INSTALLATION ACTION PLAN
for
BADGER ARMY AMUNITION PLANT

Fiscal Yeal 2001

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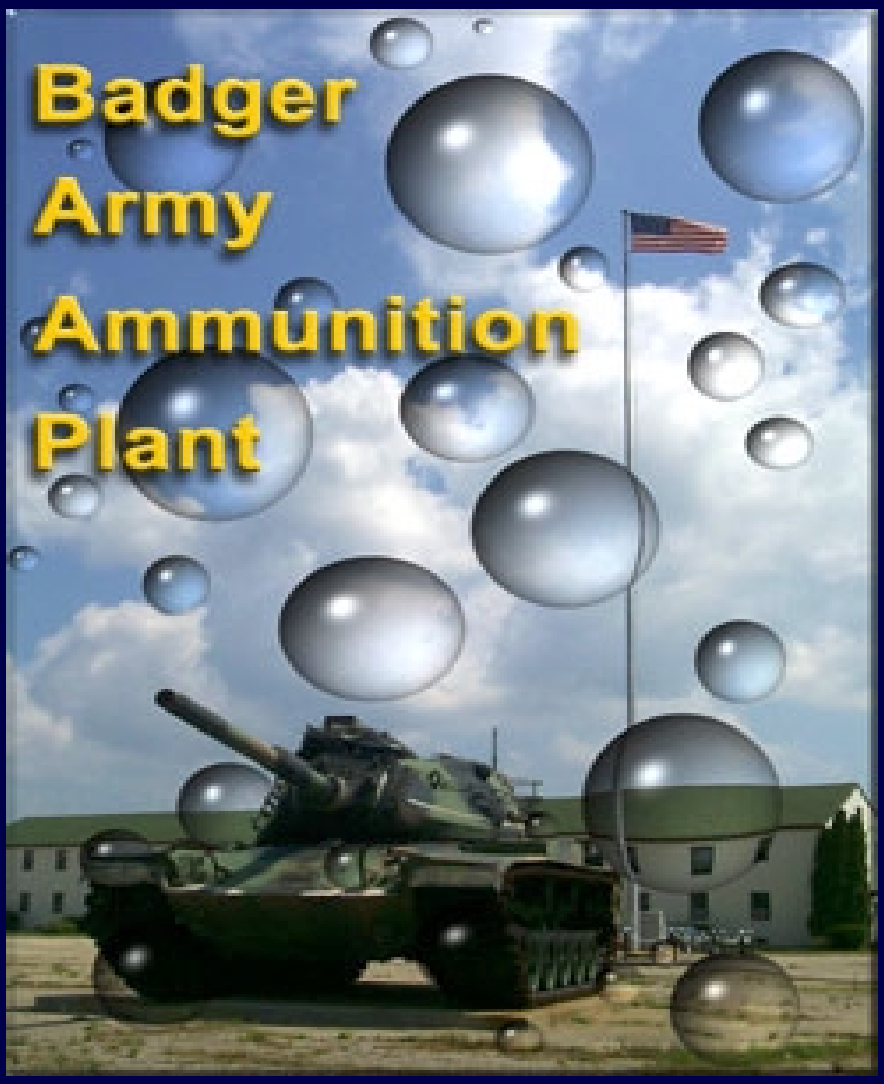

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PURPOSE

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

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

All site specific funding and schedule information has been prepared according to projected overall Army funding levels and is therefore subject to change during the document's annual review. Under current project funding, all remedies will be in place at the BAAP by the end of 2009.

ACRONYMS & ABBREVIATIONS

ABA	Abondoned Burn Area
AEC	Army Environmental Center
ALF	Abandoned Landfill
ADRA	Ammunition Demilitarization and Renovation Area
ATSDR	Agency for Toxic Substances & Disease Registry
CAAP	Cornhusker Army Ammunition Plant
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
DERA	Defense Environmental Restoration Account
DERP/MIS	Defense Environmental Restoration Program/Management Infromation System
DMA	Demolition Area
DNT	2,4 Dinitrotoluene
DRMO	Defense Reutilization and Marketing Office
DRMS	Defense Reutilization and Marketing Service
DSA	Diesel Spill Area
DSERTS	Defense Site Environmental Restoration Tracking System
EFFTF	Existing Fire-Fighting Training Facility
ENSR	Environmental Contractor
EPA	Environmental Protection Agency
ER,A	Environmental Restoration, Army (formally called DERA)
EPIC	Environmental Photographic Interpretation Center
FFA	Federal Facilities Agreement
FFSRA	Federal Facility Site Remediation Agreement
FS	Feasibility Study
FY	Fiscal Year
GOCO	Government Owned Contractor Operated
GOGO	Government Owned Government Operated
gpm	gallons per minute
HMX	Cycloteramethylenetrinitramine
IAG	Interagency Agreement
IAP	Installation Action Plan
IRA	Interim Remedial Action
IRIP	Installation Restoration Incineration Program
IRP	Installation Restoration Program
K	Thousand
LAP	Load, Assemble, and Pack
LTM	Long Term Monitoring
M	Million
MCL	Maximum Contaminant Level
NB	Nitrobenzene
NE	Not Evaluated
NFA	No Further Action
NPL	National Priority List

ACRONYMS & ABBREVIATIONS

LIST OF ACRONYMS AND ABBREVIATIONS CONTINUED…

OB/OD	Open Burn/Open Detonation
OU	Operable Unit
PA	Preliminary Assessment
PAH	Polycyclic Aromatic Hydrocarbons
POL	Petroleum, Oil & Lubricants
PP	Proposed Plan
ppb	parts per billion
RA	Remedial Action
RA(C)	Remedial Action - Construction
RA(O)	Remedial Action - Operation
RAB	Restoration Advisory Board
RBC	Risk Based Concentrations
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RDX	Cyclonite
REM	Removal
RI	Remedial Investigation
RIP	Remedy in Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SI	Site Inspection
SOC	Statement of Condition
SOP	Standard Operating Procedures
STP	Sewage Treatment Plant
SWMU	Solid Waste Management Uniit
SVOC	Semi-Volatile Organic Compounds
TCE	Trichloroethylene
TNB	1,3,5 Trinitrobenzene
TNT	Trinitrotoluene
TPHC	Total Petroleum Hydrocarbons
TRC	Technical Review Committee
Ug/g	microgram per gallon
Ug/l	microgram per liter
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine
USACE	United States ArmyCorps of Engineers
USAEC	United States Army Environmental Center
USAEHA	United States Army Environmental Hygiene Agency (replaced by CHPPM)
USATHMA	United States Army Toxic and Hazardous Material Agency (replaced by AEC)
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VOC	Volatile Organic Compounds
WDNR	Wisconsin Department of Natural Resources

SUMMARY

STATUS

Non-NPL, RCRA permitted. Confirmed off-post groundwater contamination

NUMBER OF DSERTS SITES:

35 DSERTS sites
- 11 Active ER,A Sites
- 24 Response Complete ER,A Eligible (some with LTM)

DIFFERENT DSERTS SITE TYPES:

6	Pond & Ditch Areas	5	Closed Landfill
4	Material Storage Areas	10	Production Areas
5	Burning Areas	4	Tank Areas
1	Off-Site Groundwater Plume		

CONTAMINANTS OF CONCERN:

Carbon Tetrachloride, Trichloroethlene, Chloroform, Dinitrotolulene, Lead.

MEDIA OF CONCERN:

Groundwater, Soil, Sediments

COMPLETED REM/IRA/RA:

RA - FY89 Existing Landfill closed & capped	130.0K	(BAAP-004)
IRA - FY88-89 PBG GW Treatment Plant construction	2,201.3K	(BAAP-33)
RA - FY91 Alternate water supply to two residents	95.3K	(BAAP-012)
IRA - FY95 Soil removal/cover at PBG racetrack	573.3K	(BAAP-34)
IRA - FY96 Modified GW Treatment Plant construction	7,431.6K	(BAAP-33)
IRA - FY96 NG Pond berm construction	143.3K	(BAAP-005)
RA - FY96 PCB soil at Transformer Yard removed	64.6K	(BAAP-38)
RA - FY97 Replacement of third residential well	110.9K	(BAAP-012)
RA - FY97 Landfill 1 capped	469.5K	(BAAP-35)
IRA - FY98 SVE installed at PBG Waste Pits 537.8K	(BAAP-33)	
IRA - FY98 Bioventing installed at Powerhouse spill site	380.9K	(BAAP-37)
RA - FY98 1949 Pit Capped	962.9K	(BAAP-35)
RA – FY99 East & West Rocket Ditches soils removed & disposed	720.2K	(BAAP-36)
RA – FY99 Nitroglycerine Pond soil removed & disposed		(BAAP-005)
IRA – FY2000 PBG and DBG soil removed & disposed		(BAAP-006,33)

CURRENT IRP PHASES:

RI at 5 sites	RD at 1 sites	RAO at 2 sites
RA - 4 sites	LTM -2 sites	IRA at 2 sites

PROJECTED IRP PHASES:

RI at 2 sites	RD at 1 site	RA at 1 site
RAO at 1 site	LTM at 2 sites	

IDENTIFIED POSSIBLE REM/IRA/RA:

Soil capping, stabilization/cover, or soil removal/treatment/disposal for surface and subsurface soils. Groundwater treatment with air stripping/carbon adsorption and in-situ bioremediation.

FUNDING:

PRIOR YEAR THROUGH 2000:	$ 88,059.7 K
FY2001:	$ 4,965.0 K
FUTURE REQUIREMENTS:	$ 75,412.0 K
TOTAL:	$168,436.7K

DURATION:

YEAR OF IRP INCEPTION:	1977
YEAR OF RA COMPLETION EXCLUDING LTM:	2009
YEAR OF IRP COMPLETION INCLUDING LTM:	2033

INSTALLATION INFORMATION

LOCALE

Badger Army Ammunition Plant (Badger) is located on 7,354 acres of land in Sauk County, Wisconsin. It is bordered on the north by Devil's Lake State Park, on the east by farmland, State Highway 78, and the Wisconsin River, on the south by farmland, and on the west by U.S. Highway 12. Badger is approximately 9 miles south of Baraboo (pop. 10,000), and 5 miles north of Sauk City/Prairie du Sac (pop. 3,000). A small retirement community with approximately 300 residents is located directly west across Highway 12 from Badger's main gate. On Badger's east side, between Highway 78 and the Wisconsin River, are several unincorporated residential developments with a projected population of 1000 people when fully developed.

COMMAND ORGANIZATION

MAJOR COMMAND: U.S. Army Material Command

SUBCOMMAND: U.S. Army Operations Support Command

DIRECTORATE: Mr. Paul H. Woodhouse, Director of Inactive Installations

INSTALLATION: Mr. David C. Fordham, Commander's Representative.
Installation Operating Contractor: Olin Corporation.

