037, 080, 081, 082, 164, 165, 166, 167 and 170 were listed as response completed in AEDB-R and will be addressed under PICA-195.

PICA-170 (PART OF PICA-195) PROP MELT PLTS (BLDGS 1462-1464) SITE 170

SITE DESCRIPTION

Buildings 1462, 1463, and 1464, along with Building 1461, made up a pilot scale propellant melt-pour facility.

Building 1462, constructed in 1974, was used until approximately 1980 as part of a pilot scale melt-pour facility for the melting of propellant. Building 1462 received Composition B (a mixture of RDX and TNT) from Building 1461 via an overhead conveyor, melted the propellant material, and then pumped it to Building 1463 via a 2-inch process line, enclosed in a concrete trough, which ran under Lower Cast Propellant Road. Building 1463, constructed in 1974, received molten Composition B from Building 1462 for loading into projectiles until around 1980. Renovations began in the early 1990s on Buildings 1462 and 1464 for use in conjunction with an explosives waste incinerator, that was to be located at Site 170. Construction of the explosives waste incinerator at Site 170 is currently complete. However, approval of trial burn results are pending. Building 1464, constructed in 1978, was used as the projectile shipping and receiving building from the time of its construction until around 1980. Empty projectiles were received at Building 1464, where they were conveyed through an enclosed walkway to Building 1463 for filling. The loaded projectiles were returned to Building 1464, capped, and placed on pallets for shipment.

Weston removed a total of nine wastewater tanks (three tanks at each building) in 1993 as part of a RCRA closure. Upon removal of the tanks, 10 soil samples were collected at each building for confirmatory analysis of TAL metals, RDX, and HMX. No explosives were detected, and metals were not detected at concentrations greater than LOC, except for beryllium in one sample at a concentration of 2.1 mg/kg. Based upon the confirmatory sampling results, the NJDEP accepted the RCRA closure in 1994. The PTA EAO collected 11 surface and subsurface soil samples for VOCs, SVOCs, pesticides/PCBs, metals, and explosives between Buildings 1463 and 1464 in 1993. One metal, arsenic, was detected at a concentration marginally above LOC. A PA/SI was conducted in 1996 for soil analysis of VOCs, SVOCs, pesticides/PCBs, explosives, metals, and anions. No PA/SI samples had exceedances of NJDEP soil criteria.

Institutional controls will be recommended as the remedy for this site.

In 2003, PICA-037, 080, 081, 082, 164, 165, 166, 167 and 170 were listed as response completed in AEDB-R and will be addressed under PICA-195.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
PCBs

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197607	198105
SI	198910	199103
RI/FS.....	199606	200306

RC DATE: 200306

FORMER PISTOL RANGE DUMP & NAVY MANURE PIT

SITE DESCRIPTION

Site 199 consists of an abandoned pistol range and a former dumping area. The pistol range was active from approximately 1936 to 1980. This range was approved for pistol, shot gun, and tear gas rounds. The range is presently in poor condition. Building 3054 and an unnumbered building are the only two structures located at Site 199. Both of these shacks are wooden and presently store debris.

The area to the north of the pistol range was used as a dumping area. The former dumping area is ~1 acre. The former dumping area contains construction and demolition debris, as well as domestic trash. The debris consists of crushed metal drums, car parts (e.g., batteries, engine block), glass, ceramics, terra-cotta pipe, shingles, coal, construction buckets, soda cans, and solidified paint wastes. No information was available regarding the dates in which wastes were placed at the former dumping area. However, the type of trash present at the former dumping area suggests that the site was active from the 1920s to the mid-1930s, with sporadic activity as late as 1970. A 1940 Naval Ammunition Depot map, however, indicated a manure pit occupied the southeastern half of Site 199.

As part of CHPPM'S RRSE, antimony and lead were detected at concentrations greater than their respective LOCs. In order to further characterize the site, soil and groundwater samples were collected at the site in 2000. Elevated lead levels were reported in soil samples collected from the pistol range portion of the site. Elevated levels of arsenic, zinc, and PAHs were detected in the soil samples collected from the former dumping area in association with buried debris. The HHRA indicates that the risk from exposure to impacted site media is above the target risk levels, but below the target hazard level. Lead was also determined to be a health concern at the site. Based on the results of the HHRA, a FS will be prepared to evaluate remedial alternatives for the contaminated soil and buried debris.

CLEANUP STRATEGY

A FS to include a PP and ROD will be completed (funded in FY05). Contaminated soil (estimated 1,534 cy) may be removed or covered with a vegetative cap. LUCs are expected. The site is included in the PBC.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Metals, PAHs

MEDIA OF CONCERN: Soil

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	199312	199404
SI.....	199408	199509
RI/FS	199703	200710
RD.....	200604...	200804
RA(C)	200604	200808

RC DATE: 200808

AREA L OTHER BUILDINGS (PAGE 1 OF 2)

SITE DESCRIPTION

Thirteen additional buildings in Area L are included as part of PICA-200. The following is a brief description of each building. Bldg 1030 was constructed in 1949 as an acid tank farm. Bldg 1037 was constructed in 1957 as a wastewater incinerator. Bldg 1038 was constructed in 1956 as a solvent storage/flammable material storehouse. Bldg 1090 was constructed in 1948 as an assembly and packing building. Bldg 1355 consists of three 4,000 gallon steel ASTs for the storage of spent nitric and sulfuric acid used in the production of NG. Bldg 1369 was constructed in 1948 as a glycerin heater. Bldg 1372 was constructed in 1948 as a change house and office for NG production operations. Bldg 1373-A was demolished sometime after 1987 under the TECUP program. The only chemical known to have been associated with Bldg 1373-A was acetone. Bldg 1414 was constructed in 1948 as a propellant dry house. Bldg 1414-A was constructed in 1942 as a fan house to serve the propellant dry houses (Bldgs 1414 and 1415). Bldg 1415 was constructed in 1948 as a propellant dry house. Bldgs 1414, 1414-A, and 1415 have been demolished. Bldg 1418 was constructed in 1942 as a storage and shipping building. Bldg 1437 was constructed in 1956 as a cast propellant plant.

The 7500 gallon UST, formerly located at Bldg 1037, was sampled in 1988 and removed in 1990. Post excavation soils analysis for TPH indicated all concentrations were below LOC. An internal tank investigation was performed in 1993 at Bldgs 1030 and 1038, in which tanks at Bldg 1038 were sampled and analyzed for toluene and TCLP metals. No detections were above LOC. The tanks at Bldg 1030 were empty, thus no samples were collected.

The PICA-200 buildings were included as part of the 1996 PA/SI for VOCs, SVOCs, pesticides/PCBs, explosives, metals, and anions analysis in soil. Metals were detected above LOC at Buildings 1030, 1414, 1415, and 1437. PAHs were detected at concentrations greater than LOC at Building 1414-A. Based upon results of the PA/SI, Buildings 1030, 1037, 1038, 1090, 1414, 1414-A, 1415, and 1437 were included as part of the Phase III 2A/3A RI. Field activities performed in 2000 and 2001 identified metals

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: Metals, Explosives, VOCs

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
PA.....	199312	199404
SI.....	199408	199504
RI/FS	199512	200808
RD	200604	200902
RA(C)	200604	200906
LTM	200907	203906

RC DATE: 200906

AREA L OTHER BUILDINGS (PAGE 2 OF 2)

exceedences in soil at Building 1030 and elevated levels of nitrocellulose in soil at Building 1415. The extent of this contamination has been delineated, and no further sampling is proposed.

In 2004, the stainless steel catch tank at Building 1437 was removed from the building and disposed of off-site as scrap metal.

