

**INSTALLATION ACTION PLAN
for
MILAN ARMY AMUNITION
PLANT**



Fiscal Year 2001



2001 INSTALLATION ACTION PLAN

**INSTALLATION
ACTION PLAN
2001**

**MILAN ARMY
AMMUNITION PLANT**

STATEMENT OF PURPOSE

The purpose of this Installation Action Plan (IAP) is to outline the total multi-year Installation Restoration Program (IRP) for an installation. The plan will define all IRP requirements and propose a comprehensive approach and associated costs to conduct future investigations and remedial actions at each IRP site at the installation.

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

All site specific funding and schedule information has been prepared according to projected overall Army funding levels and is therefore subject to change. Under current project funding, all remedial actions will be in place at MAAP by the end of 2007. Long term monitoring and remedial action operations will be conducted as long as necessary.

CONTRIBUTORS TO THE INSTALLATION ACTION PLAN

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PREPARED BY

MILAN ARMY AMMUNITION PLANT

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REVIEW AND CONCURRENCE

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ARMY MATERIEL COMMAND

ACRONYMS & ABBREVIATIONS

ADA	Ammunition Destruction Area
AEC	Army Environmental Center
ARDC	Armaments Research and Development Center
BRAC	Base Realignment and Closure
CE	Corps of Engineers
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
DA	Department of Army
DD	Decision Document
DERP	Defense Environmental Restoration Program
DOD	Department of Defense
DSERTS	Defense Site Environmental Restoration Tracking System
EFF	Effluent
EPA	United States Environmental Protection Agency
ER,A	Environmental Restoration, Army (formerly DERA)
ESD	Explanation of Significant Differences
FFA	Federal Facility Agreement
FORSCOM	U.S. Army Forces Command
FS	Feasibility Study
FY	Fiscal Year
GW	Groundwater
HQ	Headquarters
IAP	Installation Action Plan
IAG	Interagency Agreement
IRA	Interim Remedial Action
IRP	Installation Restoration Program
IWTF	Industrial Wastewater Treatment Facility
LAP	Load, Assemble, Pack
LTM	Long Term Monitoring
LTO	Long Term Operation
MACOM	Major Command
MCL	Maximum Contaminant Level
MAAP	Milan Army Ammunition Plant
NCP	National Contingency Plan
NFA	No Further Action
NFRAP	No Further Remedial Action Planned
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
O&M	Operations & Maintenance
OB/OD	Open Burning / Open Detonation
OMA	Operations and Maintenance - Army
OBG	Open Burning Grounds
OU	Operable Unit
OSC	Operation Support Command
PA	Preliminary Assessment
PP	Proposed Plan
PPB	Parts Per Billion
PPM	Parts Per Million
PY	Prior Year
RA	Remedial Action
RA(C)	Remedial Action - Construction
RA(O)	Remedial Action - Operation

ACRONYMS & ABBREVIATIONS

RAB	Restoration Advisory Board
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RDX	Cyclotrimethylenetrinitramine
REM	Removal
RI	Remedial Investigation
RIP	Remedy in Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
S&A	Supervision and Administration
SVOCs	Semi Volatile Organic Compounds
SI	Site Inspection
S&R	Supervision and Review
SWMU	Solid Waste Management Unit
TRADOC	Training Doctrine Command
TRC	Technical Review Committee
TNT	2,3,4 - Trinitrotoluene
USACE	United States Army Corps of Engineers
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine
USAEC	United States Army Environmental Center
USAR	United States Army Reserve
USARC	United States Army Reserve Command
USATHMA	United States Army Toxic and Hazardous Material Agency (replaced by AEC)
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VOCs	Volatile Organic Compounds

SUMMARY

STATUS:	Confirmed groundwater and soil contamination on and off post. RCRA permitted. NPL effective date: 21 August 1987. HRS Score: 58.15										
TOTAL # OF DSERTS SITES:	38										
ACTIVE ER,A SITES:	33										
RESPONSE COMPLETE (RC) SITES:	5										
REMEDY IN PLACE:	15										
DIFFERENT SITE TYPES:	<table border="0" style="width: 100%;"> <tr> <td>2 Drainage Ditches</td> <td>21 Industrial Discharges</td> </tr> <tr> <td>1 Firing Range</td> <td>1 Storage Area</td> </tr> <tr> <td>2 Surface Disposal Area</td> <td>2 Lagoons</td> </tr> <tr> <td>5 Explosive Ordnance Disposal Area</td> <td>1 Contaminated Soil Pile</td> </tr> <tr> <td>3 Landfills</td> <td></td> </tr> </table>	2 Drainage Ditches	21 Industrial Discharges	1 Firing Range	1 Storage Area	2 Surface Disposal Area	2 Lagoons	5 Explosive Ordnance Disposal Area	1 Contaminated Soil Pile	3 Landfills	
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1 Firing Range	1 Storage Area										
2 Surface Disposal Area	2 Lagoons										
5 Explosive Ordnance Disposal Area	1 Contaminated Soil Pile										
3 Landfills											
CONTAMINANTS OF CONCERN:	Heavy Metals Explosives Unexploded Ordnance										
MEDIA OF CONCERN:	Groundwater and Soil										
COMPLETED REM/IRA/RA:	<ul style="list-style-type: none"> • Capping of O-Line Ponds (FY84 = \$954,500) (FY94 = \$1,150,000) • O-Line - Groundwater pump and treat system (FY94 = \$8,543,000) • Water Tower (Lead contaminated soil removal) (FY94 = \$418,900) • Water System for City of Milan, TN (FY94 = \$9,147,000) • Water Line Area I (FY95 = \$220,900) • Groundwater Pump & Treat System for Northern Boundary (FY96 = \$9,512,400) • Composted Soil Industrial Landfill (FY97 = \$641,000) • Bioremediation facility & Contaminated Soil (FY98 = \$4,566,600) 										
CURRENT IRP PHASES:	RI/FS - 17 sites RAO - 14 Sites RD - 1 Sites (also listed as RI in DSERTS) RC - 5 Sites LTM - 2 Sites (also listed as RC in DSERTS)										
PROJECTED IRP PHASES:	RA(C) at 17 sites RD at 17 sites RA(O) at 28 sites LTM at 2 sites										
IDENTIFIED POSSIBLE REM/IRA/RA:	RA at 17 sites										
FUNDING:	<table border="0" style="width: 100%;"> <tr> <td>Prior Year Funding (FY 1976-2000):</td> <td style="text-align: right;">\$ 90,741.6 K</td> </tr> <tr> <td>FY 2001 Funding:</td> <td style="text-align: right;">\$ 10,000 K</td> </tr> <tr> <td>Future Requirements (FY 2002-2023):</td> <td style="text-align: right;">\$ 127,928 K</td> </tr> <tr> <td>Total Funding (FY 1976-2023):</td> <td style="text-align: right;">\$ 228,398.2 K</td> </tr> </table>	Prior Year Funding (FY 1976-2000):	\$ 90,741.6 K	FY 2001 Funding:	\$ 10,000 K	Future Requirements (FY 2002-2023):	\$ 127,928 K	Total Funding (FY 1976-2023):	\$ 228,398.2 K		
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Total Funding (FY 1976-2023):	\$ 228,398.2 K										
DURATION:	Year of Inception: 1976 Year of Completion Excluding LTM: 2007 Year of Completion Including LTM: 2032										

INSTALLATION INFORMATION

LOCALE

MAAP is located in portions of Gibson and Carroll Counties in western Tennessee. The City of Milan lies immediately to the west of MAAP. The site is approximately 50 miles east of the Mississippi River. MAAP has a total size of 22,418.8 acres and is bordered on the northeast and east by land owned by the National Guard Bureau, on the west and northwest by land owned by the city of Milan and the University of Tennessee, and on the north and south by private farm land.

COMMAND ORGANIZATION

Major Command: Army Materiel Command
Sub-Command: U.S. Army Operations Support Command
Installation: Milan Army Ammunition Plant

IRP EXECUTING AGENCIES

Lead IRP Executor: Mobile District Corps of Engineers

REGULATORY PARTICIPATION

Federal: U.S. Environmental Protection Agency, Region IV
State: State of Tennessee Dept. of Environment and Conservation

REGULATORY STATUS

NPL Effective Date: 21 August 1987
IAG Effective Date: 26 October 1989 (Amended 13 September 1991)
**Projected Date For Construction Completion
and Removal From NPL:** 2039

MAJOR CHANGES TO IAP FROM PREVIOUS YEAR (2000)

Milan AAP is projecting to have all site remedies in place by 2007.

INSTALLATION DESCRIPTION

DESCRIPTION

MAAP facilities include 10 ammunition LAP lines, 1 washout/rework line, 1 central X-ray facility, 1 test area, 2 shop maintenance areas, 12 magazine storage areas, demolition and burning grounds area, an administrative area, and a family housing area. In addition, there are seven industrial wastewater treatment facilities (IWTfS).

Of the 14 process areas active by the end of WW II, only 9 lines (A, B, D, H, I, O, V, Z, and X) are in use today. In the past, wastewater from various production activities in the lines was discharged to open ditches that drained from sumps or surface impoundments into both intermittent and perennial streams and rivers. Currently, MAAP treats all process water from the lines that generate explosives-contaminated wastewater in the seven IWTfS. This wastewater is processed by activated carbon adsorption systems and discharged under the authority of a National Pollutant Discharge Elimination System (NPDES) permit.

