

**FY2015**

**TOBYHANNA ARMY DEPOT**  
**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 multiyear cleanup program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern (AOC), and proposes a comprehensive, installation-wide approach, along with the costs and schedules associated with conducting investigations and taking the necessary remedial actions (RA).

In an effort to coordinate planning information between the restoration manager, the US Army Environmental Command (USAEC), the Army Materiel Command (AMC), Tobyhanna Army Depot (TYAD), the executing agencies, regulatory agencies, and the public, an IAP was completed. The IAP is used to track requirements, schedules, and budgets for all major 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.

## Acronyms

AEDB-R	Army Environmental Database - Restoration
AMC	Army Materiel Command
AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirement
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response Compensation and Liability Act of 1980
CS	Confirmation Sampling
DD	Decision Document
DoD	Department of Defense
ER	Emergency Removal
ERM	Environmental Resources Management, Inc.
ESE	Environmental Science and Engineering, Inc.
FAR	Former Artillery Range
FRA	Final Remedial Action
FS	Feasibility Study
FY	Fiscal Year
IAP	Installation Action Plan
ID	Identification
IRA	Interim Remedial Action
IRP	Installation Restoration Program
LF	Landfill
LTM	Long-Term Management
LUC	Land Use Control
MCL	Maximum Contaminant Level
MEC	Munitions and Explosives of Concern
mm	millimeter
MMRP	Military Munitions Response Program
MNA	Monitored Natural Attenuation
MRS	Munition Response Site
MRSPP	Munitions Response Site Prioritization Protocol
N/A	Not Applicable
NFA	No Further Action
NPL	National Priorities List
OU	Operable Unit
PA	Preliminary Assessment
PADEP	Pennsylvania Department of Environmental Protection
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethylene
PMC	Program Management Company
ppb	parts per billion
RA	Remedial Action
RA(C)	Remedial Action - Construction
RA(O)	Remedial Action - Operations
RAB	Restoration Advisory Board

## Acronyms

RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RFA	RCRA Facility Assessment
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RIP	Remedy-in-Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SI	Site Inspection
STP	Sewage Treatment Plant
SWMU	Solid Waste Management Unit
TAPP	Technical Assistance for Public Participation
TBAD	AEDB-R designation for Tobyhanna Army Depot
TCE	Trichloroethylene
TRC	Technical Review Committee
TYAD	Tobyhanna Army Depot
USACE	US Army Corps of Engineers
USAEC	US Army Environmental Command
USAEHA	US Army Environmental Hygiene Agency
USATHAMA	US Army Toxic and Hazardous Materials Agency
USEPA	US Environmental Protection Agency
UXO	Unexploded Ordinance
VI	Vapor Intrusion
VOC	Volatile Organic Compound
VS	Verification Study
WWI	World War I
WWII	World War II

## Installation Information

### Installation Locale

**Installation Size (Acreage):** 1296

**City:** Coolbaugh Township

**County:** Monroe

**State:** Pennsylvania

### Other Locale Information

TYAD is located in the Pocono Mountains of northeastern Pennsylvania, approximately 15 miles southeast of Scranton, Pennsylvania, in Coolbaugh Township, Monroe County. The installation covers 2.2 square miles, measuring 1.6 miles east to west and 2.2 miles north to south at the widest point. The area surrounding TYAD is rural, with the village of Tobyhanna bordering the installation at the southeast corner. Tobyhanna State Park and Gouldsboro State Park are adjacent to the installation, on the northeast and northwest sides, respectively.

### Installation Mission

TYAD is the Department of Defense's (DoD) largest facility for the overhaul, repair, fabrication and systems integration of command, control, communications, computers, intelligence, surveillance and reconnaissance systems. Supported systems include radios, radars, satellite communications, airborne surveillance and navigation, aircraft survivability equipment, and tactical missile guidance and control systems. The depot also operates more than 20 forward repair activities at major installations, and in support of deployed forces.

### Lead Organization

Army Materiel Command (AMC)

### Lead Executing Agencies for Installation

TYAD, Environmental, Safety and Occupational Health Branch

### Regulator Participation

<b>Federal</b>	US Environmental Protection Agency (USEPA), Region III
<b>State</b>	Pennsylvania Department of Environmental Protection (PADEP)

### National Priorities List (NPL) Status

A score of 38 was recorded on 01-AUG-90.

**Date for RA(C) Completion:** 202109

**Date for NPL Deletion:** 200110

### Installation Restoration Advisory Board (RAB)/Technical Review Committee (TRC)/Technical Assistance for Public Participation (TAPP) Status

RAB established 199503

## Installation Information

### Installation Program Summaries

#### IRP

**Primary Contaminants of Concern:** Metals, Volatiles (VOC)

**Affected Media of Concern:** Groundwater

#### MMRP

**Primary Contaminants of Concern:** Explosives, Metals, Munitions and explosives of concern (MEC)

**Affected Media of Concern:** Soil



## 5-Year / Periodic Review Summary

### 5-Year / Periodic Review Summary

Status	Start Date	End Date	End FY
Complete	201201	201209	2012
Complete	200709	200709	2007
Complete	200209	200209	2002
Planned	201701	201709	2017

### Last Completed 5-Year / Periodic Review Details

Associated ROD/DD Name	Sites
ROD - OU #1, Areas A and B	TBAD-004, TBAD-007
ROD - OU#4 (UXO Area MRS)	TBAD-055, TYAD-001-R-01
ROD - Operable Unit #5	TBAD-001

**Results** The 5 year review report is complete. The remedies in place at OU-1, OU-4 and OU-5 are protective of human health and the environment. One more vapor intrusion sampling will take place at resident R1-111 in OU-1.

**Actions** Complete another vapor intrusion sample in the first floor of resident R-111.

**Plans** Reevaluate the MNA at OU-1 and OU-5.

### Recommendations and Implementation Plans:

There were six recommendations from the fiscal year (FY)12 five-year review:

1. TYAD was asked to reevaluate the clean up that was conducted at operable unit (OU) 1 in 1996 with the current maximum contamination level (MCL). TYAD contracted with the US Army Corps of Engineers (USACE) and performed this effort.
2. TYAD was tasked to obtain a right of entry for the off post resident where monitoring well R1-94 is located. The owner for this property has changed and a new right of entry is being drafted for the current owner. This will be completed in FY15.
3. The USEPA requested TYAD to take another vapor intrusion (VI) sample at off post residence R1-111. The VI sampling conducted in fall of FY11 showed that there was trichloroethylene (TCE) on the first floor of this residence. This was inconsistent with other sampling taken from the basement and sump of the same house. TYAD conducted additional sampling in 2012 that showed no TCE contamination in the residence.
4. TYAD must develop an exit strategy for OU 1. The exit strategy for OU 1 will be reevaluated as part of the 2015 annual performance evaluations.
5. TYAD must investigate increasing TCE levels at OU 5. This investigation will be conducted in FY15.
6. TYAD must reevaluate the monitored natural attenuation (MNA) alternative at OU 5. This will be completed in FY15 as part of the annual performance evaluation.