INSTALLATION RESTORATION PROGRAM (IRP) EXECUTING AGENCY

- **INVESTIGATION PHASE:** U.S. Army Environmental Center, Installation Restoration Division, Branch A.
- **REMEDIAL DESIGN PHASE**: U.S. Army Corps of Engineers, Omaha District, & Olin Corporation

REGULATOR PARTICIPATION

- **FEDERAL:** U.S. Environmental Protection Agency Region V.
- **STATE:** Wisconsin Department of Natural Resources and Wisconsin Division of Health

REGULATORY STATUS

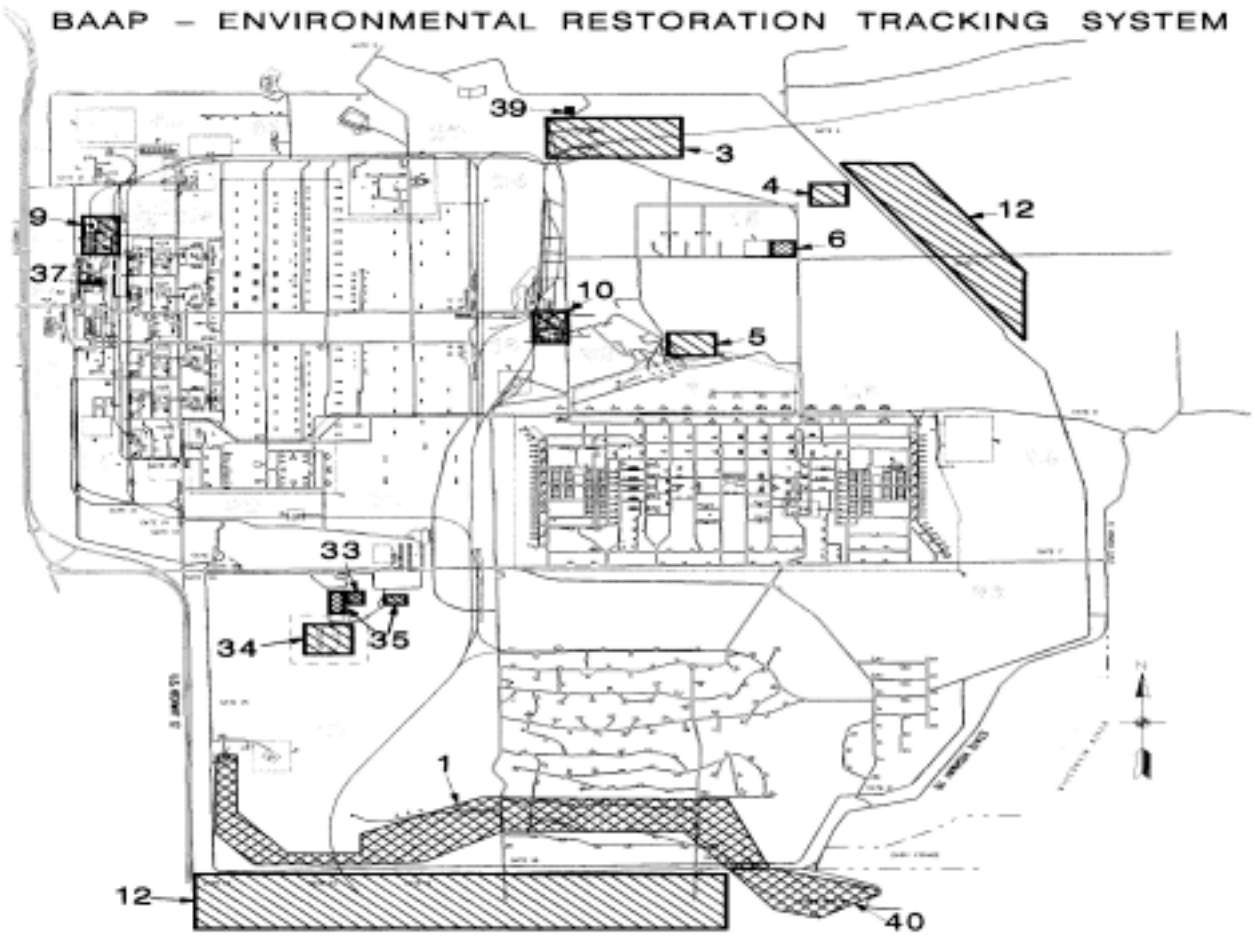
- Non-NPL with confirmed off-post contamination
- RCRA Part B permit issued 1988, modified in January 1996, renewed 1998
- Corrective actions underway in accordance with State Order (In-Field Conditions Report) l last modified December 2000

INSTALLATION DESCRIPTION

Badger is currently inactive and has been maintained on standby since 1976. In 1998, excessing activities began under the General Services Agency (GSA) oversight.

Badger was constructed in 1942 in Sauk County, Wisconsin, near the city of Baraboo. The plant was operated intermittently over a 33-year period to produce single- and double-base propellant for cannon, rocket, and small arms ammunition. Plant operation was terminated in March 1975 and all production facilities and many support functions were placed on standby status, which continued until 1998.

CONTAMINATION ASSESSMENT



CONTAMINATION ASSESSMENT

Badger Army ammunition Plant was built on farmland composed of up to 10 feet of clayey silt (loess) topsoil over very permeable sand and gravel deposits.

Studies conducted during the late 1970s and early 1980s discovered that materials such as propellant grains, dinitrotoluenes (DNTs), organic solvents, and acids had been released during production. Some contamination of surface soils and groundwater were found or suspected. A preliminary investigation and site assessment was conducted in 1987 and documented in the Master Environmental Plan for Badger AAP. Some volatile contaminants in the soil, such as the solvent carbon tetrachloride, had been carried by infiltrating precipitation down through the soil to the groundwater that is 90 to 110 feet below ground surface. The contaminants then moved with the groundwater, which generally flows to the south. Some contaminants, such as dinitrotoluene (DNT, a burn rate modifier for propellants), are not as mobile and move slowly through the soil. Other non-mobile contaminants, such as lead, remain where they were deposited. Thus there are areas with contamination only in the top layers of soil, areas with soil contaminated from the top to varying depths or to the groundwater, and areas where the only problem is the contaminated groundwater moving through the subsurface soils. There are also ponds where pond water and bottom sediments have been affected by contaminants that were carried there in process discharge water.

Based on information developed during this preliminary assessment, the Wisconsin Department of Natural Resources (WDNR), issued an In-Field Conditions Report (IFCR) for Badger in September 1987. The IFCR contained requirements to conduct a Remedial Investigation/Feasibility Study (RI/FS). The IFCR has been modified by the state as necessary over the years to keep it current and address the latest findings and decisions regarding the installation cleanup program.

In 1988, the installation received a Hazardous Waste Operations License in accordance with the Resource Conservation and Recovery Act (RCRA) Part B permit process. Issued jointly by the U.S. Environmental Protection Agency (EPA) Region V and the WDNR, it included specific requirements for an investigation at each of the potentially contaminated sites previously identified. It also provided for a phased study program based on a prioritized ranking. This was renewed in 1998.

Badger was nominated for the National Priority List (NPL) but was not listed. The remediation program is proceeding under the RCRA authority of the state and the EPA, but the terminology and investigative procedures follow CERCLA. There is joint oversight of the remedial efforts by EPA and WDNR, with WDNR taking the lead role.

The Remedial Investigation (RI) began at Badger in 1988. A plume of contaminated groundwater was discovered at the Propellant Burning Ground that appeared to be moving toward the installation boundary. To prevent the plume from moving off-site, an interim groundwater extraction, treatment, and discharge system was constructed. It began operating in May 1990.

In April 1993, the RI was completed for Badger. It identified the types, concentrations, and locations of contamination at the installation. The Feasibility Study (FS), completed in August 1994, looked at the possible ways to treat the contamination identified in the RI and recommended remedies for each site. The regulators agreed with the Army's recommendations for remedies. These have been incorporated into the In-Field Conditions Report modifications of June 1995 and the RCRA permit modification of January 6, 1996.

Other investigations after the RI/FS were completed revealed two additional sites where remedial work was required. One of these sites has been remediated; the other is in the construction phase.

CONTAMINATION ASSESSMENT

Remedial design work began upon completion of the FS. Based on further investigations, the Army has developed new estimates of the extent of contamination and probabilities of success for the selected remedies for some sites. As a result, the Army received approval for changing the cleanup methods at the Nitroglycerine Pond, Rocket Paste Area, and East & West Rocket Ditches in FY98. The regulators are now considering the Army's proposed change of remedy for the Deterrent Burning Ground, and the Propellant Burning Ground contaminated waste pits. A change in remedy for the Settling Ponds area is also planned.

The draft final Phase I RI report (January 1990) indicated that two plumes of contamination have migrated beyond BAAP boundaries. From the Propellant Burning Ground area, a plume of volatile organic compounds (VOCs), with carbon tetrachloride as the primary contaminant, has moved past the southern boundary. Concentrations of carbon tetrachloride at the southern boundary are as great as 210 parts per billion (ppb). From the Deterrent Burning Ground/ Existing Landfill area, a sulfate plume has been detected past the eastern boundary. Concentrations of SO4 at the eastern boundary are as great as 640 ppm but concentrations in private wells outside the boundary are below the state preventive action level of 150 parts per million (ppm). Maximum regulatory levels are five ppb for carbon tetrachloride and 250 ppm for sulfate.

An off-post groundwater monitoring program was initiated in January 1990. In late April 1990, results of monitoring residential supply wells south of Badger showed that three private potable water wells had been contaminated with carbon tetrachloride and chloroform at levels as high as 80 ppb and 9.9 ppb, respectively. The locations of these wells confirm the expected groundwater movement from the modeling conducted as part of the Phase I RI. The VOC plume is flowing south from the Propellant Burning Ground Waste Pits, past the installation's southern boundary, then easterly to the Wisconsin River below the Wisconsin Power and Light dam. Two replacement wells were installed in December 1990 as a remedial measure. The third residence finalized their agreement with the Army in 1995, and the well replacement was completed in 1996. Prior to this, bottled water was provided. In the northeast area, private wells are being monitored and at this time do not show contamination attributable to Army sources.

The RI/FS effort was halted in September 1990 by USATHAMA due to laboratory fraud. The work resumed in 1991. A draft final RI Report was submitted to the regulatory agencies in December 1992 and the final report was issued in April 1993. Of the 12 sites studied, six were recommended for no further action, and six for further study.

A draft final Feasibility Study was issued to the regulators for review in July 1993. This draft required several modifications due to Wisconsin's adopting new rules for site cleanups. The revised FS was published in August 1994, and accepted by the regulators and the public as final in 1995. The regulatory approvals, conditions and timeframes are contained in the In-Field Conditions Report from the state, modified 6/95, and in the RCRA permit modification issued jointly by the state and EPA on January 6 1996.