HISTORY

In general, the mission of the plant has been to load, assemble, package (LAP), store, and ship ammunition items. Administrative support, storage and disposal facilities, as well as active and inactive production facilities, are dispersed among wooded areas and cultivated fields. The construction of the installation started in January 1941 and was completed in January 1942. The original land was 28,521.4 acres. Approximately 548 acres enclose the various production lines, and the storage areas total 7,930 acres. Other acreage is necessary to allow safe distances between explosive areas. In 1946 Line G, containing approximately 42 acres, was sold to the United States Rubber Company. Other tracts have been sold; some deeded to the city of Milan and the University of Tennessee and leased and/or transferred to the National Guard Bureau. The installation now contains 22,418.8 acres.

MISSION

Load, assemble, and pack medium and large caliber ammunition. Receive, store and ship ammunition. Provide storage surveillance functions.



LEGEND:

- Explosive Contaminated Groundwater
- Property Line

**Area of Contaminated Groundwater
MILAN ARMY AMMUNITION PLANT**

CONTAMINATION ASSESSMENT

OVERVIEW

Due to past practices at Milan AAP, explosives have been identified as contaminants of concern in the soil and groundwater on post, with impacted off-post groundwater. The off-post groundwater contamination was significant enough for the Army to finance the construction of a new drinking water system and well field for the City of Milan. Remedial activities began in FY80 and Milan AAP projects to have all sites with remedies in place by 2007.

In 1989 the U.S. Army initiated an RI/FS program with the goal of identifying, evaluating, selecting, and implementing permanent remedies for the entire installation. Initially, the focus of response activities was on those SWMUs perceived to have the greatest potential for causing off-site contamination. The interim RI, completed in December 1991, identified the O-Line Ponds study area as a continuing source of contamination, with sufficient data to plan a feasibility study focusing on groundwater contamination. For the other major study areas, the interim RI identified the presence of potentially unacceptable contaminant migration, but additional source strength, contaminant transport, and fate data are required before feasible remedial alternatives can be considered.

All investigations and remedial actions at MAAP will be conducted in accordance with the 1989 Federal Facility Agreement between the U.S. Army, the U.S. Environmental Protection Agency (EPA), and the State of Tennessee. Under this agreement, remedial response actions for past disposal areas and solid waste management units (SWMUs) will be determined in accordance with the provisions of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, Resource Conservation and Recovery Act (RCRA) Section 3004 (u) and (v), RCRA Permit for Milan Army Ammunition Plant, and guidance contained in the National Oil and Hazardous Substances Contingency Plan (NCP).

The IAP addresses the National Priorities List (NPL) site which includes all area inside the installation boundary and all other areas off post known to be contaminated originating from sites on MAAP. Current data shows that groundwater contamination originates from numerous source areas, but the full nature and extent of the problem have not been determined. Levels above the Lifetime Health Advisory level of Cyclotrimethylenetrinitramine (RDX) have been detected in drinking water wells within the City of Milan (January 1994) and monitoring wells off post to the north of the installation, mainly farm land.

Assessment Overview:

The installation restoration strategy is to separate the installation into operable units and/or major study areas which are:

Operable Unit 1 - Groundwater plume emanating from O-Line.

Operable Unit 2 - O-Line ponds soils, sediments, and surface water at the O-Line ponds.

Operable Unit 3 - This unit consists of the remaining sources and groundwater contamination within the O-Line ponds basin which are not included as part of the OU1 and OU2 units. The east/west direction of OU3 extends from Line C to Line B in the south, and includes all areas between Line E and Line K in the north. Concerns include explosives/metals sources and groundwater contamination associated with these sources.

CONTAMINATION ASSESSMENT

OVERVIEW CONTINUED

Operable Unit 4 (Northern Study Areas) - This unit encompasses all aspects of groundwater contamination arising from residues due to past discharges emanating from LAP lines A, F, G, V, X, Z; Ditches 1, 2, D, E; Wolf Creek. These discharges are migrating north and northwest toward the City of Milan. This unit is further broken down into three regions. Region 1 comprises A and X Lines, Ditch E and Wolf Creek. Region 2 comprises the area west of Wolf Creek, including the city of Milan. Region 3 lies north of Region 1 and comprises F and Z Lines and Ditch D.

Operable Unit 5 (Southern Study Area) - This unit consists of all portions of the facility located south of Route 54. Suspected contaminant sources include: (1) Open Burning Ground, (2) Current Ammunition Destruction Area, (3) Former Ammunition Destruction Area, (4) Ammunition Test Area, (5) Closed Ammunition Burnout Area, (6) Ammunition Storage Areas, and (7) the Plant's five elevated potable water towers.

Summary of Completed Actions:

The Phase I Installation Remedial Investigation was completed in December of 1991. This document served as the RI for OU1 and OU2 only, as additional data was needed for all other Operable Units. A Focused Feasibility Study for Operable Unit 1 was completed in June of 1992, and the Focused Feasibility Study for Operable Unit 2 was finalized in July 1993. A follow-on RI was completed in June 1994 for OU-3 resulting in a Focused Feasibility Study for the northern boundary area in Operable Unit 3 being finalized in July 1994 and a Focused Feasibility Study of Industrial area soils in Operable Units 3 and 4 being finalized in March 1995. These studies resulted in four Records of Decision being signed, one No Further Action ROD for three sites being approved, and one Final Removal Action being approved.

Draft RIs and/or RI/FSs were submitted for: OU-4 Region 1 in January 1999, OU-5 in February 2000, the non-industrial area soils in Operable Units 3 and 4 in March 2000, OU-4 Regions 2 & 3 in May 2000, and the "Overall Groundwater Study Area" in August 2000. These have led to one additional ROD and potentially four more RODs by next year.

CONTAMINATION ASSESSMENT

PREVIOUS STUDIES

1. PM for Chemical Demil and Installation Restoration, June 1978, Installation Assessment of Milan Army Ammunition Plant
2. Envirodyne Engineers Inc., September 1981, MAAP Contamination Survey prepared for USATHAMA
3. Roy F. Weston Inc., September 1983, Environmental Survey of MAAP prepared for USATHAMA (3 volumes)
4. A. T. Kearney Inc., August 1986, RCRA Facility Assessment Report for MAAP prepared for EPA Region IV
5. Post Buckley, Schuh & Jernigan Inc., January 1988, Investigation and Engineering Analysis for Remedial Actions at the MAAP Open Burning Grounds prepared for the Huntsville Division Corps of Engineers
6. Army Environmental Hygiene Agency, February 1988, Groundwater Contamination Survey Number 38-26-0881-88 Evaluation of Solid Waste Management Units at MAAP
7. ICF Technology Incorporated, December 1991, Remedial Investigation Report of MAAP (4 volumes) prepared for USATHAMA
8. ICF Technology Incorporated, June 1992, Focused Feasibility Study for Operable Unit One Groundwater Treatment Alternatives Prepared for AEC
9. ICF Technology Incorporated, March 1993, Treatability Study, Report for Groundwater Treatment Alternatives prepared for AEC
10. ICF Technology Incorporated, June 1993, Focused Feasibility Study for Operable Unit Two prepared for AEC
11. Agency for Toxic Substances and Disease Registry (ATSDR) September 1993 Public Health Assessment for MAAP
12. Environmental Resources Management, Inc. (ERM), July 1993, MAAP Remedial Investigation Follow-on Northern Study Area Effluent Drainage Ditches Site Characterization Report prepared for AEC
13. Smith Seckman Reid Inc., December 1993, Well Field Study-Preliminary Site Analysis for City of Milan, Tennessee prepared for ERM
14. ERM, June 1994, MAAP preliminary Screening of Alternatives Report prepared for AEC
15. ICF, June 94, MAAP Northern Boundary Groundwater Focused Feasibility Study prepared for AEC

CONTAMINATION ASSESSMENT

PREVIOUS STUDIES CONTINUED

16. ICF, April 1995, MAAP Focused Feasibility Study for the Northern Industrial Area Soil prepared for AEC
17. ICF, April 95, FFS for Northern Industrial Area Soils prepared for AEC
18. ERM, 17 May 95, Focused Feasibility Study Area Region 1 Groundwater Report prepared for AEC
19. MMOS, 18 May 95, Excavation and Removal of Lead Contaminated Soil and Debris from Around Five Elevated Water Towers prepared for Milan Army Ammunition Plant
20. ERM, Aug. 95, RI of OU4 Northern Study Area prepared for AEC
21. ERM, May 95, Focused Feasibility Study OU4 Northern Study Area Region 1 Groundwater prepared for AEC
22. Fluor Daniel, May 96, Remedial Investigation Report Southern Study Area (Operable Unit No. 5) prepared for AEC
23. Fluor Daniel, January 97, Lead Contaminated Soil and Debris Removal Action Evaluation MAAP Water Towers CERCLA Time Critical Removal Action prepared for AEC
24. ESE, Feb. 97, Soil Remedial Investigation OU-3 and OU-4 Non-Industrial Areas MAAP (Draft) prepared for AEC
25. ESE, April 1997, Offsite Groundwater, Remedial Investigation, Milan Army Ammunition Plant (Draft), prepared for AEC
26. ICF, April 1997, Milan Army Ammunition Plant Overall Groundwater Study, prepared for USACE.
27. USAEC, July 97, Final Post-Closure Care Plan OU-2 Cap Extension and O-Line Cap MAAP prepared for USACE
28. QST, September 1997, Final Residential Well Survey Report, Milan Army Ammunition Plant, prepared for AEC
29. ICF, Nov. 97, Final Proposed Plan (Salvage Yard, Former Burnout Area, and Sanitary Land Fill prepared for USACE
30. QST, Dec. 98, Evaluation of Human and Ecological Food Web Exposure Pathways Associated with Soil Contamination for Non Industrial Soil Areas of OU3 and OU4, prepared for USACE
31. Fluor Daniel, Feb. 98, Lead (Pb) Contaminated Soil and Debris Removal Action Evaluation Appendix: Selected Completion Alternative Implementation, prepared for AEC