## Land Use Control (LUC) Summary

**LUC Title:** Operable Unit #5

**Site(s):** TBAD-001

**ROD/DD Title:** ROD - Operable Unit #5

**Location of LUC**

Inactive Sanitary Landfill

**Land Use Restriction:** Landfill restriction - Prohibit activities that would impact the LF cap (or cover system) and drainage system, Landfill restriction - Prohibit excavation on LF cap or cover system, Landfill restriction - Prohibit installation of utility system lines through the site, Media specific restriction - prohibit use of groundwater for consumption or domestic purposes, Media specific restriction - restrict drinking water well installation

**Types of Engineering Controls:** Fences

**Types of Institutional Controls:** Notations in Master Plan, Restrictions on Groundwater Withdrawal, Restrictive covenants, Zoning

**Date in Place:** 200010

**Modification Date:** N/A

**Date Terminated:** N/A

**Inspecting Organization:** Installation

**Record of LUC:** Master Plan or Equivalent

**Documentation Date:** N/A

**LUC Enforcement:** Annual Inspections, 5 Year Reviews

**Contaminants:** INORGANICS, METALS, PAH, VOC

**Additional Information**

N/A

**LUC Title:** Operable Unit 1

**Site(s):** TBAD-004, TBAD-007

**ROD/DD Title:** ROD - OU #1, Areas A and B

**Location of LUC**

Area A (Burning Area; TBAD-004) and Area B (Drum Staging Area; TBAD-007)

**Land Use Restriction:** Media specific restriction - prohibit use of groundwater for consumption or domestic purposes, Media specific restriction - restrict drinking water well installation, Media specific restriction - restrict withdrawal or use of groundwater for agricultural/irrigation purposes, Media specific restriction - restrict withdrawal or use of groundwater w/out treatment

**Types of Engineering Controls:** None

**Types of Institutional Controls:** Notations in Master Plan, Notices (in the grantor/grantee index, newspapers, etc.), Restrictions on Groundwater Withdrawal, Restrictions on land use

**Date in Place:** 199709

**Modification Date:** N/A

**Date Terminated:** N/A

**Inspecting Organization:** Installation

**Record of LUC:** Master Plan or Equivalent

**Documentation Date:** 201009

**LUC Enforcement:** Annual Inspections

**Contaminants:** VOC

**Additional Information**

## Land Use Control (LUC) Summary

N/A

**LUC Title:** Operable Unit 4

**Site(s):** TBAD-055

**ROD/DD Title:** ROD - OU#4 (UXO Area MRS)

**Location of LUC**

Site now addressed under MMRP as TYAD-001-R-01. This is a 400 acre undeveloped area in the northern part of the installation.

**Land Use Restriction:** Media specific restriction - Prohibit, or otherwise manage excavation below a specified depth

**Types of Engineering Controls:** Fences, Signs

**Types of Institutional Controls:** Education programs, Notations in Master Plan, Restrictions on land use

**Date in Place:** 200009

**Modification Date:** N/A

**Date Terminated:** N/A

**Inspecting Organization:** Installation

**Record of LUC:** Master Plan or Equivalent

**Documentation Date:** 201009

**LUC Enforcement:** Annual Inspections, 5 Year Reviews

**Contaminants:** Unexploded Ordnance(UXO)

**Additional Information**

N/A

# Cleanup Program Summary

## Installation Historic Activity

The Army's association with Tobyhanna dates back to 1912, when a field artillery unit leased property from a local resident to conduct training. The following year, the Army began to purchase land for a permanent field artillery and machine gun training camp. The camp was known by several names in its early years, including Camp Summerall, Camp Tobyhanna, and the Tobyhanna Military Reservation.

During World War I (WWI) the reservation was used as an ambulance and tank regiment training center and an ordnance storage depot.

Use of the camp declined after WWI, but the National Guard continued to train at Tobyhanna through the 1920s. From 1932 to 1938, the area was used as a camp by the Civilian Conservation Corps. From 1938 to 1941, the area was used by cadets from West Point for field artillery training.

In 1942 the installation was reactivated as an Army/Air Force service unit training center. In 1944 the area was also converted to a storage and supply area for gliders and other equipment of the Air Service Command. The installation also housed approximately 200 German prisoners of war from January through December 1945. The enlisted prisoners were contracted to harvest ice and farm crops while confined at Tobyhanna. The installation was deactivated after World War II (WWII).

In 1949 the Commonwealth of Pennsylvania purchased the Tobyhanna site from the War Assets Administration. From 1949 to 1951 the Department of Forests and Waters and the Pennsylvania Game Commission maintained the property.

During January 1951, 2.2 square miles were obtained by the US Army Signal Corps to construct TYAD. TYAD was constructed by a civilian contractor that used the southeastern corner of TYAD as a base of operations/equipment staging area. The balance of the tract remained state-owned with the federal government exercising recovery rights. From the following years to the present, much of this tract has been designated state game lands and parks.

During February 1953 Tobyhanna Signal Depot was established as a Class II installation, with an assigned supply mission. In August 1962, the depot was re-designated and transferred to the AMC. Since then, TYAD has expanded into a global enterprise as DoD's C4ISR logistics sustainment center. The installation is also home to more than 20 tenant activities.

## Installation Program Cleanup Progress

### IRP

**Prior Year Progress:** Remedial action (operations) [RA(O)] of the MNA remedies at TBAD-001, TBAD-004 and TBAD-007 continued. Groundwater sampling and analysis occurred at TBAD-067. A five-year contract for RA(O) at TBAD-001, TBAD-004 and TBAD-007 and a remedial investigation (RI)/feasibility study (FS) at TBAD-067 was awarded.

**Future Plan of Action:** Annual RA(O) at TBAD-001, TBAD-004 and TBAD-007 will continue. The RI/FS at TBAD-067 will be conducted. The efficacy of the landfill cap at TBAD-001 will be tested.

### MMRP

**Prior Year Progress:** Long-term maintenance of the land use controls (LUC) at TYAD-001-R-01 continued. A five-year contract for long-term maintenance at TYAD-001-R-01 was awarded.

**Future Plan of Action:** Long-term maintenance of the LUCs at TYAD-001-R-01 will continue. The perimeter fence will undergo major repairs.

**TOBYHANNA ARMY DEPOT**  
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**Installation Restoration Program**

# IRP Summary

**Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count:** 67/63

## Installation Site Types with Future and/or Underway Phases

- 1 Burn Area  
(TBAD-004)
- 1 Contaminated Ground Water  
(TBAD-067)
- 1 Landfill  
(TBAD-001)
- 1 Storage Area  
(TBAD-007)

## Most Widespread Contaminants of Concern

Metals, Volatiles (VOC)

## Media of Concern

Groundwater

## Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
TBAD-004	BURNING AREAS E/NE OF BARNEY'S LAKE	IRA	ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT	1989
TBAD-007	AREA B, STAGING AREA	IRA	ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT	1991
TBAD-007	AREA B, STAGING AREA	IRA	WASTE REMOVAL - DRUMS, TANKS, BULK CONTAINERS	1996
TBAD-007	AREA B, STAGING AREA	IRA	EX SITU SOIL TREATMENT	1996
TBAD-063	PCB TRANSFORMERS	FRA	WASTE REMOVAL - SOILS	1996
TBAD-066	UST SITE RESTORATION AREAS	FRA	WASTE REMOVAL - SOILS	1996
TBAD-004	BURNING AREAS E/NE OF BARNEY'S LAKE	FRA	INSTITUTIONAL CONTROLS	1997
TBAD-007	AREA B, STAGING AREA	FRA	INSTITUTIONAL CONTROLS	1997
TBAD-004	BURNING AREAS E/NE OF BARNEY'S LAKE	FRA	NATURAL ATTENUATION	1998
TBAD-007	AREA B, STAGING AREA	FRA	NATURAL ATTENUATION	1998
TBAD-001	SANITARY LANDFILL 1963	FRA	NATURAL ATTENUATION	2001
TBAD-001	SANITARY LANDFILL 1963	FRA	INSTITUTIONAL CONTROLS	2001
TBAD-067	U AREA	IRA	IN-SITU SOIL TREATMENT	2007

## Duration of IRP

**Date of IRP Inception:** 197904

**Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC):** 202109/205109

**Date of IRP completion including Long Term Management (LTM):** 205109

# IRP Contamination Assessment

## Contamination Assessment Overview

In January 1980, an initial installation assessment was completed which did not recommend any follow-on investigations. In 1981, TYAD drinking water wells were tested for TCE. Low levels were found in Well No. 3. In 1981 the installation installed a charcoal filter on Well No. 3 and since then has been testing the water bi-monthly for volatile organic compounds (VOC). In 1989, the charcoal filter on Well No. 3 was replaced by an air stripper. The concentration of TCE in the influent had been consistently in the 8 to 12 parts per billion (ppb) range. In 1981, Monroe County had the PADEP sample residential wells in the village of Tobyhanna. Levels of TCE below the PADEP MCL of 45 ppb were found. In 1986, Monroe County had the PADEP resample the same residential wells, and results indicated that low levels of TCE were still present in the groundwater; however, in 1988, the USEPA lowered the TCE MCL to 5 ppb. In January 1988, the initial installation assessment for TYAD was updated. The assessment recommended that a follow-on investigation be conducted for the TCE found in the domestic wells.