Potential groundwater contamination is being addressed on an area-wide basis as part of the Mid-Valley Investigation. Human health risk assessments were completed for the individual buildings. Risk and hazards were below the target levels of 1E-4 and 1 for all buildings. Due to the small size of these buildings and the lack of surface soil contamination associated with these buildings, a SLERA concluded that no further ecological investigation is warranted for this site with the exception of former Bldg 1030. A BERA performed for former Bldg 1030 in 2005 included a benthic macroinvertebrate survey of Robinson Run. The results of the survey suggest that the benthic community of Robinson Run does not appear to be at any significant risk from the potential presence of contaminants from Area L sites in the surface water or sediment.

CLEANUP STRATEGY

A FS, PP and ROD will be completed. LUCs are expected. The site is included in the PBC.

AREA-H & MID-VALLEY GROUNDWATER

SITE DESCRIPTION

The Mid-Valley region at Picatinny consists of Study Areas F, G, H, and the northwestern part of Area L. Dames and Moore completed the Phase I Remedial Investigation (RI), including Areas F and G, at PTA in 1998. During that investigation, several constituents of concern (COCs) were identified in the groundwater at sites within the F and G study areas. These COCs included trichloroethene (TCE), tetrachloroethene (PCE), RDX, and metals. Calculations for the hypothetical future use of groundwater by future residents and workers exceeded the carcinogenic risk criteria of 1E-06, and the non-carcinogenic hazard criteria of 1. The Phase I RI concluded that these COCs might have upgradient sources in Areas H (to the west) and L (to the east), which are impacting the groundwater in Areas F and G. Subsequent investigations have focused on the Area H and L study sites (Phase II and Phase III RIs, respectively); and on further characterizing the extent of contamination at the Area F and G study sites (Phase I Additional Remedial Investigation and Area F&G Groundwater Investigation). During the Phase II and Phase III RIs, TCE, PCE, RDX, and metals were detected at concentrations greater than LOC in groundwater in Areas H and L.

A groundwater RI was started in late 2001 to delineate the plumes. A data gap investigation was started in 2003 and completed in 2004. This investigation determined the source area for a TCE and RDX plume. The TCE plume is long and narrow and has moderate TCE exceedance conditions (TCE ~100 µg/l). The TCE plume is over 5000 ft in length. The RDX plume covers a smaller area and has concentrations of ~ 80 µg/l.

A FS for the site is currently being reviewed by the regulators.

CLEANUP STRATEGY

A FS will be completed. During the RI/FS process costs have been identified for the abandonment of ~250 monitoring wells installation-wide. It is proposed that ~23 wells will be monitored for explosives and VOCs on a quarterly basis for the initial 2 years, then 18 wells annually for 8 years, then 12 wells annually for 20 years. The site is included in the PBC.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
TCE, Explosives, VOCs

MEDIA OF CONCERN:
Groundwater

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	199309	199604
SI	199608	199806
RI/FS.....	199809	200702
RD	200604	200805
RA(C).....	200604	200807
RA(O).....	200604	203806

RIP DATE: 200807

RC DATE: 203806

AREA B GROUNDWATER (PAGE 1 OF 2)

SITE DESCRIPTION

The groundwater in this area is being addressed independently of the other media. All other environmental media at this site are being addressed under PICA Site 66. There are two sites within Area B, Site 20; a pyrotechnic range and Site 24; a sanitary landfill. Site 20 is located entirely within Site 24. Site 24 consists of cleared, reclaimed/filled wetlands containing several small mobile buildings/sheds, ponds, and man-made drainage ditches. The most prominent feature of Site 24 is the Landfill pond that occupies an area of approximately 1-acre. Documentation indicates that fly ash, ordnance, industrial waste, and sludge from the water treatment plant were reportedly disposed of at Site 24 until 1972. There is strong potential for an off-post production well to be operated nearby.

Groundwater investigation began in 1981-84 when two wells were installed and sampled for VOCs and metals. A geophysical survey was performed in 1986. Three additional wells were installed and sampled for VOCs, SVOCs, metals, anions, and phenols in 1989. VOCs, metals, and anions were detected above LOCs. In 1994, the remedial investigation included geophysical, radiological, and soil gas surveys, and installation of more wells where VOCs and metals were detected above LOC. HHRA was calculated to be above 1×10^{-4} (assuming on-site consumption of groundwater). Follow-up Geoprobe investigation in 1996 and additional well installation in 1998 and 1999 were all carried out to close data gaps associated with plume delineation or potential remedial alternatives. The most recent investigation included a 'redox zonation' to assess the potential for MNA. All of these investigations found elevated levels of VOCs in the two uppermost aquifers. A Feasibility Study was submitted in Apr 2002 which examined MNA, chemical oxidation, iron slurry injection, hydrogen release compound (HRC), oxygen release compound, and pump and treat. The final FS recommends expedited treatment of groundwater using HRC. Prior to this FS recommendation, the Army performed a pilot scale injection of iron slurry for chemical reduction of chlorinated organics (completed in Feb 2002). This process was not found to be effective at this site. A HRC pilot study was completed in fall 2004. The anticipated remedial alternative is injection of hydrogen release compound or alternative amendments to try to meet cleanup standards within 7 years.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
VOCs, Xylenes

MEDIA OF CONCERN:
Groundwater

Phases	Start	End
PA.....	199309	199604
RI/FS	199608	200710
RD	200604	200805
RA(C)	200604	200807
RA(O)	200604	203806

RIP DATE: 200807

RC DATE: 203806

AREA B GROUNDWATER (PAGE 2 OF 2)

The proposed plan was finalized and the public notice completed in 2005. The ROD is currently being drafted.

CLEANUP STRATEGY

HRC or alternative amendments will be injected in the most contaminated portions of the plume. Remediation is expected to be completed within 7 years. The site is included in the PBC.

PICA-206

AREA C GROUNDWATER

SITE DESCRIPTION

This site is not included in the PBC.

Area C is approximately 126 acres in size and is located in the southwestern portion of PTA, near the southern boundary of the Arsenal. Area C consists of the following six study sites: Site 19 - Pyrotechnic Demonstration Area (DSERTS #020), Site 23 - Post Farm Landfill (DSERTS #065), Site 25 - Sanitary Landfill (DSERTS #067), Site 26 - Dredge Piles from Green Pond Brook (DSERTS #068), Site 163 - Baseball Fields (DSERTS #092), and Site 180 - Waste Burial Area (DSERTS #093). PICA 206 covers all groundwater in Area C with the exception of Site 23 groundwater. Due to the geographic and elevation differences between Site 23 and all of the remaining sites in Area C, Site 23 groundwater is being addressed along with the remaining media at Site 23 (PICA-065). There are 47 wells in Area C. There is strong potential for an off-post production well to be operated nearby.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN:
Metals, VOCs, Explosives

MEDIA OF CONCERN:
Groundwater

Phases	Start	End
PA.....	199309	199604
RI/FS	199608	200701
LTM	200702	203709

RC DATE: 200702

An area-wide groundwater assessment was performed as part of the 1994 remedial investigation. In the RI, groundwater exceedances were found for VOCs, one SVOC, and metals. The HHRA indicated that carcinogenic risk fell between or exceeded the 1×10^{-6} to 1×10^{-4} range. Carcinogenic risk is primarily from carbon tetrachloride, chloroform, trichloroethene, arsenic, beryllium, heptachlor epoxide, and dioxins/furans. In 2001, additional rounds of groundwater samples were collected for VOCs, metals, explosives, perchlorate and dioxins. Groundwater analyses were targeted to include only previous detections. Results indicated exceedances of VOCs and metals. Additional delineation of these samples was conducted in 2002 and one year of quarterly sampling was conducted for the 16 Southern Boundary wells between fall 2002 and summer 2003 and semi-annual monitoring was conducted through 2004. An FS was completed in 2005 in which continued implementation of ICs with LTM was recommended. The FS has been approved by the regulators. A Proposed Plan focusing on long term monitoring is being drafted.