PREVIOUS STUDIES

Title	Author	Date
Badger Army Ammunition Plant, Contamination Survey	U.S. Army Toxic and Hazardous Materials Agency (USATHAMA),	March-81
Phase 2 Hazardous Waste Management Study, Propellant Burning Ground	U.S. Army Environmental Hygiene Agency (USAEHA),	June-05
Geological and Soils Survey and Groundwater Monitoring Program	Warzyn	June-05
Engineering Report Groundwater Monitoring Wells Synthetic Acid Plant Badger AAP	Sarko	June-05
Establishment of Five Groundwater Monitoring Wells, Physical Analysis of Soil Samples, and Chemical analysis of Groundwater Samples	Sarko	June-05
Near-Surface Soils Investigations at BAAP	Ayres	June-05
Phase 4 Hazardous Waste Management Study	USAEHA,Daubel	June-05
Interim Report Geohydrologic Study No. 38-26-0504-86, BAAP	USAEHA	June-05
Investigation Report for the Soil Sampling, Analysis, and Evaluation of the Settling Ponds Spoils Site at BAAP	Foth & Van Dyke	June-05
Subsurface Investigation, BAAP	, Warzyn	June-05
U.S. Army Materiel Command (USAMC), Explosive Reactivity Testing Program BAA	Daubel	June-05
USACE, Waterways Experiment Station Geophysical Investigation, Existing Landfill, BAAP	Whitten and Sjostrom	June-05
Argonne National Laboratory, Master Environmental Plan for Badger Army Ammunition Plant	Tsai et al	June-05
U.S. Army Environmental Center (USAEC), April 1993, Final Remedial Investigation Report, Badger Army Ammunition Plant	ABB Environmental Services	
USAEC, August 1993, Draft Final Off-Post Contingency Plan	ABB Environmental Services	
USAEC, September 1993, Draft Final Decision Document, Badger Army Ammunition Plant	ABB Environmental Services	
USAEC, August 1994, Final Feasibility Study	ABB Environmental Services	
USAEHA, September 1993, USAEHA Hazardous Waste Study No. 37-26-J1QU-93, PCB Spill Survey	USAEHA, Aberdeen Proving Ground	
USACE, 1994. Specifications and Drawings for Construction of Interim Remedial Measures Modification	Woodward-Clyde	June-05
USACE, 1995, Final Treatability Study Work Plan - Predesign Activities for the NG Pond and Rocket Areas	RUST Environment and Infrastructure	Apr 995
USACE, 1995, Final (90%) Remedial Design for the Nitroglycerine Pond and Rocket Areas	RUST Environment and Infrastructure	November-95
Final Documentation Report for Soil Cover Construction, Racetrack and Thermal Treatment Unit Closure	Olin Corporation	October-96
Final Documentation of Construction and Completion of Modified IRM	Omaha District COE and Sverdrup	May-97
Northeast Boundary Area Groundwater Study	MSA Professional Services	July 1997.
Schedule Revisions – Notification of Intent to Request Changes in Remedial Actions Proposed for the Badger Army Ammunition Plant		September-97

PREVIOUS STUDIES

Title	Author	Date
RCRA Part B Permit Application, Feasibility and Plan of Operation Report for a Small Storage Facility at Badger Army Ammunition Plant	Olin Corporation	September-97
Position Paper and Ecological Risk Assessment No 39-EJ-1410-96	USACHPPM	November-97
Deterrent Burning Ground Subsurface Investigation	Stone & Webster, In c	December-97
Landfill #1 Cap construction, Propellant Burning Grounds, Final Construction Report	Olin Corporation	January-98
Proposal to Modify Preferred Remedial Alternative for Nitroglycerine Ponds, Rocket Paste Pond, and East & West Rocket Ditches Areas, Badger Army Ammunition Plant		January 1998 and March 1998.
A Review of Cancer Mortality and Incidence for Communities Near the Badger Army Ammunition Plant	Wisconsin Devision of Health	March-98
Alternate Feasibility Study for Soil, Sediment, and Surface Water at the Nitroglycerine, Rocket Paste and Overflow Ponds	Stone & Webster, Inc	April-98
1949 Pit Cap Design, Propellant Burning Ground, 95% Design Report	Olin Corporation	March 1998.
Draft Remedial Action Plan, Rocket Ditches Area	Olin Corporation	May 1998.
Badger Army Ammunition Plant Groundwater Hydrology Report	Olin Corporation	June 1998.
Waste Piles Disposal	Olin Corporation	June-98
Alternative Feasibility Study (FS) for the Deterrent Burning Ground and Propellant Burning Ground Waste Pits Subsurface Soil	Stone & Webster, Inc	July-98
Phase 11 Landfill Construction Specifications and Final Construction Quality Control Plan	Stone & Webster, Inc	July-98
Powerhouse Biovent Design Report	Vierbicher Associates, Inc	January 1998.
Study Report, IRM Bromodichloromethane	Olin Corporation	July-98
Preliminary Investigation Report for the Oleum Landfill	Olin Corporation	August 1998.
1949 Pit Phase One Cap Construction, Quality Control and Quality Assurance Report	Olin Corporation	August 1998.
Final Remedial Action Plan, Rocket Ditches Area	Olin Corporation	August 1998.
Draft Addendum Field Sampling Report, Propellant Burning Ground Subsurface Investigation, Soil Vapor Extraction System	Stone & Webster, Inc	October-98
Draft Field Sampling Report, Deterrent Burning Ground Subsurface Investigation		October 1998.
1949 Pit Phase One Cap, Final Construction Report	Olin Corporation	January 1999.
Draft Comprehensive Work Plan, Groundwater Technology Review and Natural Attenuation Screening Study, Propellant Burning Ground	Stone & Webster, Inc	January 1999.
Corrective Measures Implementation Report, Rocket Ditches Area	Olin Corporation	January 1999.
Corrective Measures Implementation Report, Nitroglycerine, Overflow, and Rocket Paste Ponds	Stone & Webster, Inc	January 1999.
Underground Storage Tank Removal and Closure Documentation	Olin Corporation	August-98
1949 Pit Phase One Cap Final Construction Report	Olin Corporation	January-99
Corrective Measures Implementation Report Rocket Ditches Area Olin Corporation	Olin Corporation	January-99

PREVIOUS STUDIES

Title	Author	Date
Corrective Measures Implementation Report Nitroglycerine, Overflow and Rocket Paste Ponds	Stone & Webster, Inc	January-99
Environmental Baseline Survey	Plexus Scientific Corporation	January-99
Public Health Assessment for Badger Army Ammunition Plant	U.S Department of Health & Human Services	May-99
Independent Technical Review Final Recommendations Report	U. S. Army Environmental Center	May-99
Draft Comprehensive Field Sampling Plan Gruber's Grove Bay Investigation	Stone & Webster, Inc	January-00
Technical Memorandum Groundwater Flow Model PBG	Stone & Webster, Inc	March-00
Propellant Burning Ground Full Scale Bioremediation System Submittal	Stone & Webster, Inc	May-00
Summary Report Soil Vapor Survey Northwest of PBG	BT2, Inc	June-00
Proposed Dredging Gruber's Grove Bay	Stone & Webster, Inc	July-00
Draft Developing Site Specific Soil Cleanup Standards	Stone & Webster, Inc	Sept, 2000

BADGER AAP ER, A ACTIVE DSERTS SITES

BAAP-001
SETTLING PONDS & DISPOSAL AREAS

SITE DESCRIPTION

The Settling Ponds are located along the installation's southern boundary and were first used in 1941. During the years of production, these man-made ponds received sanitary and industrial wastewater from the entire facility and surface runoff from the Nitroglycerine, Rocket Paste, and Magazine areas. In 1970 the ponds covered 25 acres. Spoils removed during dredging operations were placed alongside the ponds. In-situ soil stabilization/solidification was the proposed remedial method in the 1994 FS.

New soil sampling data received in 2000 indicates mercury & nitroglycerine present;not previously identified as a problem. Site specific soil cleanup standards are being developed. The cleanup goals and remedies selected in 1994 will have to be reconsidered.

Groundwater monitoring is done as a part of an installation-wide program tracked with site BAAP-012.

IRP STATUS

RRSE RATING: High Risk (1A)

CONTAMINANTS OF CONCERN:
Explosives, metals

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI, RI/FS

CURRENT IRP PHASE:
RI/FS, RAC, RD, LTM groundwater

FUTURE IRP PHASE:
RA, LTM groundwater

PROPOSED PLAN

BAAP will continue to investigate remedies. Soil cover and capping or soil removal to a landfill are two possible remedies under consideration.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS		57					
IRA							
RD			2289	1701			
RA(C)	463	300	200	3784	4919	5395	18310
RA(O)							
LTM							

Projected Total: $37,418,000

BAAP-002
BALLISTICS POND

SITE DESCRIPTION

The Ballistics Pond (BP) is located in the northwestern corner of Badger. It is approximately 10 acres in area and is unlined. The pond received filter backwash water from the water treatment plant and is in close proximity to a rocket motor testing site. It is believed that the pond bottom is plugged with flocculants and fine sediments from the water treatment facility. Quarterly groundwater monitoring was done from 1988 through 1998, when the WDNR discontinued all monitoring at this site, since no contaminants have been detected in that time.

Pond sediments were sampled for mercury in 2000 and levels above the state's action levels were found.

IRP STATUS

RRSE RATING: Low Risk (3A)

CONTAMINANTS OF CONCERN:

Propellants, heavy metals

MEDIA OF CONCERN:

Sediment

COMPLETED IRP PHASE:

RI, LTM groundwater

CURRENT IRP PHASE:

RI/FS

FUTURE IRP PHASE:

RI/FS, RD, RA

PROPOSED PLAN

Groundwater monitoring discontinued, per WDNR order (In-Field Conditions Report modification) dated August 3, 1998. Further sampling is planned for 2001 to determine the extent of the mercury deposition.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	93						
IRA							
RD							
RA(C)							
RA(O)							
LTM							

Projected Total: $93,000

BAAP-005
NITROGLYCERINE POND

SITE DESCRIPTION

The Nitroglycerine Pond and the Rocket Paste Area are located near each other in the central portion of Badger. The Nitroglycerine Pond and Overflow Pond are small, unlined basins used between 1941 and 1997 to hold cooling waters, process wastewaters, and storm runoff generated in the nitroglycerine manufacturing area. It is possible that nitroglycerine and other contaminants, such as nitrite/nitrates, sulfates, sodium, calcium, and chlorides were in the discharges from this operation. A change in remedy to soil excavation and disposal in the Badger demolition landfill, and discharge of pond water to the ground surface after centrifuging to remove suspended soil particles was approved in 1998. Water and soil removal started in September and ended in November 1998. Final site closure work was completed in spring 1999. Long term monitoring of groundwater will continue as part ofthe installation-wide program tracked at site BAAP-012.

PROPOSED PLAN

Possible contamination around buildings not identified in RI will be investigated in 2001. The maintenance of soil covers, landfill caps, and other maintenance at IRP sites considered response complete is tracked at this site as LTM.