CONTAMINATION ASSESSMENT

PREVIOUS STUDIES CONTINUED

32. Fluor Daniel, March 98, Draft Remedial Investigation Report, MAAP Remedial Investigation, Southern Area Study OU5, prepared for AEC
33. ICF, July 98, Performance Evaluation of Operable Unit One Groundwater Treatment Plant prepared for USACE
34. QST, Sept. 98, Final Soils Remedial Investigation OU3 and OU4 Non Industrial Areas (MAAP), prepared for USACE
35. QST, Nov. 98, Draft Feasibility Study of Soil, Remedial Investigation, Non-Industrial Areas of Operable Units 3 and 4 Milan Army Ammunition Plant, prepared for USACE
- 36 ICF, Nov. 98, Reinjection System Alternatives Evaluation and Pre-design Report, prepared for USACE
37. ICF, Oct. 99, Report on Line X Groundwater Investigation Milan Army Ammunition Plant, prepared for USACE
38. QST, Nov. 98, Offsite Groundwater Remedial Investigation Milan Army Ammunition Plant, prepared for USACE
39. Fluor Daniel, Inc, Feb 99, Final Remedial Investigation Report, Southern Study Area (Operable Unit 5) Milan Army Ammunition Plant, prepared for USACE
40. IT, Feb. 99, Proposed Plan, Interim Remedial Action, Milan Army Ammunition Plant Operable Unit 4 Region 1, prepared for USACE.
41. QST, May 99, Final Offsite Groundwater Remedial Investigation Milan Army Ammunition Plant, prepared for USACE.
42. IT, July 99, Proposed Plan for Treated Water Disposal Operable Unit 4 Region 1 Milan Army Ammunition Plant, prepared for USACE.
43. ESE, Oct. 99, Phase I Phytoremediation Treatability Study Report at Milan Army Ammunition Plant prepared for USACE.
44. ESE, Jan 2000, Feasibility Study for OU-5 Southern Study Area Milan Army Ammunition Plant, prepared for USAEC.
45. ESE, March 2000, Phytoremediation Treatability Study Report at Milan Army Ammunition Plant, prepared for USAEC.
46. ESE, May 2000, Feasibility Study for the Ditch E/Wolf Creek Groundwater Plume Milan Army Ammunition Plant, prepared for USAEC.
47. IT, June 2000, Milan Army Ammunition Plant OU-3 Northern boundary Capture Zone Analysis Report, prepared for USAEC.
48. IT, August 2000, Milan Army Ammunition Plant Overall Groundwater Study, Remedial Investigation, prepared for USAEC.

TEST AREA, MAAP-002

SITE DESCRIPTION

The Ammunition Test Area is located south of Area “W” and was used for the testing of munitions since 1961. Explosives contaminated groundwater has been identified (two small plumes) as a result of past activities at the site. The source of the contamination is suspected to be buried munition components located along the north side of the perimeter fence and a trench located adjacent to the pond inside the Test Area.

Results from the Remedial Investigation of the Southern Study Area (OU5) have identified groundwater contamination consisting of explosive compounds originating from the Test Area. Analysis of surface soils found them to contain explosives and represents the source of groundwater contamination. Levels of contamination in the soil and groundwater are relatively low and pose minimal threat to human health and the environment. The draft FS is currently being reviewed.

PROPOSED PLAN

The FS will be completed. No further action is expected.



IRP STATUS

RRSE RATING:

Medium

CONTAMINANTS:

Heavy Metals, Explosives

MEDIA OF CONCERN:

Soil, Groundwater

COMPLETED IRP PHASE:

PA/SI

CURRENT IRP PHASE:

RI/FS

FUTURE IRP PHASE:

NFA

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	30						
IR A							
RD							
RA (C)							
RA (O)							
LTM							
LTO							
PROJECTED TOTAL:							\$ 30,000

LAP LINE AREAS (SWMU 9), MAAP - 003-013

SITE DESCRIPTION

MAAP facilities include eleven ammunition LAP line areas, including the following: MAAP-003 (Line A), MAAP-004 (Line B), MAAP-005 (Line C), MAAP-006 (Line D), MAAP-007 (Line E), MAAP-008 (Line F), MAAP-009 (Line H), MAAP-010 (Line K), MAAP-011 (Line X), MAAP-012 (Line Z), MAAP-013 (Line O). Past activities included renovation of artillery, mortar rounds and rocket components, loading of mortar rounds and rockets and the disassembly and assembly of howitzer shells. Past practices have caused groundwater contamination.

PROPOSED PLAN

Groundwater remediation is anticipated. A Pilot Study (Fenton's reagent) is being evaluated at MAAP-011. See next page. If successful, this technology will be the innovative groundwater remediation alternative.

EACH SITE REPRESENTED ON THIS PAGE RECEIVES APPROXIMATELY THE AMOUNT SHOWN FOR EACH PHASE IN THE CTC BOX.

TOTAL COST TO COMPLETE FOR ALL ELEVEN SITES IS \$72,552,000



IRP STATUS

CONTAMINANTS: Explosives and metals

MEDIA OF CONCERN: Soil and Groundwater

RRSE RATING: High

COMPLETED IRP PHASE: PA/SI

CURRENT IRP PHASE: RI/FS

FUTURE IRP PHASE: RD, RA, LTM

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+	
RI/FS	69							
IRA								
RD				86				
RA(C)					304	237	329	
RA(O)								
LTM								
LTO							1399	
PROJECTED TOTAL:	\$2,424,000							

LAP LINE AREAS (SWMU 9), MAAP - 003A-013A

SITE DESCRIPTION

MAAP facilities include eleven ammunition LAP line areas, including the following: MAAP-003A (Line A), MAAP-004A (Line B), MAAP-005A (Line C), MAAP-006A (Line D), MAAP-007A (Line E), MAAP-008A (Line F), MAAP-009A (Line H), MAAP-010A (Line K), MAAP-011A (Line X), MAAP-012A (Line Z), MAAP-013A (Line O). Past activities included renovation of artillery, mortar rounds and rocket components, loading of mortar rounds and rockets and the disassembly and assembly of howitzer shells. Past practices have caused soil contamination. The eleven ammunition LAP line areas contain contaminated soil which serve as source areas for groundwater contamination. These soil sites include the sites listed above.

PROPOSED PLAN

Approximately 38,000 tons of contaminated soil is to be removed and remediated by composting.

IRP STATUS

CONTAMINANTS: Explosives and metals

MEDIA OF CONCERN: Soil and Groundwater

RRSE RATING: High

COMPLETED IRP PHASE: PA/SI

CURRENT IRP PHASE: RA(O)

FUTURE IRP PHASE: LTM

EACH SITE REPRESENTED ON THIS PAGE RECEIVES APPROXIMATELY THE AMOUNT SHOWN IN THE CTC BOX.

TOTAL COST TO COMPLETE FOR ALL ELEVEN SITES IS \$16,507,000

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
R I/FS							
IR A							
RD							
RA (C)							
RA (O)							
LTM							
LTO	132	165	165	165	165	165	689
PROJECTED TOTAL:	\$ 1,646,000						

LAP LINE AREAS (SWMU 9), MAAP - 003A-013A



View of Excavated Soil Inside of Production Load Line



Exterior View of Composting Facility



Windrow Composting Piles



Amendment Area for Composting

LINE X AREA (SWMU 9), MAAP - 011

SITE DESCRIPTION

MAAP-011 past activities included renovation of artillery, mortar rounds and rocket components, loading of mortar rounds and rockets and the disassembly and assembly of howitzer shells. Past practices have caused groundwater contamination. A Pilot Study (Fenton's reagent) is being evaluated at MAAP-011. If successful, this technology will be the innovative groundwater remediation alternative for all of the Line Areas..

PROPOSED PLAN

The piolot study begins this fiscal year. If it is successful the other line sites will begin RA in FY05.



IRP STATUS

CONTAMINANTS: Explosives and metals

MEDIA OF CONCERN: Soil and Groundwater

RRSE RATING: High

COMPLETED IRP PHASE: PA/ SI

CURRENT IRP PHASE: RI/FS

FUTURE IRP PHASE: RD, RA, LTM

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+	
R I/FS	69							
IR A								
R D	33	417						
RA (C)	5443	5598	2959	4036				
RA (O)								
LTM								
LTO			1024	1024	1659	1659	24381	
PROJECTED TOTAL:					\$48,302,000			

O-LINE PONDS

The O-Line ponds have been separated into three operable units in order to facilitate the response action at the site. These operable units are made up of DSERTS sites MAAP-014 and MAAP-014A.