CLEANUP STRATEGY

A PP and ROD followed by LTM are planned for this site. LTM will include 16 SB wells, 12 Area C wells, 2 Area C SW quarterly for 2 years and annually for 28 years, LUCs, well construction and repair, abandonment and five year reviews The site is included in the PBC.

BUILDING 167, LOCOMOTIVE AREA, BLDG. 430

SITE DESCRIPTION

PICA 209 consists of five separate buildings (Bldg 167, 303, 426, 426A, 430) in Area F, grouped together by USACHPPM for a relative risk site evaluation (RRSE).

Building 167 was constructed in 1930 as an explosives prep laboratory. The building was also used as a nuclear chemical research laboratory and is currently vacant. Drums containing radionuclides were stored on the eastern side of the building. The building contained hot laboratories where sink drains, equipment drains, and floor drains were routed to collection tanks in the basement. These tanks received low-level radioactive waste and solvents. The radiation protection office tested and cleared the piping before removal in 1973. All of the tanks but one were removed at this time. No closeout or closure survey was conducted. There were reportedly piping leaks in the building basement.

Former Building 303, Locomotive Area, was used to maintain all locomotives prior to 1926. The building is demolished except for foundation and service pits that show evidence of petroleum contamination and contain coal clinkers.

Building 430 is a former propellant systems facility used to produce and test small batches of nitroglycerine. Liquid wastes generated in the building were retained in lead catch tanks installed in the 1950s. Overflow from the tanks was discharged onto the soil. Bldg 462A, built in 1941, was used for storage as part of the neutralizing house for the guncotton line. It is currently used for storage of explosives. The building contains a concrete sump, formerly used to receive wastewater from Bldg 462. The water was then discharged into a ditch located southwest of the building. Former Bldg 426 was used as a mixing house prior to its destruction during an explosion in 1945. No other information is available concerning this building.

In 1998 USACHPPM performed a RRSE for the five buildings/storage areas associated with this site. Samples were collected at each bldg except former Bldg 426. Metals, explosives, and PAHs were detected in soil above LOC. VOCs, explosives and metals

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN:

Metals, Petroleum, SVOCs,
Radiologicals

MEDIA OF CONCERN: Soil,
Groundwater, Sediment

Phases	Start	End
PA.....	199309	199604
SI.....	199608	199806
RI/FS	199809	200809
IRA	200308	200410
LTM	200810	203909

RC DATE: 200809

PICA-209
BUILDING 167, LOCOMOTIVE AREA, BLDG. 430
(PAGE 2 OF 2)

were identified in the groundwater above LOC. In 2000 and 2001 surface and subsurface soil were collected for arsenic, lead and explosives.

The analytical results have successfully delineated the extent of contamination at each building, and no further sampling is proposed. Individual HHRAs were performed for the five buildings. Risks were above 1E-4 at Bldg 167 and 430. Hazards were above the target levels of 1 at Bldg 430 and former Bldg 303. Lead was also a health concern at these two buildings. A SLERA was conducted for the five PICA-209 buildings in spring 2005. A reconnaissance visit prior to the BERA field investigations determined that construction or remediation activities north of Area F as well as the cessation of discharges from Area F buildings to this ditch had altered the expected flow patterns and the ditch was completely dry. The ditch no longer represents potential aquatic habitat. Previous sediment analytical data was regarded as surface soil data for evaluation in the Area F BERA through wildlife exposure modeling. Though the food web exposure models indicated that adverse effects on reproduction in small mammals or birds could occur given sufficient exposure to site COPECs in Area F, the field investigations and RSA results indicated that affects, if any, were not impacting the local populations of small mammals or birds.

A final release survey, including remediation and removal of contaminated radiological items (in 2002), was performed at Building 167 by the U.S. Army Joint Munitions Command (non-ER,A funds). Approximately 13.5 cubic feet of soil were excavated and disposed of off-site. Based on the post-excavation results, no further remediation of the radiological contamination is required. One sump, two lead catch tanks, and ~145cy of contaminated soil (PAHs from Bldg 167, lead/explosives from Bldg 430 and lead from Bldg 303 and 430) were removed from four of the five PICA-209 buildings between December 2003 and September 2004. Additionally, three sumps at Bldg 430 and 462A were further investigated.

Groundwater contamination will be evaluated as part of the Mid-Valley investigation.

CLEANUP STRATEGY

A FS to include a PP and ROD will be completed.

LUCs are recommended for PICA-209. The site is included in the PBC.

PBC PICATINNY PBC

SITE DESCRIPTION

This site was created to address funding information for the Performance-Based Contract for Picatinny Arsenal.

The Performance Based Contract site represents all the cost associated with all other sites except all costs associated with PICA 111, PICA 206 and PICA 58 and the remedial action costs associated with PICA 15, PICA 57, PICA 145, PICA 155, PICA 184, and PICA 195. The scope of the PBC contract only includes actions through final ROD associated with these sites.

CLEANUP STRATEGY

See the individual site descriptions for cleanup strategies.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS: NA

MEDIA OF CONCERN: NA

Phases	Start	End
PA	200009 200109
RA(C)	200506 200909
LTM.....	200909 201709

RC DATE: 200909

IRP No Further Action Sites Summary

AEDB-R #	Site Title	Documentation/Reason for NFA	NFA Date
PICA-054	Munitions and Propellant Testing Area (B-1222) (Site 8)	Not Eligible For ER,A/BRAC Funding	199702
PICA-055	Munitions and Propellant Test Area (Buildings 670, 673, 674)	Not Eligible For ER,A/BRAC Funding	200107
PICA-059	Munits/ Pyrotec Test Area (Bldg 640) (Site 13)	Not Eligible For ER,A/BRAC Funding	199702
PICA-060	Munitions Test Area (Building 636) (Site 14)	Not Eligible For ER,A/BRAC Funding	200106
PICA-061	Munitions Test Area (Buildings 616, 654) (Site 15)	Not Eligible For ER,A/BRAC Funding	200106
PICA-087	Auto Hobby Shop (Bldg 3315) Site 48	Study Completed, No Cleanup Required	200106
PICA-181	Ordnance Facility (Bldg 620, 620B) Site 155	Not Eligible For ER,A/BRAC Funding	199710
PICA-182	Munitions Test Ranges (Buildings 647, 649, 650) Site 11	Not Eligible For ER,A/BRAC Funding	199702
PICA-197	Area "O" Other Buildings	Other	199710
PICA-198	Area "N" Other Buildings	Other	199710
PICA-201	Other Bldgs in Area P	Other	199710
PICA-202	Other Bldgs in Area J	Other	199710

Initiation of IRP: 1973

Past Phase Completion Milestones

1976

- Initial Installation Assessment (IA) Jul

1977

- USA AEHA Geohydrologic Study May

1980

- Update of Initial IA Oct

1984

- USA AEHA - Groundwater Assessment Report Feb

1986

- USGS - Geohydrologic Studies Jan

1987

- NJDEP - RCRA Facility Assessment Feb
- USGS - Groundwater Studies Feb

1988

- USGS - Building 24, Groundwater Investigation Jan
- Record of Decision - Interim Action for the Building 24 Plume Oct

1989

- PA/SI - Phase I Area Jul

1990

- USGS - Building 95, Groundwater Investigation May

1991

- Argonne National Lab - RI concept Plan Mar
- Removal Action - Post Farm Landfill Oct

1993

- Approval of Burning Ground RI/FS Workplan Mar
- Approval of Phase I RI/FS Workplan Sep