IRP STATUS

RRSE RATING: Soil (3A), Surface water (2A)

CONTAMINANTS OF CONCERN:
Heavy metals, nitrate

MEDIA OF CONCERN:
Soil, Groundwater, Surface water

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

CURRENT IRP PHASE:
RI

FUTURE IRP PHASE:
RI, RD, RA

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	16						
IRA							
RD							
RA(C)	10						
RA(O)							
LTM	3	3	3	4	4	4	6

Project-to-Total: $55,000

BAAP-006
DETERRENT BURNING GROUND

SITE DESCRIPTION

The Deterrent Burning Ground was used as a demolition debris landfill and for the open burning of deterrents, structural timbers, asphalt shingles, cardboard, papers, and office waste. Deterrent is an organic liquid containing dibutyl phthalate and dinitrotoluene used to modify the burning characteristics of nitrocellulose. This two acre site existed as a borrow pit from the 1940s until the early 1960s. Deterrent was burned in this area only after mobilization for the Vietnam conflict, specifically 1972 - 1975. Aerial photographs show the area closed and covered by 1978. Recent investigations show the DNT has spread laterally in the subsurface soils and has reached groundwater. The remedy in the 1994 FS called for soil removal, soil washing, but treatability studies have shown that soil washing will not work for the explosive compound (dinitrotoluene) in these soils.
In 1999 and 2000 the top 15 feet of soil in the pits was removed and disposed off-site. The backfilled area will have a temporary cap placed in 2001.

IRP STATUS

RRSE RATING: Low Risk (3A)
CONTAMINANTS OF CONCERN:
Explosives, Metals
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
PA/SI, RI, FS
CURRENT IRP PHASE:
RD, RAC, IRA, LTM groundwater
FUTURE IRP PHASE:
RD, RA, LTM groundwater and cap

PROPOSED PLAN

A new FS will be prepared. The remedy currently being considered is a biotreatment system under a RCRA cap. Maintenance will be required for this final remedy.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA	244						
RD	296						
RA(C)			1451				
RA(O)		25	25	25	25	175	274
LTM							

Projected Total - $2,540,000

BAAP-008
ROCKET PASTE AREA

SITE DESCRIPTION

In the Rocket Paste Area, a series of unlined ditches conveyed stormwater and process wastewater to a small, unlined pond and from there through a drainage swale south through the Rocket and Magazine areas to the Settling Ponds. Process wastewater consisted of makeup water used in mixing and formulating rocket paste, as well as cooling and washdown water. Rocket paste is a double-based plasticized propellant used to fuel solid fuel rockets and contains lead, nitroglycerine, and nitrocellulose. A change in remedy from in-situ soil stabilization/ solidification to soil removal and disposal was approved, in conjunction with the Nitroglycerine Pond work. Soil removal started in September and ended in November 1998. Long term monitoring of groundwater will continue as part of an installation-wide monitoring program, tracked at site BAAP-012.

IRP STATUS

RRSE RATING: Medium Risk (2A)

CONTAMINANTS OF CONCERN:
Explosives, Heavy Metals, solvents

MEDIA OF CONCERN:
Soil, groundwater

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

CURRENT IRP PHASE:
RI CONSTRAINED COST TO COMPLETE

FUTURE IRP PHASE:
RI, RD, RA

PROPOSED PLAN

Possible contamination around buildings not identified in previous RI will be investigated in 2001.

CONSTRAINED COST TO COMPLETE

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

Projected Total - $15,000

BAAP-012
OFF POST GW CONTAMINATION

SITE DESCRIPTION

There are two off-post areas of concern. One is located south of Badger, in an area that extends from the installation's southern boundary to the Wisconsin River just below the Wisconsin Power and Light Dam. The other is located northeast of Badger near Landfill #5 and the Deterrent Burning Ground.

Three residential water supply wells in the southern off-post area were definitely affected by the organic solvent contamination of groundwater in the Propellant Burning Ground. The affected residences have had their wells extended into the lower, uncontaminated aquifer.

A Draft Final Off-Post Contingency Plan, dated August 1993, has been prepared to address potential threats to local groundwater drinking water supplies as a result of BAAP-related sources. The actions dictated by the plan are dependent on results from the on-going groundwater monitoring program. The installation-wide monitoring program incorporates both monitoring wells on and off the installation and private residences outside the instalation boundries.

The northeast area is being monitored for evidence of groundwater contamination from the Deterrent Burning Ground and Landfil #5 Studies to date show that the plume ends at the installation boundary. Currently, the FS proposes only long term monitoring in these areas.

PROPOSED PLAN

Lease fees for off-site monitoring wells are paid for annually to the landowners.

IRP STATUS

RRSE RATING: High Risk (1A)

CONTAMINANTS OF CONCERN:
Chlorinated Solvents, DNT

MEDIA OF CONCERN:
Groundwater, Soil

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

CURRENT IRP PHASE:
LTM groundwater

FUTURE IRP PHASE:
LTM groundwater

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)							
RA(O)							
LTM	955	850	700	600	500	500	6975

Projected Total: $11,080,000

BAAP-033
PROPELLANT BURNING GROUND

SITE DESCRIPTION

The propellant burning Ground (PBG) is located in the southwestern portion of Badger AAP and consists of several distinct areas. The first area includes the three pits that are designated site BAAP-33, the racetrack, thermal treatment unit to the southwest of the pits are designated site BAAP-034, and the landfilled area (the 1949 Pit area to the west of the pits and Landfill #1 to the east) are designated BAAP-35.

The contaminated waste pits area is approximately 3 acres in size and contains three disposal pits and a large open area used to burn propellant-contaminated materials and organic solvents from the 1950's through the 1970's. The liquid waste materials migrated down through the sandy soil to the groundwater. A groundwater plume containing solvents and DNT has moved south past the installation's boundary.

Soil remedies originally selected in 1994 included soil vapor extraction, then soil removal, washing, and composting. However, the soil washing was shown to be ineffective in bench scale testing in 1997. An SVE system was installed in February 1998 and operated successfully until September 1999. Shallow soils were removed from the pits in the fall of 1999 and a pilot biotreatment system installed in waste it 1. the pilot system proved to successfully increase the rate of the naturally occurring biological decomposition ofthe chemicals in the soil. A full-scale biotreatment system is expected to be the final soil remedy for this area.

Groundwater remediation started in 1990 with the construction of a pump and treat system. It was expanded in 1996 and continues to operate.

IRP STATUS

RRSE RATING: Medium Risk

CONTAMINANTS OF CONCERN:
Chlorinated Solvents, DNT, Heavy Metals

MEDIA OF CONCERN:
Soil, Groundwater

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

CURRENT IRP PHASE:
IRA, RD (soils), RA, RAO, LTM (gw)

FUTURE IRP PHASE:
IRA, RA,RA(O), LTM(gw)

PROPOSED PLAN

A revised FS will be prepared to document the effectiveness ofthe remedial systems now in place, and propose the SVE system, biotretment system, groundwater pump and treat system, and a final RCRA cap is expected to be placed over the waste pits

Maintenance of the final cap will be done as partofthe installation-wide maintenance program trackedunder site BAAP-05. The groundwater pump and treat system is expected to operate for at least the next 10 years.

CONSTRAINED COSTS TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA	160						
RD							
RA(C)	41						750
RA(O)	2235	2575	3795	2600	2600	2250	10307
LTM							

Projected Totals: $27,313,000

BAAP-036
EAST & WEST ROCKET DITCHES

SITE DESCRIPTION

The East and West Rocket production areas are south of the Rocket Paste area, BAAP-008, and have much the same contaminants. A series of unlined ditches conveyed stormwater and process wastewater south to the Settling Ponds. Process wastewater consisted of makeup water used in mixing and formulating various rocket propellants, as well as cooling and washdown water. Contaminants included heavy metals, solvents, and DNT. A change in remedy from in-situ soil stabilization/solidification and soil cover to soil removal and disposal in the Badger demolition landfill was approved. Work began in September and was completed in November 1998. Groundwater monitoring is done as part of the installation-wide monitoring program tracked at site BAAP-012.

PROPOSED PLAN

Possible contamination around/under buildings not identified in RI will be investigated in 2001.

IRP STATUS

RRSE RATING: High Risk (1A)

CONTAMINANTS OF CONCERN:
Explosives, Heavy Metals, Solvents

MEDIA OF CONCERN:
Soil

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

CURRENT IRP PHASE:
RI

FUTURE IRP PHASE:
RI, RD, RA

CONSTRAINED COST TO COMPLETE

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

Projected Total: $[illegible]

BAAP-037
POWERHOUSE SOILS-OLD FUEL SPILLS

SITE DESCRIPTION

BAAP reported a fuel spill in 1991 south and adjacent to the Old Fuel Oil Tank site by the powerhouse. The spill was the result of a subsurface pipeline rupture from a 10,000 gallon fuel oil tank and was not associated with the old tank. This spill was immediately addressed by BAAP under the Wisconsin Underground Storage Tank regulations. During the course of the site investigation, it became clear that there is significant old fuel contamination in this area that is probably due to underground storage tanks that were previously located alongside the powerhouse. This was not included in the RI/FS. The oil in the groundwater and in the soil is not migrating. A product removal system for the groundwater and a bioventing system for the soil have been installed.

Free product was removed from groundwater in 1996. Soil bioventing pilot test started in the fall of 1997. Bioventing system was upgraded and expanded to become fully operational in March 1999. Groundwater monitoring is done as part of the installation-wide program tracked at site BAAP-012.

IRP STATUS

RRSE RATING: High Risk (1B)

CONTAMINANTS OF CONCERN:
Fuel Oil

MEDIA OF CONCERN:
Groundwater, soil

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

CURRENT IRP PHASE:
RAO

FUTURE IRP PHASE:
RAO

PROPOSED PLAN

Continue bioventing and long term monitoring.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)							
RA(O)		2	1	1	1		
LTM							

Projected Total: $5,000

BAAP-039
OLEUM LANDFILL

SITE DESCRIPTION

This landfill site is an estimated 1.3 acre waste disposal site found in 1997 near the Oleum production facility in the northeast part of the installation. There is no formal documentation of this site, but it is believed to have been used during oleum production periods. Facility records review showed previously unknown landfill, appx 1.3 acres. Borings done 5/98 show lead contamination, probably from demolition disposal. indicate the waste is demolition debris, with asphalt, concrete, wood, and metal scraps observed. The only contaminant of concern found was lead.

IRP STATUS

RRSE RATING: High Risk (1B)

CONTAMINANTS OF CONCERN:
Lead

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI

FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Awaiting WDNR comments on report submitted 8/98.

CONSTRAINED COST TO COMPLETE

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

Projected Total - $0

BAAP-040
GRUBERS GROVE BAY

SITE DESCRIPTION

Grubers Grove Bay received BAAP discharge waters during production. State sampling of sediment Nov 98 showed elevated lead, mercury, zinc & ammonia.
The results were confirmed in 1999 sampling. The RI was completed in 2000. The remedial design work is underway. The selected remedy is dredging of sediments with disposal on the installation. The dredged materials will be pumped into fabric tubes for dewatering. The water will be treated, then landspread on cropland on the installation. The dry, filled tubes will be buried in place in an area north ofthe settling ponds.