In 1988, the US Army Toxic and Hazardous Materials Agency (USATHAMA), currently the USAEC, initiated a RI/FS. The RI report indicated that Area B (AEDB-R site TBAD-007), used for staging materials during the construction of the depot, was the source of groundwater contamination in off-post residential wells and TYAD Well No. 3. There was also soil and groundwater contamination at Area A [AEDB-R designation for TYAD TBAD-004], but the contamination was confined within the depot boundaries. Areas A and B are now collectively defined as OU 1. The endangerment assessment (EA) report conducted in 1992 concluded that there was a low level of risk to human health and the environment and that the no-action alternative was not viable. The preferred alternative cited in the FS report consisted of passive soil volatilization (excavating and tilling in a controlled atmosphere) and extraction and treatment of groundwater. In April 1990, an effort was initiated to install additional groundwater monitoring wells, pump test wells, and observation wells. Pump tests were performed, groundwater, surface water, and sediment were sampled, a wetlands survey was performed, and the USEPA Region III comments on the RI, EA, and FS were addressed. In February 1993, the USEPA approved the OU 1 RI addendum, EA, and FS reports.

In September 1993, the OU 1 proposed RA plan was submitted for public review and comment. The public review and comment period closed in December 1993. The OU 1 record of decision (ROD) was not finalized due to an Army/regulatory difference in the interpretation of the state's applicable or relevant and appropriate requirement that defined the groundwater treatment level as background. This issue was elevated to the Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health) for resolution; however, it was resolved when Pennsylvania's Land Recycling and Environmental Remediation Standards Act (Act 2 of 1995), which establishes specific cleanup levels for soil and groundwater, was signed into law. Under this act, the state cleanup levels for groundwater became the same as the federal MCL, to which the Army had agreed. Although the ROD had not been finalized, the Army began remedial design (RD) work. As part of the RD, preliminary design engineering studies for groundwater and soil treatment were initiated.

Preliminary results from these field investigations indicate that the extent of contamination was significantly smaller than previously noted. The Army evaluated this information and determined that the recommended response actions should be revised. In July 1995, the Army provided the regulatory agencies with a revised groundwater treatment strategy.

In April 1996, TYAD, the USEPA and the PADEP reached an agreement regarding soil and groundwater treatment at OU 1. The remediation for groundwater would include natural attenuation, continued monitoring, institutional controls, and a site condition review at five-year intervals. In regard to soils, TYAD completed a source soil removal action at area B in August 1995. This action eliminated any need for further action regarding the treatment of soil. In 1997 a natural attenuation ROD was signed between the Army and the USEPA.

In 1996, no further action (NFA) RODs were signed for OU 2 (TBAD-063), a former polychlorinated biphenyl (PCB) substation site, and OU 3 (TBAD-037 and -038), two former hazardous waste facilities. A verification study (VS) was completed in February 1996, providing environmental characterization data for 11 AOCs (TBAD-001, -002, -005, -008, -032, -042, -043, -058, -059, -061 and -063). The VS recommends NFA/investigation at five AOCs (TBAD-002, -005, -032, -043, -058), bringing the total of NFA AOCs at TYAD to 57. An ecological risk assessment addressed the remaining six sites. The two AOCs referred to as OU 1 were not part of the VS. The 65 AOCs are a combined list of all AOCs identified in the Evaluation of Solid Waste Management Units (SWMU) Report for TYAD, prepared by the US Army Environmental Hygiene Agency (USAEHA), currently the US Army Public Health Command, dated March 1990, and the Phase II Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) Report for TYAD (May 1987), prepared by A.T. Kearney, Inc. and Baker/TSA, Inc. Table I lists all previous studies completed at TYAD.

A draft ERA was completed and submitted to the regulatory agencies for review in 2000. The ERA systematically addressed and documented potential environmental risks as a result of past known or suspected contaminant releases. The ERA was completed in FY00.

# IRP Contamination Assessment

## Contamination Assessment Overview

The RI report for AOC 1 (TBAD-001), the inactive sanitary landfill, was finalized. Both USEPA and PADEP have concurred with the findings and recommendations in the report. The report recommended additional monitoring of wells off-post and long-term monitoring for VOCs. Based upon the report's recommendations, four additional monitoring wells have been established in adjacent state park property.

In FY98, TYAD and USEPA signed a closeout document for the following 35 NFA AOCs: TBAD-003, -005, -006, -009, -010, -011, -012, -013, -014, -015, -016, -017, -018, -020, -021, -022, -023, -024, -025, -026, -027, -028, -029, -030, -031, -034, -035, -046, -053, -054, -056, -057, -060, -062 and -065.

In FY98, the RD document for OU 1 (TBAD-004 and -007) was finalized. This document was prepared to be consistent with the ROD for OU 1 that provided for natural attenuation of groundwater and no action for soil. In addition, a community relations plan was completed.

In FY99, TYAD and USEPA signed a closeout document for the following 18 NFA AOCs: TBAD-002, -019, -033, -036, -039, -040, -041, -042, -043, -044, -045, -047, -048, -049, -050, -051, -052 and -058.

In FY00, a health risk assessment and a focused FS were prepared for the inactive sanitary landfill (TBAD-001). Also, an engineering evaluation/cost analysis for the UXO Area (TBAD-055) was completed. RODs were completed for AOCs in TBAD-001 and TBAD-055.

In 2001, TYAD became the first federal facility in USEPA Region III to achieve "partial delisting", obtained through excellent partnering between the Army, USEPA and PADED.

In 2007, RA(O) groundwater monitoring was reduced to annual sampling at TBAD-001, -004 and -007. The first five-year review was completed in 2007.

In 2014, the RI/FS of TBAD-067 began.

## Cleanup Exit Strategy

Groundwater monitoring will be continued until contaminants of concern are below the MCL. VI sampling has been mandated by the regulators. The sampling has been completed and the VI investigation report has been sent to the USEPA and PADEP for concurrence. The vapor intrusion investigation was completed.



## IRP Previous Studies

Year	Title	Author	Date
1977	Evaluation of the impact of the Tobyhanna Army Depot Landfill on groundwater resources	A.W. Martin Associates, Inc	DEC-1977
1980	Installation Assessment of TYAD, Report Number 159	USATHAMA	JAN-1980
	Environmental Assessment of TYAD Landfill	Spotts, Stevens and McCoy, Inc	MAY-1980
	Water Quality Evaluation, Barney's Lake	Spotts, Stevens and McCoy, Inc	DEC-1980
1981	Water Quality Monitoring Consultation No. 31-62-0109-82	USAEHA	OCT-1981
1982	Water Quality Bioassay Study No. 32-24-0332-82, Permit Appeal	USAEHA	JAN-1982
1983	Revised Potable/Recreational Water Quality Survey No. 31-61-0118-83	USAEHA	APR-1983
1985	APR 1985, Water Quality Engineering Special Study No. 32-61-0138-85	USAEHA	APR-1985
	Hazardous Waste Study No. 37-26-0596-86, Soil Sampling at Sludge Storage Site	USAEHA	NOV-1985
1986	Phase I Water Quality Engineering Study No. 32-24-0795-87	USAEHA	SEP-1986
	Hazardous Waste Study No. 37-26-1397-87	USAEHA	OCT-1986
1987	Recreational Water Quality Engineering Survey No. 31-61-0176-87	USAEHA	JAN-1987
	Phase II RCRA Facility Assessment Report for the TYAD, PAD 5213820892	A.T. Kearney, Inc. and Baker/TSA, Inc.	MAY-1987
1988	Final Update of the Initial Installation Assessment of TYAD	Environmental Science and Engineering, Inc. (ESE)	JAN-1988
	Final Report of the Study of Storm water Runoff from Coal Piles at the TYAD	ESE	APR-1988
	RI/FS at TYAD Final RI Report A011	ESE	DEC-1988
1989	RI/FS at TYAD Final Focused Remedial Alternative Evaluation	Spotts, Stevens and McCoy, Inc	MAR-1989
	Industrial Radiation study No. 27-43-8878-90	USAEHA	JUL-1989
	Hazardous Waste Management Study No. 37-26-8800-90	USAEHA	AUG-1989
	Water Quality Biological Study No. 32-24-0938-90, Toxicity Identification Evaluation	USAEHA	OCT-1989
	Investigation of Fish Kill in Oakes Swamp	USAEHA	NOV-1989
	Wastewater Engineering Consultation No. 32-61-0162-90	USAEHA	NOV-1989