1994

- DRMO (Site 31) SI Mar
- Buildings 1363 and 1363A PA Oct
- Buildings 1373A and 1373 SI Nov
- Approval of Final RI Report for Burning Ground Dec
- Arsenal-Wide Wetlands, Floodplain Survey Nov

1995

- Approval of Phase II RI Workplan May
- Submittal of Phase I RI Report Jun
- Public Notice of Engineering Evaluation/Cost Analysis for 4 Sites Nov
- Removal Action of 3 Small Radioactive Contaminated Sites Mar
- Submittal of Burning Ground FS Nov
- EE/CA 1363A and 1373 Jun
- Final Report 1363A and 1373 Oct

1996

- Completion of Union Turnpike Waterline Jan
- Site Investigation Plan for Phase III Sites Jul
- EPA Five Year Review May

1997

- Additional Sampling Workplan for Phase I IA Sites Apr
- Area D Data Gap Workplan Aug
- Area D Air Sampling Report Nov
- Post Farm Report Dec
- Phase II Ecological Risk Plan Dec
- Phase III 1A Sites RI Workplan Dec
- Phase III Site Investigation Report Dec
- Group 1 and Group III Workplan for Additional Investigation Dec
- Final Area D Groundwater Feasibility Study Data Gap Work Plan Dec

1998

- Final Facility Wide Health & Safety Plan Feb
- Final Site 20/24 Data Report & Additional Investigation Workplan May
- Final Post Farm Fracture Trace Analysis Report Aug
- Final Trenching and Sampling Work plan Site 180 Sep
- Final Workplan Summary Investigation Tables for Phase III 1-A Study Sites Sep
- Final Facility Wide Field Sampling Plan Sep
- Final Work Plan for Areas F & G Groundwater Remedial Investigation Dec
- Final Phase I RI Reports Dec
- Final Green Pond Brook & Bear Swamp Brook Surface Water/Sediment Feasibility Study Data Gap Workplan Dec

1999

- Final Workplan for Buildings 31 and 33 Feb
- Proposed Plans for RC with Institutional Controls Apr
- Draft Final Phase II, RI Report Apr
- Original Regulatory Submission of the Phase II Report Apr
- Draft Final Proposed Plan No Response Action with Existing Institutional May
- Controls and Land Use Control Assurance Plan for Sites: 19, 22, 28, 44, 49,
86, 104, 106, 124, 135, 141, 143 145, 163, 182 and 183
- Final Facility-Wide Quality Assurance Project Plan May
- Final Work Plan for SI for Sites 3, 31, 108, 192 & 199 Jun
- Final Area E Groundwater Feasibility Study Data Gap Investigation Workplan Jul
- Draft Final Phase I 2A/3A Sites Additional Investigation Workplan Aug
- Final EE/CA 122 (DSERTS #011) PCB Soils at Building 60/60-A Area Sep
- Phase I Additional RI Sites Report 22, 44, 61, 104, 122, 135, 141 & 145 Sep
- Final Area B Data Report/Groundwater FS Data Gap Investigation Oct
- Feasibility Study for Site 20/24 for Soils Oct
- Draft Final Phase III 2A/3A Sites Additional Investigation Workplan Oct
- Final Additional Site Investigations Sites 3, 31, 192 & 199 Workplan Nov
- Final Facility-Wide Background Investigative Workplan Nov
- Draft Final Investigative Workplan for Guncotton Line Dec

2000

- Submission of Phase II Ecological Risk Assessment Report Feb
- Regulatory Submission of Green Pond Brook FS and Data Analysis Mar
- Green Pond Brook FS and Data Analysis Mar
- Phase I Risk Management Report for Ecological Issues Apr
- RI Report for GW in Areas F and G (Mid-Valley) Apr
- Building 31/33 RI Report May
- Short Investigative Report for Site 104 Jun
- Draft Final Phase III 1A Report (Data Analysis) Jul
- Additional Sampling in Area L Schematic Aug
- Phase I Risk Management Report for Ecological Issues Aug
- Background RI Report Sep
- Regulatory Submittal of Background Study Report Sep
- RI Report for Phase III 1A Report Oct
- FS for Area E GW Oct
- RI Report (Data Analysis) for Site 180 Nov
- Site 122 Removal Action Report Nov
- FS for Area E Nov
- Phase III Risk Assessment Approach Dec
- Phase II Sediment and Surface Water Dec
- Final Proposed Plan for Site 20/24 Dec

2001

• Lake Denmark Ecological Workplan/Rpt.	May
• Post Farm Feasibility Study	Jun
• Burning Ground FS	Aug
• Phase II Group 3 Additional RI Report	Oct
• Green Pond Brook FS	Jun
• Area D Groundwater FS	Jul
• Phase II Group 1 Additional RI Report – Draft Final	Sep
• Interim Report for Area C Wells	Oct
• Proposed Plan for the Post Farm (Site 23)	Oct
• Phase II Sediment and Surface Water Risk Assessment	Dec

2002

• Proposed Plan for Green Pond Brook	Jan
• Sumps and Drywell Workplan	Jan
• Proposed Plan for Burning Grounds (Site 2)	Feb
• Regulatory Submission of Phase III 1A Report	Feb
• RI Report for Buildings 31/33	May
• Signed Record of Decision for 20/24	Jun
• Proposed Plan for Area D Groundwater	Jun
• Fish Ingestion Risk Assessment Report	Jun
• Group 1 Feasibility Study	Feb

2004

• Group 1 Feasibility Study	Jun
• Signed Record of Decision for Area D Groundwater	Sep
• Final RI Report for Site 3, 31, 192, and 199	Jul
• Fish Ingestion Risk Assessment Report	Aug
• Army-signed Record of Decision for Green Pond Brook and Bear Swamp Brook	Nov
• Site 20/24 Wetland Reclamation Report	Dec
• Signed Site 23 (Post Farm) Record of Decision	Dec
• Area E Groundwater Proposed Plan	Dec

2005

• 20/24 Annual Certification Letter	Jan
• Army-signed Record of Decision for Site 34	Feb
• Final Tetryl Pit Remedial Investigation Report	Apr
• Final Site 78 Report	Apr
• Revised Building 31/33 Remedial Investigation Report	Jun
• Phase III IA Report	Jun
• Phase III and Phase I 2A/3A Sites Screening Level Ecological Risk Assessment & Mice-Semen Study mini-workplan	Apr
• Final Phase II Remedial Investigations Additional	Mar
• Phase I Report 2a/3a Sites Report	Jan
• Phase III 2a/3a Remedial Investigation Report	Mar
• Site 31, Former DRMO Yard and other proximal sites Feasibility Study	Mar

2005 cont.

Draft Area C/SB Feasibility Study	Apr
Final Record of Decision for Institutional Controls	Jan
Site 180 Proposed Plan	Apr
Draft Proposed Plan for Area B Groundwater	Apr
Draft Area E/Site 22 Record of Decision	May
Draft Site 25/26 Record of Decision	Jun
Report for Bear Swamp Brook Sediment Removal Action Sumps and Dry Well Report	May
Pilot Study for Area B Groundwater	Jun
Magnus Study for Groundwater in Area D	Jul
Site 78 Pilot Study Report	Jul
Lead Sites Removal Action Report	Aug
Group 3 Pilot Study Report	Aug
Feasibility study for 25 Sites	Nov
Mid-valley Groundwater Feasibility Study	Nov
Post Farm Remedial Design Workplan	Dec

2006

20/24 Annual Certification Letter	Jan
Phase III and Phase I Ecological Risk Assessment Report	Mar
Dog Pound Sampling Plan	Apr
Area I Report	May

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates:

- Expected Record of Decision in FY 06 include:
- Area E Groundwater Record of Decision (PICA-077)
 - Site 25/26 Record of Decision (PICA-067)
 - 13site Record of Decision for Institutional Control (PICA-063)
 - Area B Groundwater Record of Decision (PICA-205)
 - Area C Groundwater Record of Decision (PICA-206)
 - Site 104/61 Record of Decision (PICA-102)
 - Site 180 Record of Decision (PICA-093)
 - Group 1 Record of Decision (PICA-079)
 - Group 3 Record of Decision (PICA-008)
 - Site 31 Record of Decision (PICA-72)

For anticipated dates of Records of Decision please see individual Status report in each Site description.