IRP STATUS

RRSE RATING: High Risk (1a)

CONTAMINANTS OF CONCERN:
Lead

MEDIA OF CONCERN:
Soil, Sediments

COMPLETED IRP PHASE:
PA/SI, RI, RD

CURRENT IRP PHASE:
RA

FUTURE IRP PHASE:
RA

PROPOSED PLAN

Dredging will being in spring 2001 and is expected to be completed by December 2001.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)	415	1424					
RA(O)							
LTM							

Projected Total: $1,839,000

BADGER AAP ER, A RESPONSE COMPLETE DSERTS SITES

BAAP-003
OLEUM PLANT AND POND

SITE DESCRIPTION

The Oleum Plant and Pond are located near the north-eastern boundary of Badger. The plant was used to make oleum, which is concentrated sulfuric acid containing sulfur trioxide. The Oleum Plant site includes a sulfur storage area at the western end of the plant. Traces of elemental sulfur are visible on the ground in the immediate vicinity of the plant. The Oleum Plant Pond is unlined. It received cooling water discharge from the plant and is assumed to have been used from the early 1940s to 1975 when the Oleum Plant was closed. Spills, leaks, and tank overflows at the Oleum Plant would be expected to contribute sulfate and nitrate to the groundwater as well as metals (chromium, mercury, nickel) dissolved from the soil, pipes, and tanks. Elemental sulfur is not expected to contribute significant sulfate to the groundwater because the oxidation rate of large pieces of elemental sulfur is quite slow. Based on the Final RI Report dated April 1993, only long term monitoring is planned. The WDNR reduced monitoring requirements from quarterly to semi-annually in 1998 at this site.
The groundwater monitoring in this area is done as a part of an installation-wide program tracked with BAAP-012.

IRP STATUS

RRSE RATING: Low Risk (3A)
CONTAMINANTS OF CONCERN:
Sulfate, nitrate, chromium, nickle
MEDIA OF CONCERN:
Groundwater, Soil, sediment
COMPLETED IRP PHASE:
RI
CURRENT IRP PHASE:
RI
FUTURE IRP PHASE:
RC with LTM

PROPOSED PLAN

Sampling of pond sediments for mercury is planned for 2001.

BAAP-004
EXISTING LANDFILL #5

SITE DESCRIPTION

Landfill #5 and the Deterrent Burning Ground are located near each other in the northeastern part of Badger. The landfill was active from the time of BAAP's construction and was closed in the spring of 1989, in accordance with state regulations, with a two-foot layer of compacted clay then six inches of topsoil. This 15 acre landfill received all waste from administrative offices, security guard quarters, fire houses and limited operations in the laboratories. Waste insulation, which likely contained asbestos, was also reportedly disposed of here. No hazardous or propellant type waste was placed in this landfill. Based on the Final RI Report dated April 1993, only long term monitoring is planned. The local groundwater flow from this landfill cannot be differentiated from the local groundwater flow from the Deterrent Burning Ground.

The groundwater monitoring is done as part of an installation-wide program tracked at site BAAP-012.

Maintenance of the landfill's cap is done as part of an installation-wide maintenance program tracked at site BAAP-005.

IRP STATUS

RRSE RATING: Medium Risk (2B)

CONTAMINANTS OF CONCERN:

Sulfates, Nitrates

MEDIA OF CONCERN:

Groundwater, Soil

COMPLETED IRP PHASE:

RI

CURRENT IRP PHASE:

RC with LTM

FUTURE IRP PHASE:

RC with LTM

PROPOSED PLAN

Maintain the landfill cap and monitoring program in accordance with state requirements.

BAAP-009
OLD ACID AREA

SITE DESCRIPTION

The Old Acid Area is located in the northwestern area of Badger. Nitric and sulfuric acid manufacturing and handling activities occurred in this area. Spills, leaks, and tank overflows would be expected to contribute nitrate and sulfate to the groundwater as well as metals (i.e. iron) dissolved from the soil, pipes, and tanks. Based on the Final RI Report dated April 1993, only long term monitoring is planned. Groundwater monitoring is done as part of an installation-wide program, tracked at site BAAP-012.

PROPOSED PLAN

This site is response complete with LTM.

IRP STATUS

RRSE RATING: Low Risk (3A)
CONTAMINANTS OF CONCERN:
Nitrate, Sulfate, iron.
MEDIA OF CONCERN:
Soil, groundwater
COMPLETED IRP PHASE:
PA/SI, RI
CURRENT IRP PHASE:
RC with LTM
FUTURE IRP PHASE:
RC with LTM

PROPOSED PLAN

This site is response complete with LTM.

BAAP-010
NEW ACID AREA

SITE DESCRIPTION

The New Acid Area is located in the north central area of Badger. Nitric and sulfuric acid manufacturing and handling activities occurred here. A neutralization pond/seepage lagoon received releases from the acid area until 1981. The lagoon was closed with a clay cover in accordance with a WDNR approved plan in 1986. Groundwater monitoring began in 1986 and continued until 1999, when the WDNR review indicated no problems with groundwater had been found and discontinued the monitoring requirement.
Maintenance of the lagoon soil cover is done as part of an installation-wide maintenance program tracked at site BAAP-005.
Groundwater monitoring is done as part of an installation-wide program tracked at site BAAP-012.

IRP STATUS

RRSE RATING: Low Risk (3A)
CONTAMINANTS OF CONCERN:
Nitrate, Sulfate, Iron
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA/SI, RI, LTM groundwater and cover
CURRENT IRP PHASE:
RC with LTM
FUTURE IRP PHASE:
RC with LTM

PROPOSED PLAN

This site is response complete with LTM.

BAAP-011
OLD FUEL TANK

SITE DESCRIPTION

The Old Fuel Oil Tank site is located south of the Old Acid Area and approximately 50 feet west of the main powerhouse. There is no documented evidence that details specific spills or releases of product from the Old Fuel Oil Tank. However, during excavation of a water line in 1989, fuel oil was encountered in subsurface soil near the remaining concrete tank foundation. Based on the Final RI Report dated April 1993 no further action is planned specifically for the Old Fuel Oil Tank. Site remediation and cleanup of another fuel contaminated area in this location, tracked as Powerhouse Soil - Old Fuel Spill, BAAP-37, is in progress. Groundwater monitoring is done as part of the installation-wide program tracked at site BAAP-012

IRP STATUS

RRSE RATING: Low Risk (3A)
CONTAMINANTS OF CONCERN:
POL
MEDIA OF CONCERN:
Soil, groundwater
COMPLETED IRP PHASE:
PA/SI, RI
CURRENT IRP PHASE:
RC with LTM
FUTURE IRP PHASE:
RC with LTM

PROPOSED PLAN

This site is RC with Long Term Monitoring.

BAAP-013
UNDERGROUND STORAGE TANKS

SITE DESCRIPTION

All underground storage tanks (USTs) have been removed from Badger. There were USTs at the garage (account 241-1) for diesel, gasoline, and waste oil. The waste oil tank on the south side of the garage was removed by 1989. The original diesel and gasoline tanks installed in the 1940s on the north side of the garage were replaced at least once prior to their removal in 1998 when their site was clean closed in accordance with Wisconsin regulations. This site was determined to require no further action after the initial evaluation in 1977 and was considered response complete in 1990.

IRP STATUS

RRSE RATING: Low Risk
CONTAMINANTS OF CONCERN:
Petroleum
MEDIA OF CONCERN:
Groundwater, Soil
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

BAAP-014
LANDFILL #6

SITE DESCRIPTION

Landfill 6 was constructed in 1987 to replace Landfill 5 (Existing Landfill). It was designed to receive all the installation's wastes starting in 1988. The design called for two construction phases, with cells 1 and 2 constructed in 1987 and cell 3 constructed in 1998. The liner is clay, with a leachate collection system. In 1994 it was reclassified as a Construction and Demolition (C&D) landfill in accordance with WDNR regulations, to avoid upgrading to the new municipal landfill standards that were then becoming effective. Since 1994 only construction, maintenance, and demolition debris have gone into this landfill, with all office and putrescible wastes going to an off-site landfill. In 1998, the WDNR approved deposition of the soils from the Nitroglycerine Pond, Rocket Paste, and East & West Rocket Ditches remediation in this landfill. Groundwater monitoring began in 1988 and will continue indefinitely. When closed the site will have a RCRA cap that will require maintenance.

IRP STATUS

RRSE RATING: Low Risk (3A)
CONTAMINANTS OF CONCERN:
Nitrate, Sulfate, metals, VOC's
MEDIA OF CONCERN:
Groundwater, Soil
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE:
RC (not eligible)
FUTURE IRP PHASE:
RC (not eligible)

PROPOSED PLAN

This site is not ER,A eligible.

BAAP-015
SANITARY LANDFILL #3 (CLOSED)

SITE DESCRIPTION

This site has either been previously studied or is located near a site under investigation, thus no further action was required after the PA.

IRP STATUS

RRSE RATING: NE
CONTAMINANTS OF CONCERN:

MEDIA OF CONCERN:
Soil, groundwater
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

BAAP-016
POWERHOUSE #2

SITE DESCRIPTION

This site has either been previously studied or is located near a site under investigation, thus no further action was required after the PA.

IRP STATUS

RRSE RATING: NE
CONTAMINANTS OF CONCERN:

MEDIA OF CONCERN:
Soil, groundwater
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

BAAP-020
BALL POWDER PILOT PLANT

SITE DESCRIPTION

This site either has been previously studied or is located near a site under investigation, thus no further action was required after the PA.

IRP STATUS

RRSE RATING: NE
CONTAMINANTS OF CONCERN:

MEDIA OF CONCERN:
Soil, groundwater
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

BAAP-021
BALLISTICS AND TESTING AREA

SITE DESCRIPTION

This site has either been previously studied or is located near a site under investigation, thus no further action was required after the PA.

IRP STATUS

RRSE RATING: NE
CONTAMINANTS OF CONCERN:

MEDIA OF CONCERN:
Soil, groundwater
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

BAAP-022
BALL PROPELLANT PRODUCTION AREA

SITE DESCRIPTION

PA was started inJanuary of 1977 and completed in March 1977. No cleanup was determined necessary. The site was declared response complete in August 1990.

IRP STATUS

RRSE RATING: Low Risk (3A)
CONTAMINANTS OF CONCERN:
Nitrate, Sulfate, metals, VOC's
MEDIA OF CONCERN:
Groundwater, Soil
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

BAAP-023
INGREDIENT WAREHOUSE

SITE DESCRIPTION

This site either has been previously studied or ise located near a site under investigation, thus no further action was required after the PA.

IRP STATUS

RRSE RATING: NE
CONTAMINANTS OF CONCERN:

MEDIA OF CONCERN:
Soil, groundwater
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

BAAP-025
SALVAGE YARD

SITE DESCRIPTION

This site is still in use and is not eligilble for ER,A funding. It will be evaluated and remediated, if necessary, when no longer used.