## IRP Previous Studies

Year	Title	Author	Date
1990	Groundwater Quality Survey No. 38-26-K914-90, Evaluation of Solid Waste Management Units,	USAEHA	MAR-1990
1991	Wastewater Management Survey No. 32-61-0183-91	USAEHA	JUN-1991
1992	Water Quality Survey No. 31-2-0349-92	USAEHA	APR-1992
	RI/FS at TYAD Draft Final Endangerment Assessment Report	ESE	DEC-1992
1996	Final Monitoring/Residential Well Sampling Program and Verification Studies, Technical Report, ELIN A009	ESE	MAR-1996
	Final RI, AOC #1-Inactive Sanitary Landfill Technical Report, ELIN A009	Environmental Resources Management, Inc. (ERM)	AUG-1996
1997	Final RI, AOC 1, Inactive Sanitary Landfill Technical Report, ELIN A009	ERM	FEB-1997
	Final RI, AOC #1-Inactive Sanitary Landfill Technical Report, ELIN A009	ERM	AUG-1997
1998	Community Relations Plan for TYAD	Weston Solutions, Inc.	NOV-1998
2000	Focus FS, AOC #1	Program Management Company (PMC) Environmental	JUL-2000
2002	Groundwater Characterization and Well Installation Report, U Area (TBAD-067)	Weston Solutions, Inc.	SEP-2002
	Five-Year Review Report for OU-1 (Areas A and B), OU-4 and OU-5, TYAD	Weston Solutions, Inc.	SEP-2002
2005	Addendum to the Facility Investigation Report and Closure Plan for the Photographic Fabrication Shop, Printed Circuit Board Shop and Pre-Treatment Plant, BLDGs 1A and 1B (TBAD-067)	Weston Solutions, Inc.	AUG-2005
2006	Final Annual Performance Evaluation for OU-1	Weston Solutions, Inc.	AUG-2006
	Building Foundation Study	Weston Solutions, Inc.	DEC-2006
2007	Final Annual Performance Evaluation for OU-1	Weston Solutions, Inc.	AUG-2007
	Second Five-Year Review Report TYAD for OU-1, OU-4, and OU-5	Weston Solutions, Inc.	SEP-2007
2008	Final Annual Performance Evaluation for OU-1	Weston Solutions, Inc.	MAR-2008
2009	Final 2008 Groundwater Monitoring Report U Area	U.S. Army Corps of Engineers	OCT-2009

## IRP Previous Studies

	<b>Title</b>	<b>Author</b>	<b>Date</b>
<b>2009</b>			
	Final 2008 Operable Units 1,4 and 5 Annual Performance Evaluation Report	U.S Army Corps of Engineers	OCT-2009
<b>2010</b>			
	Final 2009 Annual Performance Evaluation For Operable Unit 1, 4 and 5	Weston Solutions	MAR-2010
	Final November 2009 U Area Groundwater Monitoring Report	Weston Solutions	JUL-2010
<b>2011</b>			
	Final 2010 Annual performance Evaluation For Operable Unit 1, 4 and 5	Weston Solutions	DEC-2011
	Final November 2010 U Area Groundwater Monitoring Report	Weston Solutions	DEC-2011
<b>2012</b>			
	Third Five-Year Report for OU1, OU4 and OU5, Final	Weston Solutions, Inc.	SEP-2012
	Vapor Intrusion Pathway Study Report, OU1, Final	Weston Solutions, Inc.	NOV-2012
<b>2013</b>			
	Addendum to Third Five-Year Review Report	Weston Solutions, Inc.	JUN-2013
	2012 Annual Performance Evaluation for OU1, 4 and 5, Final	Weston Solutions, Inc.	JUL-2013
	2012 U Area Groundwater Monitoring Report (TBAD-067)	Weston Solutions, Inc.	AUG-2013

**TOBYHANNA ARMY DEPOT**  
**Installation Restoration Program**  
**Site Descriptions**

**Site ID: TBAD-001**  
**Site Name: SANITARY LANDFILL 1963**

**STATUS**

**Regulatory Driver:** CERCLA  
**RRSE:** MEDIUM  
Contaminants of Concern: Metals, Volatiles (VOC)  
Media of Concern: Groundwater

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	197904.....	198001
SI.....	199003.....	199007
RI/FS.....	199508.....	199708
RD.....	200009.....	200009
RA(C).....	200009.....	200109
RA(O).....	200109.....	204509
<b>RIP Date:</b>	200109	
<b>RC Date:</b>	204509	

**SITE DESCRIPTION**

This site is adjacent to the rail classification yards, near the western boundary of the installation. The landfill is approximately 2,000 feet by 600 feet. It was operated from 1963 to 1979 and was reported to have received all types of wastes generated at TYAD, including plating wastes and sludge, sewage treatment plant sludge, ashes from trash burning pits, construction rubble, paints, solvents, oils, sanitary wastes and pesticide containers.

Groundwater at this site appears to have been affected by previously disposed waste materials. In 1997, an RI was completed, which recommended establishment of off-post monitoring wells to determine the extent of possible contamination. The wells were placed in state park land in 1998. Risk assessments (human health and ecological) were completed and submitted for regulatory review in 1998. No impacts were found in the off-post wells. The ROD for this site was signed in September 2000. The selected remedy was MNA, LTM and institutional controls. RA(O) has been ongoing since 2001. Five-year reviews were completed in 2002, 2007 and 2012. The next five-year review will take place in 2017.

This site is located in OU 5.

**CLEANUP/EXIT STRATEGY**

In 2015, an analysis will be done to ensure that the cap is functioning properly. The RA(O) and five-year reviews will continue until the groundwater samples contain no contaminants above the MCL. Once the groundwater samples contain no contaminants above the MCL, TYAD will seek regulatory approval to close this site with NFA. Once regulatory approval for NFA is received, groundwater monitoring wells will be legally abandoned.

Site Name: BURNING AREAS E/NE OF BARNEY'S LAKE

STATUS

Regulatory Driver: CERCLA
RRSE: HIGH
Contaminants of Concern: Volatiles (VOC)
Media of Concern: Groundwater

Table with 3 columns: Phases, Start, End. Rows include PA, SI, RI/FS, RD, IRA, RA(C), RA(O), RIP Date, and RC Date.

SITE DESCRIPTION

This site, also referred to as Area A, is located in the southeast corner of the depot and is 1,250 feet by 400 feet. It was used from the 1950s to the early-1960s and past operations included trench excavation, waste burning and in-place burial of ash residue.

In 1981, VOC contamination was detected in on-post water supply well ON-3 and Area A was determined to be its source. Initially, the well was equipped with a carbon groundwater treatment system. In 1989, the carbon treatment system was replaced with an air stripper. This air stripper is still being used to remove VOCs from the water at ON3.

This site is located directly adjacent to TBAD-007, known as Area B and source of the off post groundwater contamination. The ROD for this site and TBAD-007 was signed in 1997. The remedy selected was institutional controls, MNA and LTM. Five-year reviews were completed in 2002, 2007 and 2012.