Projected Construction Completion Date of IRP: 2010

Projected Date for Removal from NPL: 2020

Schedule for Next Five-Year Review: 2006

Estimated Completion Date of IRP (including LTM phase): 2039

PICATINNY ARSENAL IRP SCHEDULE

(Based on current funding constraints)

AEDB-R #	Phase	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
PBC	RA(C)									
Picatinny	LTM									201709
PICA-002	LTM									203806
PICA-008	LTM									203708
PICA-011	LTM									203906
PICA-013	LTM									203807
PICA-020	LTM									203509
PICA-022	LTM									203808
PICA-050	LTM									203906
PICA-058	LTM									203709
PICA-065	LTM									203706
PICA-066	LTM									203609
PICA-067	LTM									203706
PICA-071	LTM									203808
PICA-072	LTM									203709
PICA-075	LTM									203906
PICA-076	RA(O)									203703
PICA-077	LTM									203806
PICA-079	LTM									203707
PICA-091	LTM									203906
PICA-093	LTM									203706
PICA-096	LTM									203905
PICA-097	LTM									203906
PICA-102	LTM									203807
PICA-108	LTM									203906
PICA-111	RI/FS									
	LTM									203809
PICA-122	LTM									203906
PICA-134	LTM									203906
PICA-135	LTM									203909
PICA-136	LTM									203906
PICA-162	LTM									203907
PICA-175	LTM									203906
PICA-193	LTM									203702
PICA-200	LTM									203906
PICA-204	RA(O)									203806
PICA-205	RA(O)									203806
PICA-206	LTM									203709
PICA-209	LTM									203809

Prior Years Funds

Total Funding up to FY04: \$88,203K

FY05

Site Information	Expenditures	FY Total
PICA-001 Teryl Pits (Site 17/18)	\$8K	
PICA-022 Power Plant/Haz Waste Tank Consolidated Site (50)	\$8K	
PICA-057 Picatinny Lake	\$5K	
PICA-058 600 Groundwater Site	\$284.68K	
PICA-069 Propellant Storage Area.	\$8.00K	
PICA-071 Bldg. 31/33	\$5.00K	
PICA-076 Area D Groundwater	\$112.71K	
PICA-079 Group 3	\$5.00K	
PICA-096 Bldg 22 Area	\$165.98K	
PICA-097 Building 41 Area	\$5.00K	
PICA-098 Former Metal Plating Shop	\$5.00K	
PICA-102 Former Waste Dump Consolidated Site	\$5.00K	
PICA-108 Buildings in the 400 Area	\$48.00K	
PICA-111 Former Bldg 435	\$255.57K	
PICA-114 Building 477	\$5.00K	
PICA-122 Building 197	\$5.00K	
PICA-134 3000 Area	\$8.00K	
PICA-135 Building in 900 Area	\$5.00K	
PICA-136 Building 3013	\$13.00K	
PICA-143 Ordnance Building	\$6.00K	
PICA-155 TECUP Buildings	\$10.00K	
PICA-158 Helicopter Maintenance Bldg	\$10.00K	
PICA-171 Ordnance Building	\$30.00K	
PICA-175 Ordnance Bldg in 600 Area	\$3.00K	
PICA-184 1600 Buildings	\$3.00K	
PICA-190 Building 167	\$5.00K	
PICA-192 Apple Tree Rec Area	\$53.16K	
PICA-193 Green Pond Brook and Bear Swamp Brook	\$15.53K	
PICA-199 Pistol Range	\$5.00K	
PICA-206 Area C Groundwater	\$266.49K	
PICA-209 Various Bldgs 167, Locomotive Area	\$2.75K	\$1366.87K

Total Prior Year Funds: \$89,569.87K

Current Year (FY06) Requirements

Site Information	Requirements	FY Total
PCB Picatinny RA(C)	\$7987.05K	
PCB Picatinny RA(C)	\$109.8K	
PICA-008 RA(C)	\$20K	
PICA-011 RI	\$2.5K	
PICA-022 RI	\$3.7K	
PICA-058 RI	\$228.82K	
PICA-058 RI	\$18.78K	
PICA-058 RI	\$31.65K	
PICA-076 RA(C)	\$20K	
PICA-079 RI	\$12.5K	
PICA-102 RI	\$12.5K	
PICA-111 RI	\$15K	
PICA-143 RI	\$15.6K	
PICA-204 RI	\$12.5K	
PICA-205 RI	\$113.21K	
PICA-205 RI	\$18.78K	
PICA-205 RI	\$22.15K	
PICA-206 RI	\$19K	
PICA-206 RI	\$37.5K	\$8,701.04K

Total Future Requirements: \$36,882K

Total IR Program Cost (from inception to completion of the IRP): \$135,152.91K

PICATINNY ARSENAL

Military Munitions Response Program

Total AEDB-R MMRP Sites/AEDB-R sites with Response Complete: 11/0

AEDB-R Site Types

11 Unexploded Munitions/Ordnance

Most Widespread Contaminants of Concern: UXO, Metals, Explosives, OE

Media of Concern: Soil, Groundwater

Completed REM/IRA/RA: None

Total MMRP Funding

Prior years (up to FY05):	\$	0
Current Year (FY06):	\$	553,000
<u>Future Requirements (FY07+):</u>	<u>\$</u>	<u>72,026,000</u>
Total:	\$	72,579,000

Duration of MMRP:

Year of MMRP Inception: 2003

Year of MMRP RIP/RC: 2017/2032

Year of MMRP Completion Including LTM: 2047

MMRP Contamination Assessment

MMRP Contamination Assessment Overview

The Phase 3 Army Range Inventory was completed at Picatinny Arsenal in December 2003. The inventory identified 11 sites as eligible for the MMRP. The Phase 3 inventory serves as the Preliminary Assessment under CERCLA. The sites, as defined in the Phase 3 Army Range Inventory are:

- 1000-Meter Impact Range
- 1000-Meter Range
- 1926 Explosion Site
- 1926 Explosion Site-TD
- Bear Swamp/Green Pond Site
- Dredge Pile/Landfill
- DRMO Yard
- Lake Denmark
- Picatinny Lake Site
- Shell Burial Ground #1
- Shell Burial Ground #2

The G-3 agreed to the memorandum through AMC signed by the Commander of ARDEC rather than the Garrison dated February 2005. The content of the memorandum corrected the classification of 3883 acres as being not eligible for MMRP.

A Site Inspection is scheduled in FY06.

MMRP Cleanup Exit Strategy

The Installation plans to complete all SI's by 2006 and execute follow on phases/actions as required in the individual site cleanup strategies. An RI is also planned to be performed.

It is likely that a RD/RA will be completed including soil and OE removal. LTM and LUCs are also expected.

2003

- Final U.S. Army Closed, Transferring and Transferred Range/Site Inventory for Picatinny Arsenal, NJ , Malcom Pirnie, December (if known)

PICATINNY ARSENAL

Military Munitions
Response Program
Site Descriptions

PICA-001-R-01

1000-METER IMPACT RANGE

SITE DESCRIPTION

This site is located on the upper northwest corner of the Installation, across from Lake Demark. The 0.2-acre closed range was the impact area for the 1000-meter range below. The two areas are 1000 meters apart. The range is completely surrounded by operational range areas on all sides. It was used until 1975. It was probably constructed during WW II. It was used to test recoilless rifle type munitions. The munitions used at the range would have been large caliber projectiles. The area is currently undeveloped and acts as a buffer area for another range nearby. No personnel are allowed on the site during testing operation at the nearby ranges B.1222 and B.670 since the site acts as a buffer zone for these ranges. No documents were found to indicate any OE investigations and/or responses were performed on the site.