The O-Line area at MAAP was built as part of the initial plant construction activity in 1941. It has operated since 1942 as an ordnance demilitarization facility. From the start, the major function of the line has been to remove explosives from bombs and projectiles by injecting a high-pressure stream of hot water and steam into the shells of the munitions. The types of explosives handled in the facility included 2,4,6-trinitrotoluene (TNT) and RDX.

From about 1942 until 1978, wastewater contaminated with explosives was discharged from the O-Line washout operations through a series of baffled concrete sumps where cooling caused significant amounts of explosives to precipitate out of the waste stream. The collected explosives were periodically removed from the sumps and burned at the burning ground. The wastewater then ran through a series of 11 ponds prior to discharge to a drainage ditch.

The O-Line ponds were closed in 1984 by in-place containment with the concurrence of the Tennessee Department of Public Health and the U.S. Environmental Protection Agency (EPA). Containment was accomplished utilizing a clay cap with overlying layers of gravel and soil with grass cover. The containment was carried out pursuant to RCRA closure requirements (40 CFR part 265).

In May 1984, because of the level of contamination in the groundwater from the O-Line ponds, the installation was proposed for listing on the National Priorities List (NPL). Final listing of the installation on the NPL became effective 21 August 1987.



O LINE LAGOON (GROUNDWATER) (SWMU 10), MAAP-014

SITE DESCRIPTION

This unit consists of the explosives-contaminated groundwater emanating directly under and immediately downgradient of O-Line ponds. This Unit is based on that area that contains the highest explosives concentrations. The Focused Feasibility Study was finalized in June of 1992. The Record of Decision was signed on 30 September 1992 and outlined a pump and treat/reinjection system which removes the metals and explosives from the groundwater. After operating the system for about a year, the system was modified with an ESD submission. Approval was obtained in January 1998, and allows the Army a more flexible approach to operating the treatment system.

PROPOSED PLAN

Risk based levels will be established for the off-post receptors. An ESD has been drafted and is under review for an exit strategy based on these risk levels. The treatment system itself will continue to be operated and treatment duration will be based upon achievement of the levels to be approved. Redesign and re-evaluation of the system is expected by FY04 to result in reduced operation and monitoring costs.



IRP STATUS

CONTAMINANTS: TNT and RDX, Metals
MEDIA OF CONCERN: Groundwater
RRSE RATING: High
COMPLETED IRP PHASE: PA/SI, RI/FS, RD, RA(C)
CURRENT IRP PHASE: RA(O), LT(O)
FUTURE IRP PHASE: LT(O)

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)							
RA(O)							
LTM							
LTO	1000	1000	1000	1100	1000	1000	10957
PROJECTED TOTAL:							\$17,057,000

O LINE LAGOON (SOILS) (SWMU 10), MAAP-014A

SITE DESCRIPTION

This unit consists of contaminated soil beneath and around the former 11 ponds and surface water and shallow sediments in the drainage ditch that flows along the east and north sides of the ponds. Through sampling and consideration of former site activities, the area of OU2 has been defined as consisting of the area that has been impacted by use and/or closure of the former ponds at O-Line. To be conservative, the boundary of this area has been identified as the fence that encircles the capped area, exclusive of the area south of the access road to the O-Line IWTF. The area of OU2 is approximately 582,000 square feet. The tributary of the drainage ditch (ditch 5) that flows along the east and north sides of the O-Line Cap, which received pond effluent while the ponds were in use and currently receives treated water from the O-Line IWTF, is included. Levels of explosives exceeding the risk to groundwater action levels derived by modeling the contaminant concentrations in the vadose zone indicate the need for an action in the area surrounding the current ponds. The selected alternative was to extend the existing cap to include these surrounding soils and provide for long-term maintenance of the cap. The Record of Decision was signed in September 1993. The design was completed in 3rd Qtr FY94, and the construction contract was awarded in 4th Qtr FY94. Construction is complete utilizing a geo-synthetic liner design.

PROPOSED PLAN

The site will be inspected quarterly and repairs made to any erosion problems which develop.



IRP STATUS

CONTAMINANTS:

TNT and RDX

MEDIA OF CONCERN:

Soil, Sediment, and Surface Water

RRSE RATING:

High

COMPLETED IRP PHASE:

PA/SI, RI/FS, RD, RA(C)

CURRENT IRP PHASE:

LT(O)

FUTURE IRP PHASE:

LT(O)

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)							
RA(O)							
LTM							
LTO	3	3	3	3	3	3	76
PROJECTED TOTAL:					\$94,000		

AMMUNITION BURNOUT AREA (SWMU 2), MAAP-015

SITE DESCRIPTION

The ABA is located in the southwestern portion of MAAP directly west of the explosives storage area. The ABA was used in the 1940s and 1950s to dispose of a wide range of conventional munitions. All disposal activities have been terminated, and it is presently used as a pistol range. Disposal included above ground burn-out of large projectiles within a cement containment area. Reportedly, all combustion by-products were removed from the site. Analyses of five clusters of shallow soil samples indicated that no explosive compounds were present above the respective detection limit in the surface or subsurface soil samples. Field activities were conducted under the Remedial Investigation of the Southern Study Area (OU5) and confirmed results obtained from prior studies. Current results indicate that no significant levels of contamination are present at the site.

Field activities have been completed; these activities confirm that no significant levels of contamination are present at the site. A Final NFA Proposed Plan and ROD were submitted in November 1997. The Proposed Plan was approved in December 1997, and the No Further Action ROD was signed on 3 February 1998.

PROPOSED PLAN

No Further Action.

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RRSE RATING: Medium
CONTAMINANT OF CONCERN: N/A
MEDIA OF CONCERN: N/A
COMPLETED IRP PHASE: RI/FS
CURRENT IRP PHASE: RC
FUTURE IRP PHASE: RC

AMMO DESTRUCTION AREA (SWMU 1), MAAP-016

SITE DESCRIPTION

The current ADA has been in operation from 1947 to the present. The current ADA is approximately 190 acres with operations consisting of above and below ground detonation of munitions. Below ground detonation is the predominant form of detonation in this area. Typically below ground detonation is limited to 350 to 500 pounds of explosive material. The material to be detonated is placed in open pits approximately 10 to 20 feet deep and covered with soil before detonation. Above ground detonation occurs only when a potentially armed or dangerous round or questionable container (such as an unsalvageable compressed gas cylinder) requires disposal. The area has undergone extensive regrading throughout the years to control erosion from demolition activities.

Results from the Remedial Investigation of the Southern Study Area (OU5) have identified groundwater contamination consisting primarily of conventional explosive compounds originating from the current ADA. Analysis of surface soils found them to contain explosives and represent the source for infiltration of contaminants. Levels of contamination in the soil and groundwater are relatively low and pose minimal threat to human health and the environment. The draft FS is currently being reviewed.

PROPOSED PLAN

The FS will be completed. MAAP is evaluating and anticipating the need for groundwater clean-up.

IRP STATUS

CONTAMINANTS:

Explosives

MEDIA OF CONCERN:

Soil, Groundwater

RRSE RATING:

High

COMPLETED IRP PHASE:

PA/SI

CURRENT IRP PHASE:

RI/FS

FUTURE IRP PHASE:

RD, RA, LTO

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	69						
IRA							
RD				87			
RA (C)					304	237	330
RA (O)							
LTM							
LTO							1399
PROJECTED TOTAL:				\$2,426,000			

OPEN BURNING GROUNDS (SWMU 3), MAAP-017

SITE DESCRIPTION

The OBG has been in use since the beginning of operations at the MAAP in 1942. The OBG consists of approximately 180 acres and has been used for the destruction and disposal of reject munitions and explosive contaminated wastes. Groundwater monitoring data has shown low but increasing levels of explosives contamination in groundwater from wells adjacent to the OBG. Three categories of wastes originating both on and off the MAAP facility have been handled and continue to be handled at the OBG. They include bulk explosives; ordnance components, including defective ordnance items or components removed from inventory at storage depots; and wastes potentially contaminated with explosives, including boxes, crates, paper, rags, strapping, pallets, activated carbon from the IWTF, precipitated explosives from settling sumps, and cleaning solvents that may have come into contact with explosive materials. After a burn was completed, any combustion by-products were placed in natural gullies or excavated trenches.

The OBG was considered as a potential contamination source when the preliminary contamination survey was performed. Results from the Final Remedial Investigation of the Southern Study Area (OU5) have identified groundwater contamination consisting primarily of explosive compounds originating from the OBG. Analysis of surface soils found them to contain explosives and represent the source for infiltration of contaminants. Because materials are now burned in pans rather than on the ground surface, the potential for further releases to soil has been minimized.

PROPOSED PLAN

Groundwater remediation is anticipated.