This site is located in OU 1.

CLEANUP/EXIT STRATEGY

The RA(O) and five-year reviews will continue until groundwater samples contain no contaminants above the MCL. Once the groundwater samples contain no contaminants above the MCL, TYAD will seek regulatory approval to close this site with NFA status. Once regulatory approval for NFA is received, groundwater monitoring wells will be legally abandoned. The air stripper installed on drinking water well ON-3 will be used until it is determined that the VOC levels that are entering the well are below levels of concern or until the well is taken out of service.

**Site ID: TBAD-007**  
**Site Name: AREA B, STAGING AREA**

**STATUS**

**Regulatory Driver:** CERCLA

**RRSE:** HIGH

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	199003.....	199007
SI.....	199003.....	199007
RI/FS.....	199008.....	199106
RD.....	199709.....	199709
IRA.....	199012.....	199601
RA(C).....	199709.....	199809
RA(O).....	199709.....	204509

**RIP Date:** 199809

**RC Date:** 204509

**SITE DESCRIPTION**

This site is located in the southeastern corner of the installation, just south of Area A (TBAD-004), and southwest of the 700-series buildings. The site was used for drum staging and disposal during the construction of the depot in the 1950s and is approximately 320 feet by 350 feet.

Contamination of off-post drinking water sources has been attributed to disposal activities at this site. In 1990, water lines from TYAD were extended off-post to 23 residents and one business located south and southeast of the installation. Contaminated soil removal and treatment was conducted in 1995-1996. During the same time period, several 55-gallon drums were removed from the site and properly disposed.

The ROD for this site was approved in September 1997. The remedy selected was MNA, LTM and institutional controls. Five-year reviews were completed in 2002, 2007 and 2012.

Soil VI testing at this site was mandated by the regulators. The final sampling was completed in the fourth quarter of FY12 and USEPA concurred with the Army's NFA recommendation in June 2013.

This site is located in OU 1.

**CLEANUP/EXIT STRATEGY**

The RA(O) and five-year reviews will continue until groundwater samples contain no contaminants above the MCL. Once the groundwater samples contain no contaminants above the MCL, TYAD will seek regulatory approval to close this site with NFA. Once regulatory approval for NFA is received, groundwater monitoring wells will be legally abandoned. At this time, the residents and businesses that are connected to the TYAD water line will have the option to remain on TYAD water and purchase their water services from TYAD or to discontinue use of the TYAD water line and obtain their water from another source.

**STATUS**

**Regulatory Driver:** CERCLA  
**RRSE:** MEDIUM  
 Contaminants of Concern: Volatiles (VOC)  
 Media of Concern: Groundwater

Phases	Start	End
PA.....	200109.....	200210
SI.....	200210.....	200407
RI/FS.....	201407.....	201908
RD.....	201909.....	202009
IRA.....	200601.....	200701
RA(C).....	202009.....	202109
RA(O).....	202109.....	205109
<b>RIP Date:</b>	202109	
<b>RC Date:</b>	205109	

**SITE DESCRIPTION**

This site is located in the depot's industrial area just south of Building 1A. Analysis of groundwater from previously established monitoring wells indicated the presence of tetrachloroethylene (PCE) in the early 2000s. A preliminary assessment (PA) was conducted in 2001-2002, followed by a site inspection (SI) from 2002 -2004. Seven new wells were installed and VOCs, metals and cyanide were confirmed in the groundwater.

Following the SI, the site's wells were sampled semiannually from April 2005 to October 2006. Since October 2006, the wells have been sampled annually.

An IRA was performed in 2006 when a soil vapor extraction system (listed as in situ soil treatment in the RA section) was installed in Building 1A to mitigate the potential of VI. This system is currently being operated by the installation's public works.

This site was not identified as an AOC in the initial installation site assessment so this site is not part of the Federal Facility Agreement or part of the NPL listing.

An RI/FS began in FY14. Following the investigation and alternatives analysis, an appropriate RA will be chosen and implemented after the ROD is finalized in FY19.

This site is not located in an OU.

**CLEANUP/EXIT STRATEGY**

An RI/FS began in FY14. Following the investigation and alternatives analysis, an appropriate remedy for the groundwater contamination will be chosen and implemented. The RA(O) phase will continue until levels of contaminants drop below the cleanup goals, at which time regulatory concurrence with NFA will be obtained.



## Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
TBAD-002	LANDFILL AREA	199909	No cleanup required per Operable Unit #5 ROD
TBAD-003	ASH PITS	199306	No cleanup required per Operable Unit #5 ROD
TBAD-005	ORIGINAL BURNING AREA	199809	No cleanup required per Operable Unit #5 ROD
TBAD-006	BORROW PITS	199306	Study complete, No cleanup required per Operable Unit #5 ROD
TBAD-008	OAKES SWAMP DISPOSAL AREA	200009	No cleanup required per Operable Unit #5 ROD
TBAD-009	CYANIDE SUMP	199306	No cleanup required per Operable Unit #5 ROD
TBAD-010	CYANIDE OXIDATION TANKS	199306	No cleanup required per Operable Unit #5 ROD
TBAD-011	CHROMIUM SUMP	199306	No cleanup required per Operable Unit #5 ROD
TBAD-012	CHROMIUM REDUCTION TANK	199306	No cleanup required per Operable Unit #5 ROD
TBAD-013	ACID/ALKALI SUMP	199306	No cleanup required per Operable Unit #5 ROD
TBAD-014	SURGE TANK	199306	No cleanup required per Operable Unit #5 ROD
TBAD-015	SULFIDE PRECIPITATION PRETREATMENT	199306	No cleanup required per Operable Unit #5 ROD
TBAD-016	ACID/ALKALI SURGE TANK	199306	No cleanup required per Operable Unit #5 ROD
TBAD-017	CHROMIUM SURGE TANK	199306	No cleanup required per Operable Unit #5 ROD
TBAD-018	OVERFLOW/EXCESS BACKWASH TANK	199306	No cleanup required per Operable Unit #5 ROD
TBAD-019	ORIGINAL STP	199306	No cleanup required per Operable Unit #5 ROD
TBAD-020	STP BAR SCREEN	199306	No cleanup required per Operable Unit #5 ROD
TBAD-021	STP PARSHALL FLUME	199306	No cleanup required per Operable Unit #5 ROD
TBAD-022	STP PRIMARY SETTLING TANK	199306	No cleanup required per Operable Unit #5 ROD
TBAD-023	STP DOSING TANK	199306	No cleanup required per Operable Unit #5 ROD
TBAD-024	STP SECONDARY SETTLING TANK	199306	No cleanup required per Operable Unit #5 ROD
TBAD-025	STP RECIRCULATION PIT	199306	No cleanup required per Operable Unit #5 ROD
TBAD-026	FLASH MIX/FLOCCULATION TANK	199306	No cleanup required per Operable Unit #5 ROD
TBAD-027	FINAL SETTLING TANK	199306	No cleanup required per Operable Unit #5 ROD
TBAD-028	SLUDGE THICKENER	199306	No cleanup required per Operable Unit #5 ROD
TBAD-029	SAND FILTER	199306	No cleanup required per Operable Unit #5 ROD
TBAD-030	STP CHLORINE CONTACT CHAMBER	199306	No cleanup required per Operable Unit #5 ROD
TBAD-031	STP DIGESTERS	199306	No cleanup required per Operable Unit #5

## Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
			ROD
TBAD-032	SEWAGE DRYING BEDS	199912	No cleanup required per Operable Unit #5 ROD
TBAD-033	DEWATERED SLUDGE/SLUDGE STORAGE SITE	199306	No cleanup required per Operable Unit #5 ROD
TBAD-034	EQUALIZATION BASIN	199306	No cleanup required per Operable Unit #5 ROD
TBAD-035	SEWAGE SLUDGE ROLL-OFF	199306	No cleanup required per Operable Unit #5 ROD
TBAD-036	DRUM/DUMPSTER STORAGE AREA	199306	No cleanup required per Operable Unit #5 ROD
TBAD-037	INDUSTRIAL WASTE STORAGE AREA BLDG 10C	199607	No cleanup required per Operable Unit #5 ROD
TBAD-038	BUILDING S-90	199607	No cleanup required per Operable Unit #5 ROD
TBAD-039	BUILDING S-91	199306	No cleanup required per Operable Unit #5 ROD
TBAD-040	BUILDING 9	199306	No cleanup required per Operable Unit #5 ROD
TBAD-041	BANNED PESTICIDE STORAGE AREA	199306	No cleanup required per Operable Unit #5 ROD
TBAD-042	WASTE MOTOR OIL/STORAGE AREA,BLDG 15	199602	No cleanup required per Operable Unit #5 ROD
TBAD-043	OUTSIDE DRUM STORAGE, BLDG 86 SOUTH SIDE	199602	No cleanup required per Operable Unit #5 ROD
TBAD-044	DRUM STAGING AREA/DRUM STORAGE - BLDG 1A	199306	No cleanup required per Operable Unit #5 ROD
TBAD-045	PESTICIDE SHOP	199306	No cleanup required per Operable Unit #5 ROD
TBAD-046	RADIOACTIVE WASTE SHELTERS	199306	No cleanup required per Operable Unit #5 ROD
TBAD-047	DRMO HW STORAGE FACILITY	199306	No cleanup required per Operable Unit #5 ROD
TBAD-048	DRUM STORAGE - BUILDING 700	199306	No cleanup required per Operable Unit #5 ROD
TBAD-049	DRUM STORAGE - BUILDING 702	199306	No cleanup required per Operable Unit #5 ROD
TBAD-050	DRUM STORAGE - BUILDING 703	199306	No cleanup required per Operable Unit #5 ROD
TBAD-051	DRUM STORAGE - BUILDING 10-C	199306	No cleanup required per Operable Unit #5 ROD
TBAD-052	DRUM STORAGE - BUILDING 23	199306	No cleanup required per Operable Unit #5 ROD
TBAD-053	BATTERY ACID NEUTRALIZATION/BATTERY SHOP	199306	No cleanup required per Operable Unit #5 ROD
TBAD-054	PHOTO LAB BUILDING 11	199306	No cleanup required per Operable Unit #5 ROD
TBAD-055	UXO AREA IN NORTH END OF INSTALLATION	199306	No cleanup required per Operable Unit #5 ROD
TBAD-056	FACILITY SANITARY SEWERS	199306	No cleanup required per Operable Unit #5 ROD
TBAD-057	INCINERATOR	199306	No cleanup required per Operable Unit #5 ROD
TBAD-058	FIRE FIGHTING TRAINING AREA	199909	No cleanup required per Operable Unit #5 ROD

## Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
TBAD-059	SMALL ARMS & MACHINE GUN RANGE	200004	No cleanup required per Operable Unit #5 ROD
TBAD-060	RAD STORAGE AREA	199306	No cleanup required per Operable Unit #5 ROD
TBAD-061	BARNEY'S LAKE/HUMMLER RUN	200004	No cleanup required per Operable Unit #5 ROD
TBAD-062	NPDES OUTFALLS	199306	No cleanup required per Operable Unit #5 ROD
TBAD-063	PCB TRANSFORMERS	199609	No cleanup required per Operable Unit #5 ROD
TBAD-064	COAL PILE/HEATING PLANT	198705	No cleanup required per Operable Unit #5 ROD
TBAD-065	SANDBLASTING UNIT	199306	No cleanup required per Operable Unit #5 ROD
TBAD-066	UST SITE RESTORATION AREAS	199603	No cleanup required per Operable Unit #5 ROD

# IRP Schedule

Date of IRP Inception: 197904

## Past Phase Completion Milestones

### 1980

PA (TBAD-001 - SANITARY LANDFILL 1963, TBAD-002 - LANDFILL AREA, TBAD-003 - ASH PITS, TBAD-005 - ORIGINAL BURNING AREA, TBAD-019 - ORIGINAL STP, TBAD-020 - STP BAR SCREEN, TBAD-021 - STP PARSHALL FLUME, TBAD-022 - STP PRIMARY SETTLING TANK, TBAD-023 - STP DOSING TANK, TBAD-024 - STP SECONDARY SETTLING TANK, TBAD-025 - STP RECIRCULATION PIT, TBAD-026 - FLASH MIX/FLOCCULATION TANK, TBAD-027 - FINAL SETTLING TANK, TBAD-028 - SLUDGE THICKENER, TBAD-029 - SAND FILTER, TBAD-030 - STP CHLORINE CONTACT CHAMBER, TBAD-031 - STP DIGESTERS, TBAD-032 - SEWAGE DRYING BEDS, TBAD-033 - DEWATERED SLUDGE/SLUDGE STORAGE SITE, TBAD-034 - EQUALIZATION BASIN, TBAD-035 - SEWAGE SLUDGE ROLL-OFF, TBAD-036 - DRUM/DUMPSTER STORAGE AREA, TBAD-037 - INDUSTRIAL WASTE STORAGE AREA BLDG 10C, TBAD-046 - RADIOACTIVE WASTE SHELTERS, TBAD-051 - DRUM STORAGE - BUILDING 10-C, TBAD-055 - UXO AREA IN NORTH END OF INSTALLATION, TBAD-059 - SMALL ARMS & MACHINE GUN RANGE, TBAD-060 - RAD STORAGE AREA)

### 1987

CS (TBAD-064 - COAL PILE/HEATING PLANT)

RFA (TBAD-064 - COAL PILE/HEATING PLANT)

PA (TBAD-009 - CYANIDE SUMP, TBAD-010 - CYANIDE OXIDATION TANKS, TBAD-011 - CHROMIUM SUMP, TBAD-012 - CHROMIUM REDUCTION TANK, TBAD-013 - ACID/ALKALI SUMP, TBAD-014 - SURGE TANK, TBAD-015 - SULFIDE PRECIPITATION PRETREATMENT, TBAD-016 - ACID/ALKALI SURGE TANK, TBAD-017 - CHROMIUM SURGE TANK, TBAD-018 - OVERFLOW/EXCESS BACKWASH TANK, TBAD-038 - BUILDING S-90, TBAD-039 - BUILDING S-91, TBAD-040 - BUILDING 9, TBAD-041 - BANNED PESTICIDE STORAGE AREA, TBAD-042 - WASTE MOTOR OIL/STORAGE AREA, BLDG 15, TBAD-043 - OUTSIDE DRUM STORAGE, BLDG 86 SOUTH SIDE, TBAD-044 - DRUM STAGING AREA/DRUM STORAGE - BLDG 1A, TBAD-053 - BATTERY ACID NEUTRALIZATION/BATTERY SHOP, TBAD-054 - PHOTO LAB BUILDING 11, TBAD-056 - FACILITY SANITARY SEWERS, TBAD-061 - BARNEY'S LAKE/HUMMLER RUN, TBAD-062 - NPDES OUTFALLS, TBAD-063 - PCB TRANSFORMERS, TBAD-065 - SANDBLASTING UNIT)

SI (TBAD-039 - BUILDING S-91, TBAD-054 - PHOTO LAB BUILDING 11, TBAD-055 - UXO AREA IN NORTH END OF INSTALLATION, TBAD-056 - FACILITY SANITARY SEWERS, TBAD-061 - BARNEY'S LAKE/HUMMLER RUN, TBAD-062 - NPDES OUTFALLS, TBAD-063 - PCB TRANSFORMERS, TBAD-065 - SANDBLASTING UNIT)

### 1988

PA (TBAD-004 - BURNING AREAS E/NE OF BARNEY'S LAKE)

### 1989

IRA (TBAD-004 - BURNING AREAS E/NE OF BARNEY'S LAKE)