CLEANUP STRATEGY

An SI will be performed. An RI is planned. A RD/RA will be completed including soil and OE removal. LTM and LUCs are expected.

STATUS

REGULATORY DRIVER: CERCLA

RAC SCORE: 2 - Serious Risk

CONTAMINANTS OF CONCERN:
OE

MEDIA OF CONCERN: Soil

Phases	Start	End
PA.....	200212	200312
SI	200602	200711
RI/FS	200910	201009
RD	201510	201609
RA(C)	201610	201709
LTM	201710	204709

RC DATE: 201709

PICA-002-R-01 1000-METER RANGE

SITE DESCRIPTION

This site is located on the upper north-central portion of the Installation, across from Lake Denmark. The 0.3- acre closed range was the firing point for the 1000-meter impact range above. The range is completely surrounded by operational range area on all sides. It was used until 1975. It was probably constructed during WW II. It was used to test recoilless rifle type munitions. The munitions used at the range would have been large caliber projectiles. The area is currently undeveloped and acts as buffer area for another range nearby. No personnel are allowed on the site during testing operation at the nearby ranges B.1222 and B.670 since the site acts as a buffer zone for these ranges. No documents were found to indicate any OE investigations and/or responses were performed on the site.

CLEANUP STRATEGY

An SI will be performed. An RI is planned. A RD/RA will be completed including soil and OE removal. LTM and LUCs are expected.

STATUS

REGULATORY DRIVER: CERCLA

RAC SCORE: 2 – Serious Risk

CONTAMINANTS OF CONCERN:
OE

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	200212	200312
SI	200602	200711
RI/FS	200910	201009
RD	201510	201609
RA(C).....	201610	201709
LTM	201710	204709

RC DATE: 201709

PICA-003-R-01 1926 EXPLOSION SITE

SITE DESCRIPTION

This site includes the area affected by the explosion of the Lake Denmark Powder Depot -- the Navy facility that was located next to the Arsenal. The site is 1,028 acres. The site is centered at the explosion location, where the two Shell Burial sites are located, and spreads in both east and western directions from there inside the Installation boundaries. Both areas are fenced and patrolled. The explosion occurred in 1926 but continues to have an impact on the Arsenal since there are digging restrictions in place all over the Arsenal due to potential OE. The site includes the explosion center and a 3/4-mile radius around it on all sides minus the areas that fall on operational range acreage. As a result of the explosion, numerous types of munitions, including mines, depth charges, fuses, projectiles, explosives, small arms ammunition, and propellants were thrown over the Installation area and beyond. Current uses for this area include office buildings, recreational areas, and industrial/manufacturing facilities. While OE investigations and/or responses have been performed on parts of the site, no documentation was found indicating that an OE investigation and/or response of the whole site have been performed.

STATUS

REGULATORY DRIVER: CERCLA

RAC SCORE: 1 - High Risk

CONTAMINANTS OF CONCERN:
OE

MEDIA OF CONCERN: Soil

Phases	Start	End
PA.....	200212	200312
SI	200602	200711
RI/FS	200910	201009
RD	201510	201609
RA(C)	201610	201709
LTM	201710	204709

RC DATE: 201709

CLEANUP STRATEGY

This site will be included in an Installation-wide SI. An RI is planned. A RD/RA will be completed including soil and OE removal. LTM and LUCs are expected.

PICA-004-R-01 1926 EXPLOSION SITE-TD

SITE DESCRIPTION

This site is the transferred area affected by the 1926 explosion of the Lake Denmark Powder Depot -- the Navy facility that was located next to the Arsenal. This site is located outside the central eastern boundary of the Installation. The area is fenced and patrolled. The site is 472 acres. As a result of the explosion, numerous types of munitions, including mines, depth charges, fuses, projectiles, explosives, small arms ammunition, and propellants were thrown over the Installation area and beyond. Current uses for this area include housing facilities and recreational areas. No evidence was found to suggest there are digging restrictions in this area. No documents were found to indicate any OE investigations and/or responses were performed on the site.

CLEANUP STRATEGY

This site will be included in an Installation-wide SI. An RI is planned. A RD/RA will be completed including soil and OE removal. LTM and LUCs are expected.

STATUS

REGULATORY DRIVER: CERCLA

RAC SCORE: 1 – High Risk

CONTAMINANTS OF CONCERN:
OE

MEDIA OF CONCERN: Soil

Phases	Start	End
PA.....	200212	200312
SI	200602	200711
RI/FS	200910	201009
RD	201510	201609
RA(C)	201610	201709
LTM	201710	204709

RC DATE: 201709

BEAR SWAMP/GREEN POND SITE

SITE DESCRIPTION

These are two connected sites where unexploded munitions have been found. They are treated as one site for administrative purposes. The site is located on the southwestern corner of the Installation, to the west of the DRMO yard. The site occupies eight acres. Munitions types that might be in the site or have been found there include rifle grenades, and large and medium caliber ammunition. Unexploded munitions have been found in both areas during site investigations. It is not clear why munitions would be found there; it could have been a range, a disposal area or a storage area. The period of use is also unknown, but it is suspected to have been used during WW II. OE clearance is required before dredging and sampling events. The areas are not being currently used except for a southern corner of Green Pond Brook near Picatinny Lake that is used for fishing. No documents were found to indicate any OE responses were performed on the site.

STATUS

REGULATORY DRIVER: CERCLA

RAC SCORE: 2 – Serious Risk

CONTAMINANTS OF CONCERN:
OE

MEDIA OF CONCERN: Soil

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	200212.....	200312
SI.....	200602.....	200711
RI/FS	200910.....	201009
RD.....	201510.....	201609
RA(C)	201610.....	201709
LTM.....	201710.....	204709

RC DATE: 201709

The site is associated with two AEDB-R sites, PICA-193 and PICA-194. PICA-194 was combined with PICA-193 and both are being addressed under PICA-193. The Cost to Complete (CTC) does not cover all MEC/MC, DMM, and MC for all the phases. Various investigations have taken place at the site since 1983. During the last investigation in 1999, the concentrations of VOCs, pesticides, SVOCs, PCBs, explosives, and metals exceeded levels of concern for surface waters. The concentrations of VOCs, SVOCS, PCBs, pesticides and metals exceeded the levels of concerns for sediments. Contaminated sediments are to be dredged. It is unknown whether the metals are linked to MC.

CLEANUP STRATEGY

This site will be included in an Installation-wide SI. An RI is planned. A RD/RA will be completed including soil and OE removal. LTM and LUCs are expected.

PICA-006-R-01 DREDGE PILE/LANDFILL

SITE DESCRIPTION

These are two sites that have been combined for administrative purposes. Both sites have unexploded munitions concerns resulting from disposal. The Dredge Pile contains all the dredging materials from the Bear Swamp/Green Pond Site. Munitions that might be found in this site include rifle grenades, and large and medium caliber ammunition. The dredging took place in order to deepen the channel and because the site is prone to flooding. During the dredging event, munitions were found, mostly small caliber ammunition. The Dredge Pile is an irregular shaped pile of sediments and is located inside the Spicer Landfill. The height of the pile varies between 15 and 20 feet and covers an area of one acre. The disposal area is unlined and uncapped. The landfill area was a disposal site for munitions and other wastes, such as sludge, from 1940 to 1982. The site, composed of the dredge pile and the landfill, is considered a closed site and occupies nine acres. Unexploded munitions clearance must be performed prior to any excavation. No documents were found to indicate any OE investigations and/or responses were performed on the site.