S RRSE RATING: High
T CONTAMINANTS: TNT and RDX
A MEDIA OF CONCERN: GW & Soil
T COMPLETED IRP PHASE: PA/SI, RI
U CURRENT IRP PHASE: FS
S FUTURE IRP PHASE: RD, RA(C)
 RA(O), LTM



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+	
R/FS	69							
IRA								
RD				87				
RA(C)					304	237	330	
RA(O)								
LTM								
LTO							1399	
PROJECTED TOTAL:	\$2,426,000							

OPEN BURNING GROUNDS (PHYTOREMEDIATION), MAAP-017A

SITE DESCRIPTION

The OBG consists of 180 acres used for the destruction and disposal of munitions. Three categories of wastes originating both on and off the MAAP facility have been handled and continue to be handled at the OBG. They include bulk explosives; ordnance components, including defective ordnance items or components removed from inventory at storage depots; and wastes potentially contaminated with explosives, including boxes, crates, paper, rags, strapping, pallets, activated carbon from the IWTF, precipitated explosives from settling sumps, and cleaning solvents that may have come into contact with explosive materials. After a burn was completed, any combustion by-products were placed in natural gullies or excavated trenches.

Results from the Remedial Investigation of the Southern Study Area (OU5) of surface soils found them to contain explosives and represent the source for infiltration of contaminants.

PROPOSED PLAN

Surface soil contamination (0 to 2 feet) will be addressed by excavation and composting or phytoremediation.

S RRSE RATING: High
T CONTAMINANTS: TNT and RDX
A MEDIA OF CONCERN: GW & Soil
T COMPLETED IRP PHASE: PA/SI, RI
U CURRENT IRP PHASE: FS
S FUTURE IRP PHASE: RD, RA(C)
 RA(O), LTM

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
R I/FS		181					
IR A							
R D			1814				
R A (C)							
R A (O)							
L T M							
L T O							
PROJECTED TOTAL:				\$ 1,995,000			

CLOSED LANDFILL (SWMU 6), MAAP-018

SITE DESCRIPTION

Throughout its history, MAAP has operated sanitary landfills for the disposal of reportedly non-hazardous materials. This landfill is located north of HWY 104 just west of Line K. It is approximately 3 acres in size. This landfill, now classified as the closed landfill, was operated from the 1960s until 1974 when it was closed.

The RI results indicated low levels of VOC's, SVOC's, and metals. Explosives were also detected in levels warranting removal and composting of soils. Groundwater is still under investigation.

PROPOSED PLAN

Groundwater remediation is anticipated.



IRP STATUS

CONTAMINANTS:

Explosives, Metals

MEDIA OF CONCERN:

N/A

RRSE RATING:

High

COMPLETED IRP PHASE:

PA/SI

CURRENT IRP PHASE:

RI/FS

FUTURE IRP PHASE:

RD, RA(C), RA(O), LTM

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
R I/FS							
IRA							
RD				86			
RA (C)					304	237	330
RA (O)							
LTM							
LTO							1399
PROJECTED TOTAL:				\$ 2,356,000			

CLOSED LANDFILL (BIOREMEDIATION), MAAP-018A

SITE DESCRIPTION

Throughout its history, MAAP has operated sanitary landfills for the disposal of reportedly non-hazardous materials. This landfill is located north of HWY 104 just west of Line K. It is approximately 3 acres in size. This landfill, now classified as the closed landfill, was operated from the 1960s until 1974 when it was closed.

The RI results indicated low levels of VOC's, SVOC's, and metals. Explosives were detected in levels warranting removal and composting of soils.

PROPOSED PLAN

A removal action (removal and composting) will be conducted to address explosives contaminated soil.

IRP STATUS

CONTAMINANTS:

Explosives, Metals

MEDIA OF CONCERN:

N/A

RRSE RATING:

High

COMPLETED IRP PHASE:

PA/SI, RI/FS, RD, RA(C)

CURRENT IRP PHASE:

LTO

FUTURE IRP PHASE:

LTO

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	3004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)							
RA(O)							
LTM							
LTO	132	165	165	165	165	165	689
PROJECTED TOTAL:				\$1,646,000			

PRESENT LANDFILL (SWMU 4), MAAP-019

SITE DESCRIPTION

Throughout its history, MAAP has operated sanitary landfills for the disposal of reportedly non-hazardous materials. This landfill is located west of Area W and Route 23 and was used from the 1940s until the late 1950s. It was reopened in the early 1970's, then closed in 1999. It is 37 acres in size. Currently, all non-contaminated debris and trash designated for disposal is transported off-post and contaminated materials are disposed of in a newly constructed industrial landfill. This landfill is included in a No Further Action ROD signed on 3 February 1998.

PROPOSED PLAN

No further action is necessary.

IRP STATUS

CONTAMINANTS: Explosives, Metals

MEDIA OF CONCERN: N/A

RRSE RATING: N/A

COMPLETED IRP PHASE: PA/SI, RI/FS

CURRENT IRP PHASE: RC

FUTURE IRP PHASE: RC

SALVAGE YARD (SWMU 11), MAAP-022

SITE DESCRIPTION

The Salvage Yard is on the east side of Area J and immediately south of Highway 104. This area is completely enclosed by a fence. All salvaged, non-hazardous scrap including casings, machinery, and wood, are stored in bins or in piles until sold to a scrap dealer. This site is included in a No Further Action ROD signed on 3 February 1998.

PROPOSED PLAN

No further action is necessary.

IRP STATUS

CONTAMINANTS: Heavy Metals

MEDIA OF CONCERN: Groundwater, Surface
Water, Sediment

RRSE RATING: Not Rated

COMPLETED IRP PHASE: PA/SI

CURRENT IRP PHASE: RC

FUTURE IRP PHASE: RC

CONSTRUCTION DISPOSAL SITE (SWMU 7), MAAP-032

SITE DESCRIPTION

The former borrow pit is located directly south of H-Line and immediately north of Highway 104. The pit is a former borrow area used to excavate sand for construction activities and is approximately 1 acre in size. MAAP has allowed the disposal of discarded building materials from base construction and renovation activities to occur in this pit. This activity has ceased and the sand pit contains pond water.

PROPOSED PLAN

Groundwater remediation is anticipated.



IRP STATUS

SITE TYPE:

Borrow Area

CONTAMINANTS:

Explosives

MEDIA OF CONCERN:

Soil, Groundwater

RRSE RATING:

Low

COMPLETED IRP PHASE:

PA/SI

CURRENT IRP PHASE:

RI/FS

FUTURE IRP PHASE:

RD/RA

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+	
RI/FS	69							
IRA								
RD				87				
RA (C)					304	237	330	
RA (O)								
LTM								
LTO							1399	
PROJECTED TOTAL:	\$2,426,000							

CONSTRUCTION DISPOSAL SITE (SWMU 7), MAAP-032A

SITE DESCRIPTION

The former borrow pit is located directly south of H-Line and immediately north of Highway 104. The pit is a former borrow area used to excavate sand for construction activities and is approximately 1 acre in size. MAAP has allowed the disposal of discarded building materials from base construction and renovation activities to occur in this pit. This activity has ceased, but soils around the pond site area contaminated.

PROPOSED PLAN

A removal action (removal and composting) will be conducted to address explosives contaminated soil.

IRP STATUS

SITE TYPE:

Underground Storage Tanks

CONTAMINANTS:

POL

MEDIA OF CONCERN:

Soil, Groundwater

RRSE RATING:

Low

COMPLETED IRP PHASE:

PA/SI, RI/FS, RD, RA(C)

CURRENT IRP PHASE:

RA(O)

FUTURE IRP PHASE:

RC

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)							
RA(O)							
LTM							
LTO	132	165	165	165	165	165	688
PROJECTED TOTAL:							\$1,645,000

FORMER AMMUNITION DESTRUCTION AREA (SWMU 3), MAAP-033

SITE DESCRIPTION

The former ADA was in operation from 1942 until 1947 when the site was abandoned. It is approximately 15 acres with operations similar to the OBG, with the addition of ordnance destruction and disposal of “problem” ordnance that was buried without detonation. Munitions returning from overseas following World War II were detonated at MAAP; however, munitions that could not be disassembled for safe detonation are thought to be disposed in this area. Discussions with Plant personnel have indicated that disposal may have occurred in the lower portions (gullies) of the site where trenches may have been excavated. Munitions consisting of fuzes, mortar rounds, and rocket warheads may have been disposed in the area. In 1984, MAAP personnel cleared the former ADA by hand, regraded the topography using a bulldozer to improve drainage, and seeded the area to control erosion. During these activities, ordnance items or components containing white phosphorous self ignited when exposed to the atmosphere. These ordnance items were removed from the site during the regrading operation. Several 15 ft deep pits were excavated to determine the presence of UXO, however, none were found.

Results from the completed Remedial Investigation of the Southern Study Area (OU5) have identified groundwater contamination consisting primarily of explosive compounds. Analysis of surface soils found them to contain explosives and represent the source of groundwater contamination. Levels of contamination do not warrant remedial action.

PROPOSED PLAN

The FS will be completed. No RD/RA is anticipated.

S T A T U S

RRSE RATING: High
CONTAMINANT OF CONCERN: Explosives
MEDIA OF CONCERN: Soil and Groundwater
COMPLETED IRP PHASE: RI
CURRENT IRP PHASE: FS
FUTURE IRP PHASE: RC

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	69						
IRA							
RD							
RA(C)							
RA(O)							
LTM							
LTO							
PROJECTED TOTAL:	\$ 69,000						

EFF DRAINAGE DITCHES (NORTHERN STUDY AREA), MAAP-034

SITE DESCRIPTION

Groundwater (OU-3): This unit consists of the remaining sources and groundwater contamination within the O-Line ponds basin which are not included as part of the MAAP-014 (OU1) and MAAP-014A (OU2). Concerns include explosives/metals sources and groundwater contamination associated with these sources.