IRP STATUS

RRSE RATING: NE
CONTAMINANTS OF CONCERN:

MEDIA OF CONCERN:
Soil, groundwater
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

BAAP-024
SMOKELESS POWDER PRODUCTION

SITE DESCRIPTION

PA was started inJanuary of 1977 and completed in March 1977. No cleanup was determined necessary. The site was declared response complete in August 1990.

IRP STATUS

RRSE RATING: Low Risk (3A)

CONTAMINANTS OF CONCERN:

Nitrate, Sulfate, metals, VOC's

MEDIA OF CONCERN:

Groundwater, Soil

COMPLETED IRP PHASE:

PA

CURRENT IRP PHASE:

RC

FUTURE IRP PHASE:

RC

BAAP-026
HAZARDOUS WASTE STORAGE AREA

SITE DESCRIPTION

This building is still in use as the hazardous waste storage facility licensed by the state. It is not eligible for ER,A funding. It will be evaluated and remediated, if necessary, when no longer used forthis purpose.

IRP STATUS

RRSE RATING: NE

CONTAMINANTS OF CONCERN:

MEDIA OF CONCERN:

Soil, groundwater

COMPLETED IRP PHASE:

PA

CURRENT IRP PHASE:

RC

FUTURE IRP PHASE:

RC

BAAP-027
WASTE PROCESSOR

SITE DESCRIPTION

This site either has been previously studied or is located near a site under investigation, thus no further action was required after the PA.

IRP STATUS

RRSE RATING: NE
CONTAMINANTS OF CONCERN:

MEDIA OF CONCERN:
Soil, groundwater
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

BAAP-029
SOLVENT RECOVERY STILL AREA

SITE DESCRIPTION

This site either has been previously studied or is located near a site under investigation, thus no further action was required after the PA.

IRP STATUS

RRSE RATING: NE
CONTAMINANTS OF CONCERN:

MEDIA OF CONCERN:
Soil, groundwater
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

BAAP-030
LABORATORIES BLD 201, 2556, 4034, 6682

SITE DESCRIPTION

The laboratory buildings are still in use and are not eligible for ER,A funding. They will be evaluated and remediated, if necessary, when no longer used.

IRP STATUS

RRSE RATING: NE
CONTAMINANTS OF CONCERN:

MEDIA OF CONCERN:
Soil, groundwater
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

BAAP-031
COAL YARD

SITE DESCRIPTION

This sites either has been previously studied or is located near a site under investigation, thus no further action was required after the PA.

IRP STATUS

RRSE RATING: NE
CONTAMINANTS OF CONCERN:

MEDIA OF CONCERN:
Soil, groundwater
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

BAAP-032
ABOVE GROUND STORAGE TANKS

SITE DESCRIPTION

This site either has been previously studied or is located near a site under investigation, thus no further action was required after the PA.

IRP STATUS

RRSE RATING: NE
CONTAMINANTS OF CONCERN:

MEDIA OF CONCERN:
Soil, groundwater
COMPLETED IRP PHASE:
PA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

BAAP-034
PROPELLANT BURNING GROUND -THERM TRTMT UNT/RACETRACK

SITE DESCRIPTION

The racetrack portion of the burning ground comprises approximately six acres and, until October 1994, consisted of two concrete burning pads located on the west side of an oval road. Past disposal practices in this area involved open burning of waste explosives, propellants, and explosive contaminated wastes on bare ground or in shallow steel pans. The pads were installed in 1983 and an elevated metal dish on the northern pad in 1984. Open burning in the dish was discontinued in November 1993. The two pads and the area surrounding them on the west side of the road were designated as a thermal treatment unit for explosive hazardous waste, and operated under an interim permit. The thermal treatment unit was closed in accordance with a WDNR approved plan in late 1995. The burning dish, concrete pads, and all surface soil contaminated with sufficient lead to qualify as characteristic hazardous waste have been removed and properly disposed. The remaining soils in this area were covered with a soil cover. A thick naturally occurring clay layer underlying this area will naturally attenuate any leaching metals.

IRP STATUS

RRSE RATING: High Risk (1A)
CONTAMINANTS OF CONCERN:
Heavy Metals
MEDIA OF CONCERN:
Groundwater, Soil
COMPLETED IRP PHASE:
PA/SI, RI, FS, IRA, RD, RA
CURRENT IRP PHASE:
RC with LTM
FUTURE IRP PHASE:
RC with LTM

Waste soil piles on the eastern side of the oval road were remediated in 1998 by removal and off-site disposal of the contaminated soil. Long term maintenance of the soil cover is done as part of an installation-wide maintenance program tracked at site BAAP-005.. Grounwater monitoring is is done as part of an installation-wide program tracked at site BAAP-012.

BAAP-35
PROPELLANT BURNING GROUND- LANDFILL 1 &1949 PIT

SITE DESCRIPTION

Adjacent to the waste pits on the west is the area designated as the 1949 pit. This area was apparently used for open burning, and constructed sometime after 1944, and was backfilled and closed by 1962. This area has some heavy metal contamination in the top ten feet of backfilled soil, but no other significant contaminants. A RCRA cap was installed over this area in 1998.

Approximately 400 feet east of the waste pits is a closed landfill (Landfill 1). This was reportedly used between 1944 and 1955 for solid waste and ash disposal. Heavy metals had been detected in the top 10 feet of soil at this site. A RCRA cap was installed over Landfill 1 in 1997. Long term maintenance of the caps will continue for both sites as part of an installation-wide maintenance program tracked at site BAAP-005. Groundwater monitoring is done as part of the installation wide program tracked at site BAAP-012.

PROPOSED PLAN

Landfill 1 capped in fall 1997.
1949 Pit (separate location) capped in Fall 1998. LTM GWmonitoring is combined with PBG pits (33) for funding. GWM & cap maintenance required for both locations for at least 30 years. RESPONSE COMPLETE

IRP STATUS

RRSE RATING: HIgh Risk (1A)
CONTAMINANTS OF CONCERN:
Heavy Metals
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
PA/SI, RI, FS, RD, RA
CURRENT IRP PHASE:
RC with LTM
FUTURE IRP PHASE:
RC with LTM

BAAP-038
TRANSFORMER YARD-PCB IN SOIL

SITE DESCRIPTION

A PCB survey conducted by USAEHA in 1993 found one location, the main transformer yard south of the powerhouse that required remediation. The highest level found (79ppm) appeared to be from leakage of transformers. Since these transformers were retrofilled with non-PCB oil in the early 1980's, the contamination is dated to between 1942 and 1979. Sampling and soil removal was completed in 1996. Response complete in December 1996. WDNR approval letter for the site closure was approved and dated January 22, 1997.

IRP STATUS

RRSE RATING: High Risk (1B)

CONTAMINANTS OF CONCERN:

PCB's

MEDIA OF CONCERN:

Soil

COMPLETED IRP PHASE:

PA/SI, RI, RD, RA

CURRENT IRP PHASE:

RC

FUTURE IRP PHASE:

RC

SCHEDULE

The following is the schedule of IRP work completed to date and planned through completion of all restoration work. This schedule will change if the selected remedies for the Propellant Burning Ground waste pits, the Deterrent Burning Ground, and the Settling Pond/Spoils Disposal Area are changed.

PAST MILESTONES

PHASE	COMPLETION DATE
Installation Assessment	March 1981
Preliminary Assessment/Site Inspection	January 1988
Remedial Investigation	April 1993
Feasibility Study	August 1994
RCRA Permit modification	January 1996
Landfill 1 Capped	September 1997
1949 Pit Capped	September 1998
East & West Rocket Ditches remediated	November 1998
Oleum landfill investigation	August 1999
NG Pond/Rocket Paste remedial actions	August 1999
Oleum landfill remedial actions	December 1999
PBG/DBG/ Remedial Designs	December 2000

PROJECTED MILESTONES

PHASE	COMPLETION DATE
Remedial Actions	October 2009
GW Treatment Operations	December 2018
Long Term Monitoring	December 2034
Projected completion date for RA(O)	December 2018
Projected completion date for IRP	***December 2034***

Projected deletion from the National Priorities List (NPL) is not applicable to Badger AAP.

SCHEDULE

NO FURTHER ACTION SITES

The following sites currently require no further action according to DSERTS:

BAAP-03*	OLEUM PLANT AND POND
BAAP-04*	EXISTING LANDFILL
BAAP-09*	OLD ACID AREA
BAAP-10*	NEW ACID AREA
BAAP-11*	OLD FUEL TANK
BAAP-13	UNDERGROUND STORAGE TANKS
BAAP-14	LANDFILL #6
BAAP-15	SANITARY LANDFILL #3
BAAP-16	POWERHOUSE #2
BAAP-20	BALL POWDER PILOT PLANT
BAAP-21	BALLISTICS AND TESTING AREA
BAAP-22	BALL PROPELLANT PRODUCTION AREA
BAAP-23	INGREDIENT WAREHOUSE
BAAP-24	SMOKELESS POWDER PRODUCTION
BAAP-25	SALVAGE YARD
BAAP-26	HAZARDOUS WASTE STORAGE AREA
BAAP-27	WASTE PROCESSOR
BAAP-29	SOLVENT RECOVERY STILL AREA
BAAP-30	LABORATORIES bLD 201, 2556, 4034, 6682
BAAP-31	COAL YARD
BAAP-32	ABOVE GROUND STORAGE TANKS
BAAP-34*	PROPELLANT BURNING GROUND / RACETRACK
BAAP-35*	PROPELLANT BURNING GROUND / LANDFILL#1 / 1949 PIT
BAAP-38	TRANSFORMER YARD, PCB IN SOIL

* RC with LTM

BADGER AAP IRP Schedule

(Based on current funding constraints)

Current Phase Future Phase

DSERTS #	PHASE	FY01	FY02	FY03	FY04	FY05	FY06+	FY07+
BAAP-001	RI/FS							
	RD							
	RA							
BAAP-002	RI/FS							
	RD							
	RA							
	LTM							
BAAP-005	RI/FS							
	RA							
	LTM							
BAAP-006	RD							
	RA							
	RAO							
	IRA							
BAAP-008	RI/FS							
	RD							
	RA							
	LTM							
BAAP-012	LTM							
BAAP-033	RA							
	RAO							
	IRA							
BAAP-036	LTM							
BAAP-037	RAO							
BAAP-040	RAC							

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

Site, 4. Installation Phase Summary Report

Installation: BADGER ARMY AMMUNITION PLANT 1/8/01

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

Subprograms: Compliance, Restoration, UXO

Installation count for Programs: 1

NPL Options: Delisted, No, Proposed, Yes

Installations count for Programs and NPL: 1

Site count for Programs and NPL: 35

Phase / Status / Sites

PA

C	U	F	RC
35	0	0	16

SI

C	U	F	RC
18	0	0	1

RI / FS

C	U	F	RC
13	5	0	5

RD

C	U	F
4	6	1

RA(C)

C	U	F	RC
5	5	3	4

RA(O)

C	U	F	RC
0	1	2	0

LTM

C	U	F	N
4	1	1	27

Remedy / Status / Sites (Actions)

IRA

C	U	F
3 (4)	2 (2)	0 (0)