The site is associated with two AEDB-R sites, PICA-068 and PICA-067. PICA-068 was closed and any issues arising from the site addressed under PICA-067. The CTC does not cover all OE for all the phases. Previous investigations have determined that the contaminants of concern are metals, SVOCs, pesticides and PAHs. Contaminated soil will be removed from the site and potential groundwater concerns addressed under PICA-206. It is unknown whether the metals are linked to MC.

CLEANUP STRATEGY

This site will be included in an Installation-wide SI. An RI is planned. A RD/RA will be completed including soil and OE removal. LTM and LUC's are expected.

STATUS

REGULATORY DRIVER: CERCLA

RAC SCORE: 3 – Moderate Risk

CONTAMINANTS OF CONCERN:
OE

MEDIA OF CONCERN: Soil

Phases	Start	End
PA.....	200212	200312
SI	200602	200711
RI/FS	200910	201009
RD	201510	201609
RA(C)	201610	201709
LTM	201710	204709

RC DATE: 201709

PICA-007-R-01 DRMO YARD

SITE DESCRIPTION

This site is believed to be associated with the storage and disposal of munitions. The yard is a closed site that contains five buildings and occupies two acres. It is located on the southwestern portion of the Installation, just southwest of Picatinny Lake. The site was used as a storage yard for disposal, salvage and sale of excess materials. It is not known for how long the site was used, but it is believed to have been from the 1930s to the 1990s. Materials used in the manufacture and testing of explosives, pyrotechnics and munitions were stored in this area, as well as scrap metal, used batteries, and motor vehicles. Munitions types that might be found in this site include primary explosives, secondary explosives, and pyrotechnics. No documents were found to indicate any OE investigations and/or responses were performed on the site.

The site is associated with AEDB-R site, PICA-072. The CTC does not cover all OE for all the phases. Previous investigations have detected metals, PCBs and PAHs in concentration above levels of concern in the soil. Metals were also detected in concentrations above levels of concern in the groundwater. It is unknown whether the metals are linked to OE.

CLEANUP STRATEGY

This site will be included in an Installation-wide SI. An RI is planned. A RD/RA will be completed including soil and OE removal. LTM and LUC's are expected.

STATUS

REGULATORY DRIVER: CERCLA

RAC SCORE: 2 – Serious Risk

CONTAMINANTS OF CONCERN:
OE

MEDIA OF CONCERN: Soil

Phases	Start	End
PA.....	200212	200312
SI	200602	200711
RI/FS	200910	201009
RD	201510	201609
RA(C)	201610	201709
LTM	201710	204709

RC DATE: 201709

PICA-008-R-01 LAKE DENMARK

SITE DESCRIPTION

This site is located on the northeastern corner of the Installation near its boundary. Lake Denmark is a man-made, 327-acre lake located on the northeastern portion of the Arsenal. The lake is a closed range, but it is completely surrounded by operational range area on all sides. The lake has an average depth of 6.5 feet. The lake has a long history as a disposal area for munitions and their associated wastes. It is not known for how long the lake was in use for military purposes, but it is believed to have been from 1926 to the 1970s. In 1926, after the Lake Denmark Powder Depot explosion, unexploded munitions were dumped into the lake. The lake was also used as an impact area for experimental mortar rounds, and other explosive and pyrotechnic munitions. The firing point for the range was the dam located at the southern end of the lake. No record exists on the type and quantity of munitions fired into Lake Denmark over the years. Munitions types that could be found in the lake include mortars, primary explosives, secondary explosives, pyrotechnics, and experimental munitions. Prior site investigations indicate the possibility of unexploded munitions on the bottom of the lake. The site is currently used for recreational boating and fishing, but both swimming and scuba diving are prohibited on the site. No documents were found to indicate any UXO responses were performed on the site.

The site is associated with AEDB-R site, PICA-015. The CTC does not cover all OE for all the phases. Previous investigations on surface waters and sediments indicated the presence of metals in concentrations above levels of concerns. The AEDB-R description sheet indicated that institutional controls would be recommended for this site. It is unknown whether the metals are linked to OE.

CLEANUP STRATEGY

This site will be included in an Installation-wide SI. An RI is planned. A RD/RA will be completed including soil and OE removal. LTM and LUCs are expected.

STATUS

REGULATORY DRIVER: CERCLA

RAC SCORE: 2 – Serious Risk

CONTAMINANTS OF CONCERN:
OE

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	200212	200312
SI	200602	200711
RI/FS	200910	201009
RD	201510	201609
RA(C).....	201610	201709
LTM	201710	204709

RC DATE: 201709

PICA-009-R-01 PICATINNY LAKE SITE

SITE DESCRIPTION

The 108-acre lake was formed in the 1880s when a dam was built on part of Green Pond Brook. It has a maximum depth of 20 feet. It is located in the center of the Installation. The hill above the lake was used as an impact area for experimental mortar rounds from 1940 to 1970 and the shortfalls fell into the lake, Smokeless powder and explosives were also stored underwater in the lake from 1910 to 1960. Tests performed on this powder indicated it retained full explosive strength after removal from the lake and subsequent drying. Explosives and related debris were discharged or disposed of in the lake. It is no longer used for range purposes. The island on the lake, Flare Island, was used for pyrotechnic testing. Munitions types that could be in the range include mortars, primary explosives, secondary explosives, pyrotechnics, experimental munitions, and large and medium ammunition. The lake is currently used for recreational boating, but no swimming, wading, or scuba diving is allowed. It is used as a source of non-potable water for manufacturing and firefighting-related purposes. Fishing in the lake is permitted, but fish consumption is discouraged. Some parts of the lake are fenced and no digging or sampling is allowed without permission. No documents were found to indicate any MEC/MC investigations and/or responses were performed on the site.

The site is associated with AEDB-R site, PICA-057. The CTC does not cover all OE for all the phases. Previous investigations on surface waters and sediments indicated VOCs, SVOCs, explosives, and metals contamination. The AEDB-R description sheet indicated that institutional controls would be recommended for this site. It is unknown whether the metals are linked to OE.

CLEANUP STRATEGY

This site will be included in an Installation-wide SI. An RI is planned. A RD/RA will be completed including soil and OE removal. LTM and LUCs are expected.

STATUS

REGULATORY DRIVER: CERCLA

RAC Score: 1 - High Risk

CONTAMINANTS OF CONCERN:
OE

MEDIA OF CONCERN: Soil

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA	200212	200312
SI	200602	200711
RI/FS.....	200910	201009
RD.....	201510	201609
RA(C).....	201610	201709
LTM.....	201710	204709

RC DATE: 201709

PICA-010-R-01 SHELL BURIAL GROUND #1

SITE DESCRIPTION

This site is one of two burial areas that resulted from the 1926 explosion at the Lake Denmark Powder Depot. The site is located towards the center of the Installation, on the eastern side of Picatinny. Originally, the site was one of the craters caused by the explosion, where unexploded ordnance, ordnance scrap, as well as debris from the explosion were deposited. The crater is three acres. The Navy Depot also used the crater as an ordnance dumping area from 1926 to 1945. The site was then covered with about 20 feet of fill material, fenced, and marked with warning signs. There are approximately 25 tons of debris and ordnance deposited between both shell burial areas. Ordnance that may be found inside the craters includes mines, depth charges, fuses, projectiles, explosives, small arms ammunition, propellants and possibly rocket fuels. The crater is located northwest of Building 3150. No excavation is allowed at this site. The site is not currently being used for anything as it is fenced off and posted with warning signs. No documents were found to indicate any OE investigations and/or responses were performed on the site.