A Focused Feasibility Study for contaminated groundwater at the installation boundary (a sub-unit of OU3) was finalized in June 1994, and the interim Record of Decision was signed in September 1994 for the off-post portion of the OU. The ROD outlined a pump and treat system which removes the metals and explosives from the groundwater with discharge to Rutherford Fork. The design was completed in August 1996 and this project was awarded for construction in September 1996. Construction was completed in January 1999 and is currently in operation. A Caputre Zone Analysis was conducted on the site and showed that the system was 80% effective. A new study will be conducted at the site down gradient of the extraction system to determine if aditional remediation will be required.

PROPOSED PLAN

Risk based levels will be established for the off-post receptors. The treatment system will continue to be operated and treatment duration will be based upon achievement of those levels. Redesign and re-evaluation of the system is expected by FY05 to result in reduced operation and monitoring costs.



IRP STATUS

RRSE RATING: High
CONTAMINANTS: TNT and RDX
MEDIA OF CONCERN: GW & Soil
COMPLETED IRP PHASE: PA/SI, RI/FS, RD, RA(C)
CURRENT IRP PHASE: RA(O), LTM
FUTURE IRP PHASE: RA(O), LTM

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	3004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)							
RA(O)							
LTM							
LTO	800	800	800	550	795	800	9652
PROJECTED TOTAL:				\$14,197,000			

EFF DRAINAGE DITCHES (CENTRAL) (SWMU 8), MAAP-035

SITE DESCRIPTION

In the past, wastewater from various production lines was discharged to open ditches that drained from sumps or surface impoundments into both intermittent and perennial streams. Currently, MAAP treats all process water from the lines that generate explosives-contaminated wastewater in IWTFs. There is, however, one ditch segment (north-eastern branch of ditch E) which was affected by past activities and will require further action. The FS for soil has been completed.

PROPOSED PLAN

A draft final proposed plan has been approved. A public availability session is planned for 30 November 2000. The anticipated remedial action alternative is no-further-action. RI activities for groundwater will continue to be conducted. RD/RA is anticipated for groundwater.



IRP STATUS

CONTAMINANTS:

Explosives and metals

MEDIA OF CONCERN:

Groundwater

RRSE RATING:

High

COMPLETED IRP PHASE:

PA/SI

CURRENT IRP PHASE:

RI/FS

FUTURE IRP PHASE:

RD/RA, RA(O), LTM

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	69						
IRA							
RD				87			
RA (C)					304	237	330
RA (O)							
LTM							
LTO							1399
PROJECTED TOTAL:				\$2,426,000			

LEAD CONTAMINATION @ WATER TOWERS, MAAP-036

SITE DESCRIPTION

Drinking and process water at MAAP is supplied by five groundwater production wells, chlorinated and pumped to five water towers prior to disbursement to the Facility. Analytical results of the July 1992 monthly monitoring of the production well I-11 identified elevated levels of lead. Concerned over this elevated level of lead, MAAP conducted a preliminary soil sampling around/beneath the five water towers in October 1992. The results revealed leachable lead levels as high as 6114.6 mg/L. This level of lead was detected from 6 to 12-inches deep in the soil profile.

The five elevated potable water tanks at MAAP were historically sandblasted inside and outside to remove paint prior to repainting the tanks. This was a routine maintenance activity at MAAP. The tanks were last sandblasted in 1984. The paint removed from the tanks was lead based. The sandblasting media and paint removed was deposited at the base of each tank. The associated soils beneath each water tank exceeded the regulatory level of 5.0 mg/L.

Between 2 March 1994, and 28 April 1994, Martin Marietta Ordnance Systems, Operating Contractor at MAAP, excavated sand-blasting material and associated soils from beneath MAAP's elevated water tanks. A total of 49 truckloads containing 2,243,550 pounds of contaminated material were removed during this action. Soils and debris excavated were transported off-site by a permitted hazardous waste transporter to a permitted treatment and disposal facility. The contaminated material was treated and then landfilled off post. Backfilling of excavation was accomplished with clean native soils. The area was composted and graded to levels above grade to promote surface drainage.

Samples collected and analyzed after completion of the interim removal action showed that leachable lead levels were below the regulatory level of 5.0 mg/L. A Final Removal Action Report was submitted in November 1997 and approved in December 1997. No additional investigatory or remedial action is required.

PROPOSED PLAN

Annual monitoring of the site is required to insure erosion control and grade promotes surface drainage.

IRP STATUS

CONTAMINANTS:

Lead

MEDIA OF CONCERN:

Soil and Groundwater

RRSE RATING:

High

COMPLETED IRP PHASE:

PA/SI,RI/FS, RA(C)

CURRENT IRP PHASE:

LTM

FUTURE IRP PHASE:

LTM

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	3004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA(C)							
RA(O)							
LTM	3	3	3	3	3	3	58
LTO							
PROJECTED TOTAL:				\$76,000			

LEAD CONTAMINATION @ WATER TOWERS, MAAP-036



SCHEDULE

PAST MILESTONES

The Schedule of IRP work completed to date and planned through completion of all restoration work Milan AAP has been detailed.

PA/SI Initiation	1-78
PA/SI Completion	6-78
RI Initiation O-Line Ponds	2-79
IRA Cap O-Line Ponds	6-84
RI Follow-On O-Line	3-89
RI Completion O-Line Ponds	9-91
RI Northern Area Initiation	10-91
FS O-Line Ponds	6-92
Interim Action Record of Decision OU-1	9-92
RI Southern Area Initiation	7-93
Record of Decision OU-2	9-93
RD O-Line Ponds GW	10-93
IRA O-Line Ponds GW Initiation	11-93
RA Lead Contaminated Soils	4-94
FS North Boundary Area	6-94
RD O-Line Ponds Soil OU-2	7-94
RA City of Milan Drinking Water System Initiation	9-94
Record of Decision Northern Boundary OU-3	9-94
IRA Water Main Extension Initiation	9-94
RA O-Line Soils Initiation	11-94
FS Northern Industrial Area Soils	4-95
FS Northern Study Area - Region 1	5-95
RI Northern Study Area - All Regions	8-95
ROD Industrial Area Soils	9-95
RA Water Main Extension Complete	12-95
IRA O-Line Ponds GW Completion	3-96
RD Northern Boundary Area OU-3	3-96
RA O-Line Ponds Soil Completion OU-2	5-96
RI Five Water Towers	8-96
IRA Northern Boundary Area Initiation	2-97
RD Industrial Area Soil	5-97
RA Report OU-2	7-97
RA Report 5 Water Towers (NFA)	11-97
ROD (NFA) Salvage Yard, Burnout Area, Landfill	1-98

SCHEDULE

PAST MILESTONES, continued

RA Industrial Area Soil (Initiation)	4-98
RA City of Milan Drinking Water System Completion	8-98
RI Non-Industrial Area Soil	9-98
RI OU-4 Region 1	11-98
RI OU-4 Regions 2&3	11-98
IRA Northern Boundary Area Completion	1-99
RA Industrial Area Soil (Completion)	1-99
RI southern Study	2-99
Draft FS OU-4 Region 2/3	4-99
Five Year Review	12-99
ROD OU-4 Region 1	1-00
Draft FS Southern Study Area	2-00
Final FS Non-Industrial Area Soils	3-00
Draft Final FS OU-4 Region 2/3	5-00
Draft RI Overall Groundwater	8-00
Draft Final Proposed Plan Non-Industrial Area Soils	8-00
RD OU-4 Region 1	8-00
Final Proposed Plan Non-Industrial Area Soils	10-00
Draft ROD Non-Industrial Area Soils	10-00
Draft Final FS Southern Study Area	11-00
Draft FS Overall Groundwater	11-00
RA OU-4 Region 1 (Initiation)	11-00
Final RI Overall Groundwater	12-00
Final FS OU-4 Region 2/3	1-01
Final FS Southern Study Area	1-01
Draft Proposed Plan Southern Study Area	1-01
Draft Final Proposed Plan OU-4 Region 2/3	1-01
Final ROD Non-Industrial Area Soils	2-01
Draft Proposed Plan OU-4 Region 2/3	2-01
Draft Proposed Plan Overall Groundwater	2-01
Draft Final FS Overall Groundwater	2-01
Final Proposed Plan OU-4 Region 2/3	2-01
Draft ROD OU-4 Region 2/3	2-01
Draft Final Proposed Plan Overall Groundwater	3-01
Final FS Overall Groundwater	3-01
Draft ROD Southern Study Area	3-01
Draft Final Proposed Plan Southern Study Area	3-01