### 1990

SI (TBAD-001 - SANITARY LANDFILL 1963, TBAD-002 - LANDFILL AREA, TBAD-003 - ASH PITS, TBAD-004 - BURNING AREAS E/NE OF BARNEY'S LAKE, TBAD-005 - ORIGINAL BURNING AREA, TBAD-006 - BORROW PITS, TBAD-007 - AREA B, STAGING AREA, TBAD-008 - OAKES SWAMP DISPOSAL AREA, TBAD-009 - CYANIDE SUMP, TBAD-010 - CYANIDE OXIDATION TANKS, TBAD-011 - CHROMIUM SUMP, TBAD-012 - CHROMIUM REDUCTION TANK, TBAD-013 - ACID/ALKALI SUMP, TBAD-014 - SURGE TANK, TBAD-015 - SULFIDE PRECIPITATION PRETREATMENT, TBAD-016 - ACID/ALKALI SURGE TANK, TBAD-017 - CHROMIUM SURGE TANK, TBAD-018 - OVERFLOW/EXCESS BACKWASH TANK, TBAD-019 - ORIGINAL STP, TBAD-020 - STP BAR SCREEN, TBAD-021 - STP PARSHALL FLUME, TBAD-022 - STP PRIMARY SETTLING TANK, TBAD-023 - STP DOSING TANK, TBAD-024 - STP SECONDARY SETTLING TANK, TBAD-025 - STP RECIRCULATION PIT, TBAD-026 - FLASH MIX/FLOCCULATION TANK, TBAD-027 - FINAL SETTLING TANK, TBAD-028 - SLUDGE THICKENER, TBAD-029 - SAND FILTER, TBAD-030 - STP CHLORINE CONTACT CHAMBER, TBAD-031 - STP DIGESTERS, TBAD-032 - SEWAGE DRYING BEDS, TBAD-033 - DEWATERED SLUDGE/SLUDGE STORAGE SITE, TBAD-034 - EQUALIZATION BASIN, TBAD-035 - SEWAGE SLUDGE ROLL-OFF, TBAD-036 - DRUM/DUMPSTER STORAGE AREA, TBAD-037 - INDUSTRIAL WASTE STORAGE AREA BLDG 10C, TBAD-038 - BUILDING S-90, TBAD-040 - BUILDING 9, TBAD-041 - BANNED PESTICIDE STORAGE AREA, TBAD-042 - WASTE MOTOR OIL/STORAGE AREA, BLDG 15, TBAD-043 - OUTSIDE DRUM STORAGE, BLDG 86 SOUTH SIDE, TBAD-044 - DRUM

	STAGING AREA/DRUM STORAGE - BLDG 1A, TBAD-045 - PESTICIDE SHOP, TBAD-046 - RADIOACTIVE WASTE SHELTERS, TBAD-047 - DRMO HW STORAGE FACILITY, TBAD-048 - DRUM STORAGE - BUILDING 700, TBAD-049 - DRUM STORAGE - BUILDING 702, TBAD-050 - DRUM STORAGE - BUILDING 703, TBAD-051 - DRUM STORAGE - BUILDING 10-C, TBAD-052 - DRUM STORAGE - BUILDING 23, TBAD-053 - BATTERY ACID NEUTRALIZATION/BATTERY SHOP, TBAD-057 - INCINERATOR, TBAD-058 - FIRE FIGHTING TRAINING AREA, TBAD-059 - SMALL ARMS & MACHINE GUN RANGE, TBAD-060 - RAD STORAGE AREA)
PA	(TBAD-006 - BORROW PITS, TBAD-007 - AREA B, STAGING AREA, TBAD-008 - OAKES SWAMP DISPOSAL AREA, TBAD-045 - PESTICIDE SHOP, TBAD-047 - DRMO HW STORAGE FACILITY, TBAD-048 - DRUM STORAGE - BUILDING 700, TBAD-049 - DRUM STORAGE - BUILDING 702, TBAD-050 - DRUM STORAGE - BUILDING 703, TBAD-052 - DRUM STORAGE - BUILDING 23, TBAD-057 - INCINERATOR, TBAD-058 - FIRE FIGHTING TRAINING AREA)
<b>1991</b>	
RI/FS	(TBAD-004 - BURNING AREAS E/NE OF BARNEY'S LAKE, TBAD-007 - AREA B, STAGING AREA)
<b>1995</b>	
PA	(TBAD-066 - UST SITE RESTORATION AREAS)
<b>1996</b>	
RA(C)	(TBAD-063 - PCB TRANSFORMERS, TBAD-066 - UST SITE RESTORATION AREAS)
RI/FS	(TBAD-037 - INDUSTRIAL WASTE STORAGE AREA BLDG 10C, TBAD-038 - BUILDING S-90, TBAD-042 - WASTE MOTOR OIL/STORAGE AREA, BLDG 15, TBAD-043 - OUTSIDE DRUM STORAGE, BLDG 86 SOUTH SIDE, TBAD-063 - PCB TRANSFORMERS)
IRA	(TBAD-007 - AREA B, STAGING AREA)
<b>1997</b>	
RD	(TBAD-004 - BURNING AREAS E/NE OF BARNEY'S LAKE, TBAD-007 - AREA B, STAGING AREA)
RI/FS	(TBAD-001 - SANITARY LANDFILL 1963)
<b>1998</b>	
RA(C)	(TBAD-004 - BURNING AREAS E/NE OF BARNEY'S LAKE, TBAD-007 - AREA B, STAGING AREA)
RI/FS	(TBAD-005 - ORIGINAL BURNING AREA)
<b>1999</b>	
RI/FS	(TBAD-058 - FIRE FIGHTING TRAINING AREA)
<b>2000</b>	
RI/FS	(TBAD-008 - OAKES SWAMP DISPOSAL AREA, TBAD-032 - SEWAGE DRYING BEDS, TBAD-059 - SMALL ARMS & MACHINE GUN RANGE, TBAD-061 - BARNEY'S LAKE/HUMMLER RUN)
RD	(TBAD-001 - SANITARY LANDFILL 1963)
<b>2001</b>	
RA(C)	(TBAD-001 - SANITARY LANDFILL 1963)
<b>2003</b>	
PA	(TBAD-067 - U AREA)
<b>2004</b>	
SI	(TBAD-067 - U AREA)
<b>2007</b>	
IRA	(TBAD-067 - U AREA)

**Projected Phase Completion Milestones**

See attached schedule

# IRP Schedule

## Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates

Site ID

Site Name

ROD/DD Title

ROD/DD Date

**Final RA(C) Completion Date:** 202109

**Schedule for Next Five-Year Review:** 2017

**Estimated Completion Date of IRP at Installation (including LTM phase):** 205109

## TOBYHANNA ARMY DEPOT IRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
TBAD-001	SANITARY LANDFILL 1963	RA(O)						
SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
TBAD-004	BURNING AREAS E/NE OF BARNEY'S LAKE	RA(O)						
SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
TBAD-007	AREA B, STAGING AREA	RA(O)						
SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
TBAD-067	U AREA	RI/FS						
		RD						
		RA(C)						
		RA(O)						

**TOBYHANNA ARMY DEPOT**  
**Army Defense Environmental Restoration Program**  
**Military Munitions Response Program**



# MMRP Summary

**Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count:** 6/5

## Installation Site Types with Future and/or Underway Phases

1 Firing Range  
(TYAD-001-R-01)

## Most Widespread Contaminants of Concern

Explosives, Metals, Munitions and explosives of concern (MEC)

## Media of Concern

Soil

## Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
TYAD-001-R-01	FAR-A, Powder Smoke Ridge	FRA	INSTITUTIONAL CONTROLS	2006

## Duration of MMRP

**Date of MMRP Inception** 200207

**Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC):** 201302/200510

**Date of MMRP completion including Long Term Management (LTM):** Indefinite

## MMRP Contamination Assessment

### Contamination Assessment Overview

An Army-wide range inventory was completed in the early 2000s. Six Military Munitions Response Program (MMRP) sites were identified at TYAD. Since then, five of the MMRP sites were determined not to need any additional investigation or cleanup and they were recommended for NFA with regulatory concurrence. One site, the UXO Area, was identified before the MMRP was created in FY02 and was initially captured under the Installation Restoration Program (IRP) as TBAD-055. As UXO actions were not ER,A eligible at the time, the ROD and remedy (implementation of LUCs) were funded by the installation. Following the creation of the MMRP, TBAD-055 was administratively closed out and TYAD-001-R-01 was created in its place. LUCs continue as the remedy at this site.