The site is associated with AEDB-R site, PICA-162. Previous investigations conducted from 1998 to 2000 indicated that cyanide and VOCs were detected in the groundwater at concentrations exceeding levels of concern. It is unknown whether the metals are linked to OE.

CLEANUP STRATEGY

This site will be included in an Installation-wide SI. An RI is planned. A RD/RA will be completed including soil and OE removal. A RA for groundwater is planned. LTM and LUC's are expected.

STATUS

REGULATORY DRIVER: CERCLA

RAC Score: 2 – Serious Risk

CONTAMINANTS OF CONCERN:
OE, Metals, Explosives

MEDIA OF CONCERN: Soil,
Groundwater

Phases	Start	End
PA	200212	200312
SI	200602	200711
RI/FS.....	200910	201009
RD.....	201510	201609
RA(C).....	201610	201709
RA(O).....	201710	203209
LTM.....	203210	204709

RIP DATE: 201710

RC DATE: 203209

PICA-011-R-01 SHELL BURIAL GROUND #2

SITE DESCRIPTION

This site is one of two burial areas that resulted from the 1926 explosion at the Lake Denmark Powder Depot. The site is located in the center of the Installation, towards the south of Picatinny. Originally, the site was one of the craters caused by the explosion, where unexploded ordnance, ordnance scrap, as well as debris from the explosion were deposited. The crater is four acres. The Navy Depot also used the crater as an ordnance dumping area from 1926 to 1945. The site was then covered with about 20 feet of fill material, fenced, and marked with warning signs. There are approximately 25 tons of debris and ordnance deposited between both shell burial areas. Ordnance that may be found inside the craters includes mines, depth charges, fuses, projectiles, explosives, small arms ammunition, propellants and possibly rocket fuels. The crater is located northwest of Building 3100. No excavation is allowed at this site. The site is not currently being used for anything as it is fenced off and posted with warning signs. No documents were found to indicate any OE investigations and/or responses were performed on the site.

The site is also associated with AEDB-R site PICA-162. Previous investigations performed under another AEDB-R site, PICA-052, conducted from 1998 to 2000 indicated that metals, VOCs and SVOCs were detected in the groundwater at concentrations exceeding levels of concern. It is unknown whether the metals are linked to OE.

CLEANUP STRATEGY

This site will be included in an Installation-wide SI. An RI is planned. A RD/RA will be completed including soil and OE removal. A RA for groundwater is planned. LTM and LUCs are expected.

STATUS

REGULATORY DRIVER: CERCLA

RAC SCORE: 2 – Serious Risk

CONTAMINANTS OF CONCERN:
OE, Metals, Explosives

MEDIA OF CONCERN: Soil,
Groundwater

Phases	Start	End
PA	200212	200312
SI	200602	200711
RI/FS.....	200910	201009
RD.....	201510	201609
RA(C).....	201610	201709
RA(O).....	201710	203209
LTM.....	203210	204709

RIP DATE: 201710

RC DATE: 203209

Initiation of MMRP: 2003

Past Phase Completion Milestones

2003

- PA Completed at all sites

Projected ROD/DD Approval Dates: Unknown

Projected Construction Completion: 2017

Schedule for Five Year Reviews: Unknown

Estimated Completion Date of MMRP including LTM: 2047

Picatinny Arsenal MMRP Schedule

(Based on current funding constraints)

AEDB-R#	Phase	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
PICA-001-R-01	RI/FS									
	RD									201609
	RA(C)									201709
	LTM									204709
PICA-002-R-01	RI/FS									
	RD									201609
	RA(C)									201709
	LTM									204709
PICA-003-R-01	RI/FS									
	RD									201609
	RA(C)									201709
	LTM									204709
PICA-004-R-01	RI/FS									
	RD									201609
	RA(C)									201709
	LTM									204709
PICA-005-R-01	RI/FS									
	RD									201609
	RA(C)									201709
	LTM									204709
PICA-006-R-01	RI/FS									
	RD									201609
	RA(C)									201709
	LTM									204709
PICA-007-R-01	RI/FS									
	RD									201609
	RA(C)									201709
	LTM									204709
PICA-008-R-01	RI/FS									
	RD									201609
	RA(C)									201709
	LTM									204709
PICA-009-R-01	RI/FS									
	RD									201609
	RA (C)									201709
	LTM									204709
PICA-010-R-01	RI/FS									
	RD									201609
	RA(C)									201709
	RA(O)									203209
	LTM									204709
PICA-011-R-01	RI/FS									
	RD									201609
	RA(C)									201709
	RA(O)									203209
	LTM									204709

Prior Years Funds**Total Funding up through FY04: \$0K****FY05**

Site Information	Expenditures	FY Total
	\$0K	

Total Prior Year Funds: \$0K***Current Year (FY06) Requirements***

Site Information	Requirements	FY Total
SI at all sites	\$573K	\$573K

Total Future Requirements: \$72,026K***Total IR Program Cost (from inception to completion of the IRP): \$72,579K***

The surrounding community for Picatinny Arsenal includes the Towns of Dover, Jefferson, Rockaway, Denville and the Borough of Wharton. In 1989 a Technical Review Committee (TRC) was formed to address citizens' concerns over environmental issues at Picatinny Arsenal. In December 1995, the TRC evolved into the Restoration Advisory Board (RAB). This board includes representatives of the Army, the U.S. Environmental Protection Agency (EPA) Region 2, the New Jersey Department of Environmental Protection (DEP), representatives of the surrounding towns from Dover, Jefferson, Rockaway and Denville, the Borough of Wharton, the Rockaway Township Environmental Commission, a Union Representative from Picatinny Arsenal, the New Jersey Institute of Technology and citizens from the surrounding communities.

PTA also follows all Army and EPA guidance relating to public noticing and public meetings for proposed plans and signed Records of Decision. There are a number of significant Records of Decision and Proposed Plans that will be public noticed in fiscal year 2007. The Army will also public notice the 5-year review as appropriate.

The Army is scheduled to revise the Community Relations Plan – that plan will include both the MMRP and the IRP.

Technical Assistance for Public Participation (TAPP) Program:

The RAB expressed an interest in the TAPP Program and Picatinny Arsenal was one of the first installations to have a TAPP contractor on board. A decision was made by the RAB during FY 03 to continue the services of Subsurface Solutions as the TAPP contractor. Picatinny awarded a purchase order (PO) for 25k to Subsurface Solutions. The PO is for one year and has 2 option years associated with it. This is the last option year for this PO.

1. The TAPP contractor continues to attend all partnering and technical meetings between the Army and the regulators, Installation Action Plan Meetings and RAB meetings. The contractor also is provided all technical documents and a copy of all correspondences to and from the regulators.
2. The contractor also provides frequent updates to the RAB of the technical issues and resolutions from the regulatory meeting.

The contractor also provided comments to proposed plans as requested by the RAB.

During the latest period, some of the more noteworthy incidents included:

1. The RAB reelected Mr. Glaab as the government co-chair in calendar 2006 as well as 2005.
2. Meetings continue on roughly a quarterly basis.
3. The Restoration Advisory Board wrote a letter to the NJDEP requesting the NJDEP to accelerate its review time on Picatinny documents. The letter was concurred on by the Restoration Advisory Board and signed by the Civilian CoChair. The NJDEP responded back that it will attempt to change the current to a more responsible one by various options.
4. The Army agreed to the request from Picatinny to fund extend the lifetime cost of the TAPP another \$100K. This was the first extension approved by the Army.
5. The Restoration Advisory Board continued its own website. The website address is <http://www.paerab.us>.

Community Involvement

6. The Restoration Advisory Board approves newsletters developed by the TAPP. These newsletters have been distributed to both mayors and others in the surrounding localities. The newsletters also appear on the Restoration Advisory Board website.