SCHEDULE

PROJECTED MILESTONES

Final Proposed Plan Southern Study Area	4-01
Draft Final ROD Southern Study Area	5-01
Draft ROD Overall Groundwater	5-01
Final Proposed Plan Overall Groundwater	5-01
Draft Final ROD OU-4 Region 2/3	5-01
Final ROD Southern Study Area	7-01
Draft Final ROD Overall Groundwater	7-01
Final ROD OU-4 Region 2/3	7-01
Final ROD Overall Groundwater	9-01
RD Southern Study Area	4-02
RD OU-4 Region 2/3	9-02
RA Southern Study Area (Initiation)	6-03
RA OU-4 Region 1 (Completion)	10-03
RA OU-4 Region 2/3 (Initiation)	6-04
RD Overall Groundwater	9-04
RA Southern Study Area (Completion)	11-04
RA Overall Groundwater Initiation	12-05
RA OU-4 Region 2/3 (Completion)	2-05
RA Overall Groundwater Completion	6-08

Milan Army Ammunition Plant IRP Schedule

(Based on current funding constraints)

FACILITY	DSERTS #		Completed Phase		Underway Phase			Future Phase		
			FY76-00	FY01	FY02	FY03	FY04	FY05	FY06	FY07+
MAAP-002	TEST AREA	PA/SI								
		RI/FS								
MAAP-003	LINE A (SWMU 9)	PA/SI								
		RI/FS								
		RD								
		RA(C)								
		RA(O)								
	LTM									
MAAP-003A	LINE A (BIOREMEDIATION)	PA/SI								
		RI/FS								
		RD								
		RA(C)								
		LT(O)								
MAAP-004	LINE B (SWMU 9)	PA/SI								
		RI/FS								
		RD								
		RA(C)								
		RA(O)								
	LTM									
MAAP-004A	LINE B (BIOREMEDIATION)	PA/SI								
		RI/FS								
		RD								
		RA(C)								
		LT(O)								
MAAP-005	LINE C (SWMU 9)	PA/SI								
		RI/FS								
		RD								
		RA(C)								
		RA(O)								
	LTM									
MAAP-005A	LINE C (BIOREMEDIATION)	PA/SI								
		RI/FS								
		RD								
		RA(C)								
		LT(O)								

Milan Army Ammunition Plant IRP Schedule

(Based on current funding constraints)

FACILITY	DSERTS #		Completed Phase		Underway Phase			Future Phase		
			FY76-00	FY01	FY02	FY03	FY04	FY05	FY06	FY07+
MAAP-006	LINE D (SWMU 9)	PA/SI	█							
		RI/FS		█						
		RD					█			
		RA(C)						█	█	█
		RA(O)								█
		LTM								
MAAP-006A	LINE D (BIOREMEDIATION)	PA/SI	█							
		RI/FS	█							
		RD	█							
		RA(C)	█							
		LT(O)		█	█	█	█	█	█	█
MAAP-007	LINE E (SWMU 9)	PA/SI	█							
		RI/FS		█						
		RD					█			
		RA(C)						█	█	█
		RA(O)								█
		LTM								
MAAP-007A	LINE E (BIOREMEDIATION)	PA/SI	█							
		RI/FS	█							
		RD	█							
		RA(C)	█							
		RA(O)		█	█	█	█	█	█	█
MAAP-008	LINE F (SWMU 9)	PA/SI	█							
		RI/FS		█						
		RD					█			
		RA(C)						█	█	█
		RA(O)								█
		LTM								
MAAP-008A	LINE F (BIOREMEDIATION)	PA/SI	█							
		RI/FS	█							
		RD	█							
		RA(C)	█							
		LT(O)		█	█	█	█	█	█	█
MAAP-009	LINE H (SWMU 9)	PA/SI	█							
		RI/FS		█						
		RD					█			
		RA(C)						█	█	█
		RA(O)								█
		LTM								

Milan Army Ammunition Plant IRP Schedule

(Based on current funding constraints)

FACILITY	DSERTS #		Completed Phase		Underway Phase			Future Phase		
			FY76-00	FY01	FY02	FY03	FY04	FY05	FY06	FY07+
MAAP-009A	LINE H (BIOREMEDIATION)	PA/SI	█							
		RI/FS	█							
		RD	█							
		RA(C)	█							
		LT(O)		█	█	█	█	█	█	█
MAAP-010	LINE K (SWMU 9)	PA/SI	█							
		RI/FS		█						
		RD					█			
		RA(C)						█	█	█
		RA(O)								█
MAAP-011	LINE X (SWMU 9)	PA/SI	█							
		RI/FS		█						
		RD			█					
		RA(C)				█	█	█	█	█
		LT(O)					█	█	█	█
MAAP-011A	LINE X (BIOREMEDIATION)	PA/SI	█							
		RI/FS	█							
		RD	█							
		RA(C)	█							
		LT(O)		█	█	█	█	█	█	█
MAAP-012	LINE Z (SWMU 9)	PA/SI	█							
		RI/FS		█						
		RD					█			
		RA(C)						█	█	█
		RA(O)								█
MAAP-012A	LINE Z (BIOREMEDIATION)	PA/SI	█							
		RI/FS	█							
		RD	█							
		RA(C)	█							
		LT(O)		█	█	█	█	█	█	█
MAAP-013	LINE 0 (SWMU 9)	PA/SI	█							
		RI/FS		█						
		RD					█			
		RA(C)						█	█	█
		RA(O)								█

Milan Army Ammunition Plant IRP Schedule

(Based on current funding constraints)

FACILITY	DSERTS #		Completed Phase		Underway Phase			Future Phase		
			FY76-00	FY01	FY02	FY03	FY04	FY05	FY06	FY07+
MAAP-013A	LINE 0 (BIOREMEDIATION)	PA/SI	█							
		RI/FS	█							
		RD	█							
		RA(C)	█							
		RA(O)		█	█	█	█	█	█	█
MAAP-014	O LINE LAGOON	PA/SI	█							
		RI/FS	█							
		RD	█							
		RA(C)	█							
		LT(O)		█	█	█	█	█	█	█
MAAP-014A	O LINE LAGOON (SOILS)	PA/SI	█							
		RI/FS	█							
		RD	█							
		RA(C)	█							
		RA(O)		█	█	█	█	█	█	█
MAAP-016	AMMO DESTRUCTION	PA/SI	█							
		RI/FS		█						
		RD					█			
		RA						█	█	█
		LT(O)								█
MAAP-017	OPEN BURNING GROUNDS	PA/SI	█							
		RI/FS		█						
		RD					█			
		RA(C)						█	█	█
		RA(O)								█
MAAP-017A	OPEN BURNING GROUNDS	PA/SI	█							
		RI/FS	█							
		RD					█			
		RA						█	█	█
		LT(O)								█
MAAP-018	CLOSED LANDFILL (SWMU)	PA/SI	█							
		RI/FS	█							
		RD					█			
		RA(C)						█	█	█
		LT(O)								█
		LTM								

Milan Army Ammunition Plant IRP Schedule

(Based on current funding constraints)

FACILITY	DSERTS #		Completed Phase			Underway Phase		Future Phase		
			FY76-00	FY01	FY02	FY03	FY04	FY05	FY06	FY07+
MAAP-018A	CLOSED LANDFILL	PA/SI	█							
		RI/FS	█							
		RD	█							
		RA(C)	█							
		LT(O)		█	█	█	█	█	█	█
		LTM								
MAAP-032	CONSTRUCTION DISPOSAL	PA/SI	█							
		RI/FS		█						
		RD					█			
		RA(C)						█	█	█
		LT(O)								█
		LTM								
MAAP-032A	CONSTRUCTION DISPOSAL	PA/SI	█							
		RI/FS	█							
		RD	█							
		RA(C)		█	█	█	█	█	█	█
MAAP-033	FORMER AMMUN	PA/SI	█							
		RI/FS		█						
MAAP-034	EFF DRAINAGE DITCHES	PA/SI	█							
		RI/FS	█							
		RD	█							
		RA(C)	█							
		LT(O)		█	█	█	█	█	█	█
		LTM								
MAAP-035	EFF DRAINAGE DITCHES	PA/SI	█							
		RI/FS		█						
		RD					█			
		RA(C)						█	█	█
		LT(O)								█
		LTM								
MAAP-036	LEAD CONTAMINATION @	PA/SI	█							
		RI/FS	█							
		LTM		█	█	█	█	█	█	█

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

Site, 4. Installation Phase Summary Report

1/1/01

Installation: MILAN ARMY AMMUNITION PLANT

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: 38

Phase / Status / Sites

PA				SI			
C	U	F	RC	C	U	F	RC
38	0	0	0	38	0	0	0
RI / FS				RD			
C	U	F	RC	C	U	F	RC
21	17	0	3	15	1	16	
RA(C)				RA(O)			
C	U	F	RC	C	U	F	RC
16	0	17	2	0	14	16	0
LTM							
C				U			
				0	2	0	15

Remedy / Status / Sites (Actions)

IRA

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

FRA

C	U	F
16 (16)	0 (0)	17 (17)