FRA

C	U	F
7 (12)	3 (3)	5 (7)

RIP Total: 1

RC Total: 26

Reporting Period End Date: 09/30/2000

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

Site, 9. RISK INSTALLATION ACTION PLAN REPORT 01/08/2001

Installation: BADGER ARMY AMMUNITION PLANT
Major Comman AMC

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

Subprogram Op Compliance, Restoration, UXO

Site	RRSE	Media Evaluated	Phase (s) Completed	Phase (s) Underway	Phase (s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	RIP Date	RC Date
BAAP-001	1A	GW SEM SL	PA SI	RD RI	RAC				N		200909
BAAP-002	1A	GW SEF SH SL	PA SI	RI	RAC RD						200512
BAAP-003	3A	GW SL	PA RI SI						C		199512
BAAP-004	1A	GW	PA RI SI			1			N		199512
BAAP-005	1A	GW SEM SL WEF	PA SI	RAC RD RI					F		200110
BAAP-006	1A	GW SL	PA RI SI	RAC RD	RAO		1		N	200409	201403
BAAP-008	1A	GW SEM SL WEF	PA SI	RAC RD RI					N		200210
BAAP-009	3A	GW SL	PA RI SI						C		199512

Site	RRSE	Media Evaluated	Phase (s) Completed	Phase (s) Underway	Phase (s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	RIP Date	RC Date
BAAP-010	3A	GW	PA			1			N		199808
			RI								
			SI								
BAAP-011	3A	GW	PA						C		199512
			RI								
			SI								
BAAP-012	1A	GW	PA						U		199609
			RAC								
			RI								
			SI								
BAAP-013	NE		PA						N		199008
BAAP-014	NE		PA						C		199008
BAAP-015	NE		PA						N		199008
BAAP-016	NE		PA						N		199008
BAAP-020	NE		PA						N		199008
BAAP-021	NE		PA						N		199008
BAAP-022	NE		PA						N		199008
BAAP-023	NE		PA						N		199008
BAAP-024	NE		PA						N		199008
BAAP-025	NE		PA						N		199008
BAAP-026	NE		PA						N		199108
BAAP-027	NE		PA						N		199008
BAAP-029	NE		PA						N		199008
BAAP-030	NE		PA						N		199008
BAAP-031	NE		PA						N		199008
BAAP-032	NE		PA						N		199008
BAAP-33	1A	GW	PA	RAC	RAO	2	1		N	200712	201103
		SL	RD								
			RI								
			SI								
BAAP-34	1A	SL	PA						N		199805
			RAC								
			RD								
			RI								
			SI								
BAAP-35	1A	GW	PA						N		199812
		SL	RAC								
			RD								
			RI								
			SI								

Site	RRSE	Media Evaluated	Phase (s) Completed	Phase (s) Underway	Phase (s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	RIP Date	RC Date
BAAP-36	1A	GW	PA	RAC					N		200301
		SL	SI	RD							
				RI							
BAAP-37	1B	GW	PA	RAO					N	200001	200506
		SL	RAC								
			RD								
			RI								
			SI								
BAAP-38	1B	SL	PA						N		199612
			RAC								
			RI								
BAAP-39	2A	SL	PA								199808
			SI								
BAAP-40	1A	GW	PA	RD	RAC				N		200112
		SEF	RI								
		SH	SI								

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

Reporting Period End Date: 09/30/2000

REM/IRA/RA ASSESSMENT

PAST REM/IRA/RA

Long Term Monitoring (LTM) began in 1988 at various sites on and off the installation. It has continued in accordance with WDNR requirements to the present.

New Acid Area (BAAP-010): The New Acid area neutralization/stabilization pond was closed in 1986 in accordance with a WDNR-approved plan. Groundwater monitoring in this area was done quarterly until June 1998, when the WDNR discontinued the groundwater monitoring requirement for this area.

Existing Landfill (BAAP-004): This area was capped in 1989 in accordance with WDNR requirements.

Propellant Burning Ground Contaminated Waste Pits (BAAP-33): Limited soil removal actions have been conducted at the contaminated waste area. Also an interim groundwater pump, treat, and discharge system was constructed and has operated continuously since May 1990. Modifications to this treatment plant were completed in March 1996. If it proves successful in capturing all the contaminated groundwater before it leaves the installation, it will be considered part of the final remedial action. A new source control well to extract groundwater from the pits area was installed in February 1998. The groundwater is treated at the IRM groundwater treatment system.

Propellant Burning Ground Thermal Treatment Unit (TTU)/Racetrack Area (BAAP-34): Soils at the TTU considered characteristic hazardous waste due to lead contamination were removed and sent off-site for treatment and disposal. A soil cover was placed over the area in the fall of 1995. Waste piles were removed for off-site treatment and disposal in 1998.

Off-post (BAAP-012): In the southern off-post area, the Army discovered that the chlorinated organic solvent plume had moved past the installation boundary and contaminated three residential wells. Two replacement wells were installed by the Army in December 1990, and the third in spring 1996. Prior to this, the Army provided bottled water to these residents. These well installations will be considered final remedial actions for the off-post area. The Off-Post Contingency Plan has been finalized. This describes actions to be taken if additional local groundwater drinking water supplies are threatened by contamination from BAAP related sources.

Transformer Yard - PCB in Soil (BAAP-38): Contaminated soils were removed and shipped off-site for disposal in December 1996.

Nitroglycerine Pond (BAAP-005)/Rocket Paste Area (BAAP-008): A diversion berm and drainage contouring project was completed in September 1996 to reduce inflow into the ponds, thereby reducing or eliminating surface water treatment costs.

Landfill 1/1949 Pit (BAAP-35): The landfill was capped in September 1997 as the final remedial action. Long-term monitoring and cap maintenance (LTO) are still required. The 1949 Pit was capped in September 1998 as the first phase of the final remedial action for this site. Phase two will involve extending the 1949 Pit cap over the adjacent PBG waste pits area. This will be done as the final remedial action in the waste pits area. Long-term monitoring and cap maintenance (LTO) are still required.

East and West Rocket Ditches (BAAP-36): Removal of contaminated soil and placement in an on-site landfill began in September 1998. Work was completed in November 1998 as the final remediation action for this site. Long term monitoring will be required.

REM/IRA/RA ASSESSMENT

PAST REM/IRA/RA

Propellant Burning Ground waste pits (BAAP-33): A soil vapor extraction system operated from February 1998 to June 2000 successfully removing all readily accessible volatile organic compounds from the subsurface soils. Removal of readily accessible soil with disposal at an off-site incinerator was completed in 1999. A pilot scale biotreatment system successfully operated in 2000, accelerating in-situ remediation of dinitrotoluene.

Deterrent Burning Ground (BAAP-006): Removal of readily accessible soil with disposal at an off-site incinerator was completed in 2000.

Nitroglycerine Pond/Rocket Paste Area (BAAP-005, 008): Removal of metals contaminated soil with disposal in Badger's demolition landfill was completed in 1999.

CURRENT REM/IRA/RA

Powerhouse Soil - Old Fuel Spills (BAAP-37): A removal system for oil on the groundwater was installed in 1997. A bioventing system was designed in fall 1997, and pilot operations were completed successfully. Modifications for improving the system were completed in 1999. Is is expected to operate for three years be the final remedy.

Propellant Burning Ground (BAAP-33); A full scale in-situ biotreatment system is being installed and is expected to operate for 5 years, treating DNT in both the soil and groundwater.

FUTURE REM/IRA/RA

Settling Ponds (BAAP-001): remedial action recommended in FS for soil is in-situ stabilization and soil cover but alternatives are being pursued; FY 2004-09.

Deterrent Burning Ground (BAAP-006): The accessible subsurface soil has been removed. A landfill cap with an in-situ bioremediation system is being investigated as a final remedy, pending the results of the system at the Propellant Burning Ground. Action is planned for 2002.

Propellant Burning Ground waste pits (BAAP-33): The accessible subsurface soil has been removed, and an in-situ biotreatment system installed. This is expected to operate for 5 years. The need for further remedial action will be evaluated in 2005.

Gruber's Grove Bay (BAAP-40): The mercury-containing sediments will be removed from the Bay in 2001, with disposal in a lined site on Badger Army Ammunition Plant property.

PRIOR YEAR FUNDING

The following is an estimate of past, present, and projected funding for IRP activities at Badger Army Ammunition Plant. It has been detailed by phase and by fiscal year. Dollars are in thousands (K).

FY77	PA: Preliminary Assessment	20.0K
FY79	SI: Site Inspection	390.5K
FY80	SI: Finalize SI	69.8K
FY87	Master Environmental Plan (MEP)	165.0K
	Monitoring Well Sampling	6.1K
		171.1K
FY88	MEP Finalization	28.1K
	RI: Remedial Investigation Phase 1	2,778.8K
	IRA: PBG Interim Remedial Measure (IRM) Design	212.3K
	LTM: Well Monitoring & Analysis	385.3K
	RI: Installation RI-related Support	2.0K
		3,406.5K
FY89	RI: Phase 1 Modification	413.9K
	RI: Phase 2	1,333.0K
	IRA: PBG GWTreatment Plant (IRM) Construct	1,893.7K
	RI/IRA: Facility Support	43.7K
		3,684.3K
FY90	RI: Modification to RI Phase II	116.1K
	FS: Feasibility Study	927.2K
	IRA: PBG GWTreatment Operation	466.6K
	RA: Two Residential Well Replacements	95.3K
	LTM: Groundwater Level Monitoring	26.1K
	LTM: Off-post Well Leases & CE Support	5.0K
		1,636.3K

PRIOR YEAR FUNDING

FY91	RI/FS, On and Off Post Sites	6,012.8K
	RD: Off-post Support, CE St. Paul	39.8K
	IRA: PBG GWT Operation	589.4K
	LTM: Groundwater Monitoring	743.3K
	LTM: Off-post Monitoring Well Leases	5.2K
		7,390.5K
FY92	RI/FS: Follow On RI/FS	320.4K
	IRA: PBG GWTreatment Operations	596.4K
	RA: Piezometer Installation	37.9K
	LTM: Off-post Monitoring Well Leases	4.2K
		958.9K
FY93	IRA: GWTreatment Operations	644.0K
	RA: On-Post Remedial Design	809.3K
	LTM: Off-post Well Leases	5.2K
	LTM: GW Monitoring: State Required	173.0K
	LTM: GW Monitoring: Off-Site Threat	664.0K
	LTM: GW Monitoring: Dec Qtr 1992	150.0K
	LTM: Install and Sample 9 New Wells	500.0K
	LTM: Off-post Monitoring Wells Leases	2.3K
	LTO: IRM Evaluation Report	55.2K
		2,997.8K
FY94	RAB: BAAP Support	10.0K
	RAB: COE Support	24.4K
	RI: Evaluate NE Quadrant GW Flow	70.0K
	RD: On-Post Remedial Design	875.0K
	IRA: PBG IRM GWTreatment Operation	120.0K
	IRA: MIRM GW Treatment Plant construction	452.2K
	RA: On-Post Remedial Actions	6,547.9K
	LTM: GW Monitoring: State Required	232.0K
	LTM: GW Monitoring: Off-Site Threat	985.0K
	LTM: Off-post Monitoring. Well Leases	2.3K
		9,318.8K