### Cleanup Exit Strategy

The LTM at TYAD-001-R-01 will continue indefinitely.

## MMRP Previous Studies

	<b>Title</b>	<b>Author</b>	<b>Date</b>
<b>1995</b>	Archives Search Report FINDINGS for the former Tobyhanna Artillery Range	USACE Rock Island District	SEP-1995
<b>2000</b>	Engineering Evaluation/Cost Analysis AOC 55 UXO Area on Powder Smoke Ridge	PMC	APR-2000
<b>2005</b>	Final Site Inspection Report	Malcolm Pirnie, Inc.	MAR-2005
<b>2009</b>	Munitions and Explosives of Concern (MEC) Removal Action at Barstow Radar Construction Site	Weston Solutions	MAR-2009
	Construction Support Requiring the Investigation and Removal of MEC, TYAD-001-R-01 (Seal Beach Radar)	Weston Solutions, Inc.	NOV-2009
<b>2010</b>	Construction Support Requiring the Investigation and Removal of Munitions and Explosives of Concern (MEC) Munitions Response Site (MRS) TYAD-01-R-01 Seal Beach Radar	Weston Solutions	MAR-2010
<b>2011</b>	Investigation and Removal of Munitions and Explosives of Concern (MEC) Munitions Response Site (MRS) TYAD-02-R-01 (Firing Point No. 6)	Weston Solutions	DEC-2011
<b>2013</b>	Final ROD Firing Point No 6 (TYAD-002-R-01)	Weston Solutions, Inc.	FEB-2013

**TOBYHANNA ARMY DEPOT**  
**Military Munitions Response Program**  
**Site Descriptions**

**Site ID: TYAD-001-R-01**  
**Site Name: FAR-A, Powder Smoke Ridge**

**STATUS**

Regulatory Driver: CERCLA

MRSPP Score: 04

Contaminants of Concern: Explosives, Metals, Munitions and explosives of concern (MEC)

Media of Concern: Soil

Phases	Start	End
PA.....	200207.....	200305
SI.....	200309.....	200503
RA(C).....	200501.....	200510
LTM.....	200510.....	204509

RIP Date: N/A

RC Date: 200510

**SITE DESCRIPTION**

This 478-acre area, also known as Powder Smoke Ridge, is in the northern portion of the installation. The site is also part of the former Camp Summerall. It contains an artillery range used during WWI and WWII, as well as a small arms and machine gun range, and a pistol range used during the 1960s.

The area was previously defined as Former Artillery Range (FAR) A. Based on the findings of the SI, TYAD-001-R-01 includes FAR A - sub-area 1A (FAR-A-1A), FAR A - sub-area 1B (FAR-A-1B), and FAR B - sub-area 2 (FAR-B-2). FAR-A-1A was identified as target area no. 5, and FAR-A-1B and FAR-B-2 were identified as overlapping range fan areas. The MEC presence for these areas is known and the fence line that already exists has been extended to include FAR-B-2.

The TYAD has been partially delisted from the NPL (or Superfund). The site is OU 4, also referred to as AOC No. 55 of the NPL site (also TBAD-055). In the ROD dated September 2000, institutional controls were the chosen remedial alternative because terrain ruled the other remedial alternatives as not feasible. The small arms, machine gun and pistol ranges are co-located within the restricted area of AOC No. 55 and overlap the firing fan of the FAR. The institutional controls include barbed wire fencing, signage, security patrols, land use restrictions, education, and periodic reviews. The fencing surrounds an area of 800 acres, which includes the entire FAR-A. IRP site TBAD-055 was administratively closed out in 1993 because UXO were not then ER,A eligible.

In 1998, an air defense radar facility was built on approximately 20 acres. The footprint of the radar testing facility and an area of 100 feet around the footprint of the facility were cleared of UXO to a depth of 4 feet. During the excavation of the footprint of the radar facility, 37 millimeter (mm) projectiles, 75mm projectiles, 81mm mortars (one containing white phosphorus), as well as an M38 fuze, an M49 flare, an adapter booster and US Coast Guard projectiles were discovered. Two water towers are located on the former range, within the restricted area, but are fenced so workers cannot gain access to the site.

After the creation of the MMRP, TYAD-001-R-01 was created in FY02 and carries the actions at former TBAD-055.

As a result of Base Realignment and Closure (BRAC) 2005, MEC clearance was completed on 37 acres. The site is in the LTM phase.

**CLEANUP/EXIT STRATEGY**

The site is in LTM and LUCs will remain in place indefinitely. As needed, construction site clearance and/or clearance activities will be implemented if construction or access is needed within the MRS.

## Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
TYAD-001-R-02	FAR-A-2	200503	ROD signed in 2000.
TYAD-001-R-03	FAR-A-3	200503	ROD signed in 2000.
TYAD-002-R-01	FAR-B-1 (FP #6)	201302	ROD signed 2013.
TYAD-002-R-02	FAR-B-1 (Fan)	200503	ROD signed in 2000.
TYAD-003-R-01	Machine Gun Range	200503	ROD signed in 2000.

# MMRP Schedule

**Date of MMRP Inception** 200207

## Past Phase Completion Milestones

### 2003

PA (TYAD-001-R-01 - FAR-A, Powder Smoke Ridge, TYAD-001-R-02 - FAR-A-2, TYAD-001-R-03 - FAR-A-3, TYAD-002-R-01 - FAR-B-1 (FP #6), TYAD-002-R-02 - FAR-B-1 (Fan), TYAD-003-R-01 - Machine Gun Range)

### 2005

SI (TYAD-001-R-01 - FAR-A, Powder Smoke Ridge, TYAD-001-R-02 - FAR-A-2, TYAD-001-R-03 - FAR-A-3, TYAD-002-R-01 - FAR-B-1 (FP #6), TYAD-002-R-02 - FAR-B-1 (Fan), TYAD-003-R-01 - Machine Gun Range)

### 2006

RA(C) (TYAD-001-R-01 - FAR-A, Powder Smoke Ridge)

### 2013

RI/FS (TYAD-002-R-01 - FAR-B-1 (FP #6))

## Projected Phase Completion Milestones

See attached schedule

## Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates

Site ID	Site Name	ROD/DD Title	ROD/DD Date
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**Final RA(C) Completion Date:** 200510

**Schedule for Next Five-Year Review:** 2017

**Estimated Completion Date of MMRP at Installation (including LTM phase):** Indefinite

# TOBYHANNA ARMY DEPOT MMRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
TYAD-001-R-01	FAR-A, Powder Smoke Ridge	LTM						



## Community Involvement

**Technical Review Committee (TRC):** 199101

**Community Involvement Plan (Date Published):** 199811

**Restoration Advisory Board (RAB):** RAB established 199503

**RAB Adjournment Date:** 200510

**RAB Adjournment Reason:** All environmental restoration remedies are in place and are operating properly and successfully.

### **Additional Community Involvement Information**

A new community involvement plan will be produced in FY15. Reestablishment of the RAB will be evaluated in FY15 since a new site has just begun the RI/FS phase.

### **Administrative Record is located at**

Tobyhanna Army Depot  
Public Affairs Office  
11 Hap Arnold Blvd  
Tobyhanna, PA 18466  
(570)615-7308

### **Information Repository is located at**

Pocono Mountain Public Library  
5540 Memorial Boulevard (Rt. 611)  
Coolbaugh Township Municipal Center  
Tobyhanna, PA 18466  
(570)894-8860

**Current Technical Assistance for Public Participation (TAPP):**N/A

**TAPP Title:** N/A

**Potential TAPP:** N/A