PRIOR YEAR FUNDING

FY95	RAB: BAAP Support	21.2K
	RAB: COE Support	48.0K
	RI: Evaluate NE Quadrant GW Flow	20.0K
	RD: Powerhouse Soil Remediation	380.9K
	RD: NG/Rocket Ditches Predesign	40.0K
	RD: PBG Waste Pits Predesign	273.6K
	RD: Settling Ponds Predesign	330.0K
	RD: PBG Racetrack Soil Remedial Design	528.0K
	RD: NG/Rocket Paste Remedial Design	350.0K
	RD: Deterrent Burning Ground Predesign	450.0K
	RD: PBG Waste Pits Predesign	890.0K
	RD/RA: IRP/CEMRO Projects Support	24.0K
	RD/RA: PCB Soil Assessment & Cleanup	44.2K
	IRA: MIRM Construction	63.8K
	IRA: PBG IRM GWTreatment Operation	657.5K
	RA: Third Residential Well Replacement	110.9K
	RA: PBG Racetrack Soil Removal, Trmt, Disposal	573.3K
	RA: MIRM Waterlines Installation	26.7K
	RA: MIRM Construction Support	84.2K
	RA: MIRM Permitting	75.0K
	LTM: GW Monitoring On & Off Post	1,190.9K
	LTM: Off-post Groundwater Monitoring. Leases	5.0K
		6,187.2K

FY96	RAB: BAAP Support	13.0K
	RAB: COE Support	16.1K
	RD: NG/RPA Design	25.0K
	RD: PBG Landfill-1 Cap Design	92.2K
	RD: Deterrent Burning Ground Rem. Design	144.6K
	RD: PBG Waste Pits Remedial Design	553.7K
	RD/RA: IRP/CEMRO Projects Support	180.0K
	RA: PBG Waste Pits Remedial Action	5,127.8K
	RA: MIRM Construction	181.8K
	RA: NG/RPA Berm construction	134.4K
	RA: NG/RPA Remedial Actions	2,301.0K
	LTO: PBG IRM/MIRM GWTment Operations	3,160.3K
	LTM: GW Mon. On & Off Post	1,676.7K
	LTM: Off-post GW Monitoring. Leases	4.3K
		13,610.9K

PRIOR YEAR FUNDING

FY97	RAB: BAAP Support	14.0K
	RAB: COE Support	10.0K
	GIS Upgrade for DERA	99.5K
	RD: Settling Ponds Predesign (BAAP-001)	200.0K
	RD: Deterrent Burning Grd Design (BAAP-006)	40.0K
	RD: PBG Pits Design (BAAP-33)	60.0K
	RD: Rocket Ditches Design (BAAP-36)	600.0K
	RD/RA: IRP/CEMRO Projects Support	293.2K
	RA - NG/Rocket Paste Actions (BAAP-005,008)	50.0K
	RA - PBG Pits Actions (BAAP-33)	250.0K
	RA - PBG MIRM Construction (BAAP-33)	75.0K
	RA - PBG Racetrack Soil Removal/Cover (BAAP-34)	1,381.6K
	RA - PBG Landfill 1 Capping (BAAP-35)	750.0K
	LTO: PBG IRM/MIRM GWTmnt Operations (BAAP-33)	3,500.0K
	LTM: GW Monitoring On & Off Post (BAAP-012)	1,771.2K
	LTM: Off-post GW Monitoring Leases (BAAP-012)	5.0K
		9,410.5K

FY98	RAB: BAAP Support	15.7K
	RAB: COE Support	5.0K
	RD/RA: Installation Contractor Project Support	193.4K
	RD: Site-Wide GW/Soil Survey (BAAP-001,005,006,008,33)	8.7K
	RD: Deterrent BG Remedial Design (BAAP-006)	259.6K
	RD: Deterrent BG PYS&A Remedial Design (BAAP-006)	66.1K
	RD: PBG Pits PYS&R Rem. Design (BAAP-33)	45.0K
	RD: PBG Pits Rem. Design (BAAP-33)	259.9K
	RA: E&W Rockt Ditches Rem. Action (BAAP-36)	720.2K
	RA: NG/RPA PYS&A Remedial Action (BAAP-005,008)	170.2K
	RA: PBG Pits GWT Construction (BAAP-33)	25.0K
	RA: PBG Pits Interim Remedial Action-SVE (BAAP-33)	138.2K
	RA: PBG 1949 Pit Cap Installation (BAAP-35)	962.9K
	LTO: PBG IRM/MIRM Ops Evaluation (BAAP-33)	33.4K
	LTO: PBG IRM/MIRM GWTmnt Ops (BAAP-33)	2,795.3K
	LTO: Caps/Covers Maintenance (BAAP-004,010,34,35)	2.9K
	LTM: GW Monitoring On & Off Post	1,350.5K
	LTM: Off-post GW Monitoring Leases	4.5K
		7,056.5K

PRIOR YEAR FUNDING

FY99	RAB: BAAP Support	25.0K
	RD/RA: Installation Contractor Project Support	300.0K
	RD: Site-Wide GW/Soil Survey (BAAP-001,006,33)	4.8K
	RD: Settling Ponds Remedial Design (BAAP-001)	27.5K
	RD: Deterrent BG PYS&A Remedial Design (BAAP-006)	11.6K
	RD: PBG Pits PYS&R Rem. Design (BAAP-33)	75.0K
	RA: NG/RPA PYS&A Remedial Action (BAAP-005,008)	210.0K
	RA: PBG Pits PY S&A Remedial Action (BAAP-33)	243.0K
	RA: Deterrent BG Remedial Action	2,200.0K
	RA: PBG Pits Interim Remedial Actions	533.0K
	RA: Powerhouse Bioventing System Upgrade	29.8K
	LTO: PBG IRM/MIRM GWTmnt Ops (BAAP-33)	2,600.0K
	LTO: Caps/Covers Maintenance (BAAP-004,010,34,35)	11.8K
	LTM: GW Monitoring On & Off Post	1,042.5K
	LTM: Off-post GW Monitoring Leases	5.0K
		7,319 K

FY00

RAB: BAAP support	17.0K
RI/FS: BAAP-001,40	1,328.0K
RD: BAAP-001, 006, 33, 40	40.0K
RAC: BAAP-005, 006, 008, 33, 35 40	5,334.0K
RAO: BAAP-33	2,328.1K
LTM: BAAP-001, 005,006,009,011,012,37	3,394.0K
IRA: BAAP- 006, 33	1,990.0K
	14,431.1K

TOTAL PRIOR YEAR FUNDING	**$88,059.7 K**
FISCAL YEAR 2001 REQUIREMENTS	**$ 4,965 K**
TOTAL FUTURE REQUIREMENTS	**$75,412 K**
TOTAL FUNDING FROM INCEPTION TO COMPLETION	**$168,436.7K**

Total from inception to completion of remedial actions includes operating the groundwater treatment plant until 2018 and continuing extensive groundwater monitoring until December 2034. (This is based on the 1994 FS remedial methods and estimated time required to remediate all contaminated groundwater. This total cost may be significantly reduced if the remedial measures are changed.)

BADGER AAP - COST TO COMPLETE RESTORATION WORK

DSERTS #	SITE TITLE	PHASE	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+	PHASE TOTAL	SITE TOTAL
BAAP-001	SETTLING PONDS AND DISPOSAL AREAS	RI		57														57	
		RD			2289	1701												3990	
		RA	463	300	200	3784	4919	5395	6579	6686	5045							33371	
																			37418
BAAP-002	BALLISTICS POND	RI	93															93	
																			93
BAAP-005	NITROGLYCERINE POND	RI/FS	16															16	
		RA	10															10	
		LTM	3	3	3	4	4	4	4	4								29	55
BAAP-006	DETERRENT BURNING GROUND	RD	296															296	
		RA			1451													1451	
		RAO		25	25	25	25	175	25	25	25	25	174					549	
		IRA	244															244	2540
BAAP-008	ROCKET PASTE AREA	RI/FS	16															16	
																			16
BAAP-012	OFF POST GW	LTM	955	850	700	600	500	500	500	500	500	500	500	500	495	500	2980	11080	11080
BAAP-033	PROPELLANT BURNING GROUND	IRA	160															160	
		RA	41						750									791	
		RAO	2235	2575	3795	2600	2600	2250	2000	2002	2517	1930	1858					26362	
																			27313
BAAP-036	EAST AND WEST ROCKET DITCHES	RI/FS	18															18	
																			18
BAAP-037	POWERHOUSE SOILS - OLD FUEL SPILLS	RAO		2	1	1	1											5	
																			5
BAAP-040	GRUBERS GROVE BAY	RAC	415	1424														1839	
																			1839
	FISCAL YEAR TOTALS IN THOUSANDS OF DOLLARS		$ 4,965	$ 5,236	$ 8,464	$ 8,715	$ 8,049	$ 8,324	$ 9,858	$ 9,217	$ 8,087	$ 2,455	$ 2,532	$ 500	$ 495	$ 500	$ 2,980	$ 80,377	$ 80,377
FY07	BADGER AAP POM		7,553	7,988	8,466	8,716	8,050	8,325	9,859	9,368	9,218	2,532	2,532	532	682	507	3,126	87,454	
		Difference	2,588.00	2,752.00	2.00	1.00	1.00	1.00	1.00	151.00	1,131.00	77.00		32.00	187.00	7.00	146.00	7,077.00	

COMMUNITY INVOLVEMENT

At each phase of the environmental restoration process, public information meetings have been held at BAAP to keep the community informed of the progress of the cleanup program. In January 1993 the installation began publishing an environmental newsletter to keep the employees, local citizens, and politicians updated on the environmental work underway.

In 1993 the Badger Environmental Board of Advisors (BEBA) was formed to provide a venue for citizens to participate in the cleanup program at the installation. The first BEBA meeting was held in September 1993 and the group has met regularly since then.

The BEBA was formed before the guidelines for Army Restoration Advisory Boards (RAB) were finalized. The BEBA had functioned as the Badger RAB until November 2000, when the BEBA refused the Army's request for the BEBA to comply with current RAB guidance.

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

Installation, 7. RAB REPORT 01/08/2001

Command: AMC **SubCommand:** OSC
Installation: BADGER ARMY AMMUNITION PLANT

RAB Established Date: 199309 **Reason RAB Not Establish:**
RAB Adjourned Date: **Reason RAB Adjourned:**

TRC Date:

RAB Community Members: **Total RAB Community Members:**
Business Community
RAB Government Members: **Total RAB Government Members:**
Environmental Protection Agency
RAB Activities:
Advice On Scope/Sch Studies/Cleanup
RAB Advice
Other
TAPP Application Approval Date:
TAPP Project Title: 09/30/2000
TAPP Project Description:

Award Number	Purchase Order	Award Date	Completion Date