RIP Total: 14

RC Total: 5

Reporting Period End Date: 09/30/2000

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

Site, 9. RISK INSTALLATION ACTION PLAN REPORT

01/01/2001

Installation: MILAN ARMY AMMUNITION PLANT

Major Command: AMC

SubCommand: OSC

Program Options: IRP, BRAC I, BRAC II, BRAC III, BRAC IV

Subprogram Options: Compliance, Restoration, UXO

Site	RRSE	Media Evaluated	Phase (s) Completed	Phase (s) Underway	Phase (s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	RIP Date	RC Date
MAAP 014A	1A	GW WH	PA RAC RD RI SI						U		199707
MAAP-002	2A	GW SL WH	PA SI	RI					N		200105
MAAP-003	1A	GW	PA SI	RI	RAC RAO RD					200709	203709
MAAP-003A	2A	SL	PA RAC RD RI SI	RAO						199905	201109
MAAP-004	1A	GW	PA SI	RI	RAC RAO RD					200709	203709
MAAP-004A	2A	SL	PA RAC RD RI SI	RAO					N	199905	201109
MAAP-005	1A	GW	PA SI	RI	RAC RAO RD					200709	202509

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
MAAP-005A	2A	SL	PA RAC RD RI SI	RAO					N	199905	201109
MAAP-006	1A	GW	PA SI	RI	RAC RAO RD					200709	202509
MAAP-006A	2A	SL	PA RAC RD RI SI	RAO					N	199905	201109
MAAP-007	1A	GW	PA SI	RI	RAC RAO RD					200709	202509
MAAP-007A	2A	SL	PA RAC RD RI SI	RAO					N	199905	201109
MAAP-008	1A	GW	PA SI	RI	RAC RAO RD					200709	202509
MAAP-008A	2A	SL	PA RAC RD RI SI	RAO					N	199905	201109
MAAP-009	1A	GW	PA SI	RI	RAC RAO RD					200709	202509
MAAP-009A	2A	SL	PA RAC RD RI SI	RAO					N	199905	201109

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
MAAP-010	1A	GW	PA	RI	RAC					200709	202509
		SL	SI		RAO						
					RD						
MAAP-011	1A	GW	PA	RD	RAC					200409	202009
			SI	RI	RAO						
MAAP-011A	2A	SL	PA	RAO					N	199905	201109
			RAC								
			RD								
			RI								
			SI								
MAAP-012	1A	GW	PA	RI	RAC					200709	202509
			SI		RAO						
					RD						
MAAP-012A	2A	SL	PA	RAO					N	199904	201109
			RAC								
			RD								
			RI								
			SI								
MAAP-013	1A	GW	PA	RI	RAC					200709	202509
			SI		RAO						
					RD						
MAAP-013A	2A	SL	PA	RAO					N	199905	201109
			RAC								
			RD								
			RI								
			SI								
MAAP-014	1A	GW	PA	RAO						199603	202003
		SL	RAC								
			RD								
			RI								
			SI								
MAAP-015	2A	SL	PA						N		199112
		WH	RI								
			SI								
MAAP-016	1A	GW	PA	RI	RAC					200709	202509
			SI		RAO						
					RD						

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
MAAP-017	1A	GW	PA SI	RI	RAC RAO RD					200709	202509
MAAP-017A	2A	SL	PA RI SI		RAC RD						200309
MAAP-018	1A	GW	PA RI SI		RAC RAO RD					200709	202509
MAAP-018A	2A	SL	PA RAC RD RI SI	RAO						199905	201109
MAAP-019	NE		PA RI SI						N		199112
MAAP-022	NE		PA RI SI						N		199211
MAAP-032	1A	GW SL	PA SI	RI	RAC RAO RD					200709	202509
MAAP-032A	3A	SL	PA RAC RD RI SI	RAO					N	199905	201109
MAAP-033	1A	GW	PA SI	RI					N		200109
MAAP-034	1A	GW SL	PA RAC RD RI SI	RAO						199901	202901
MAAP-035	1A	GW SL	PA SI	RI	RAC RAO RD					200709	202509

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
MAAP-036	1A	GW SL	PA RAC RI SI						U		199707

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

REMEDIATION ACTIVITIES

CURRENT REM/IRA/RA

A. Operable Units with Signed RODs (Current):

Operable Unit 1 - Groundwater Extraction and Treatment at the O-Line Ponds Area (MAAP-14). Consists of groundwater contaminated with explosives emanating directly under and immediately downgradient of the O-Line ponds. A ROD was signed in September 1992 and the design was completed in September 1993. A treatment system construction activity began in December 1993 and was completed in early 1996. Startup and operation of the pump and treat system began in March 1996. During the first seven months of operation, the performance of the groundwater treatment system experienced operations problems. The system was shut down in October 1996 and the Corps of Engineers made extensive modifications. The system was put back in operation in August 1997. The system, now operating in compliance with the ROD, is operating continuously. Groundwater monitoring was performed to track the effectiveness of the pump and treat system and we found that the contaminated groundwater is being captured. A 5-year review has recently been completed. It recommended an ESD be prepared to add an "exit strategy" to the approved ROD.

Operable Unit 2 - Cap Extension for Soils at O-Line Ponds Area (MAAP-14A). Consists of contaminated soil beneath and around the former ponds and surface water and shallow sediments in the drainage ditch that flow along the east and north sides of the ponds. Through sampling and consideration of former site activities, the area of OU2 has been defined as consisting of the area that has been impacted by use and/or closure of the former ponds at O-Line. The area of OU2 is approximately 582,000 square feet. The tributary of the drainage ditch (ditch 5) that flows along the east and north sides of the O-Line cap, which received pond effluent while the ponds were in use, currently receives treated water from the O-Line IWTF. The ROD was signed in September 1993 and design was completed in FY 94. The construction contract was awarded in September 1994. Cost was \$1.15 million. The design incorporated a geo-synthetic liner, in order to minimize regrading costs. Construction was completed in May 1996. The Final Remedial Action Post Closure Report was approved in July 1997. A quarterly inspection of the site is currently in place. A 5-year review has recently been completed. No recommendations were made.

Operable Unit 3 - Groundwater Extraction and Treatment of Northern Boundary Area (MAAP-34). The levels of RDX and TNT at the northern boundary are increasing and moving off post. A Focused Feasibility Study for the Northern Boundary was finalized in June 1994. The preferred alternative involves pumping and treating with granular activated carbon. The treated water will be discharged to the Rutherford Fork. The ROD was signed in September 1994. The design of the project was awarded in March 1995 and completed in August 1996. This project required that off post real estate interest be obtained. This real estate perpetual lease was signed in September 1996. The construction funds for this effort were approved during the fourth quarter FY 96 and the construction contract was awarded in September 1996. Construction was scheduled to be complete in June 1998 however, additional real estate interest was required based on the latest groundwater tests for proper placement of some of the extraction wells. This effort resulted in a 6-month delay and construction was completed in January 1999 and is currently in operation. Groundwater monitoring was performed through modeling it found that the system is only 80 to 85% effective. Additional studies are planned in the area across the river to determine what modifications to the system will be necessary. A 5-year review completed on the site recommended an ESD be completed to add an "exit strategy".

REMEDIATION ACTIVITIES

CURRENT REM/IRA/RA, continued

Operable Units 3 and 4 Northern Industrial Area Soil. The soil in much of the northern industrial areas is contaminated with explosives compounds. Soil above risk based levels will be removed and treated using bioremediation. The treated soil will then be placed in an on site landfill. Areas where excavation of soil is infeasible, the soil will be covered with an engineered cap. The ROD was signed in September 1995. Contracts for the design of the remedial action and construction of the landfill were awarded in 1996. Construction of the landfill is complete. See photo 4 on page 78. The construction contract for the remedial action facility was awarded to IT Corporation while the contract for the extraction equipment was awarded to General Dynamics Ordnance Systems both in December 1997. Construction was complete in January 1999 and operation is underway. Lines C and F have been remediated and work is currently ongoing in Line E. A five year review was recently completed and questioned the adequacy of the current operation. A study is being conducted on Lines X and B to determine if the operations are adequate and what modifications to the ROD, if any, are necessary.

B. Removal Action (Current): None

MAAP Off-Post Removal Action: The City of Milan, Tennessee, supplies drinking water to approximately 4,000 customers. Environmental investigations conducted by the Army detected concentrations of the explosive compound RDX in three city water supply wells. Based on the levels of RDX detected, the Army funded a project for the location and construction of a new well field for the City of Milan. The city requested that they control the investigation and construction of the new system. This request was made since they will operate the system and it is their responsibility to provide water for their customers. The Army agreed to this operating scenario. The design and construction costs for the new field and water treatment plant were estimated at \$9,000,000 which the Army has paid to the City of Milan. The initial phase of this project involved the location and testing of a suitable new well field. This phase started in September 1993. Smith, Seckman, and Reid is the contractor selected by the City of Milan. A location for the well field was selected approximately 4.5 miles south of Milan. Design of the new water supply system was started in January 1995 and was completed in phases (water lines, wells, treatment plant) to accelerate construction. Construction was completed and the system put on line in August 1998.

PAST REM/IRA/RA

Original Capping of O-Line Ponds in 1984: The O-Line ponds were capped in 1984 at a cost of approximately \$1,020K.

Water Tower Pb Contamination: A removal action for lead contamination associated with past sandblasting activities at MAAP's five water towers was initiated in 2Q FY94. The cost was \$417,000 and was completed in April 1994. The soils were excavated and sent off-site for treatment and disposal.

On-Post Removal Action Due to Pb Contamination: A removal action was initiated to shut down the Area I water system due to lead contamination associated with sandblasting activities of the watertower in Area I. The action extended the plant's main waterline into Area I so that potable water could be pumped to the Area. The cost of this effort was \$326,000 and was completed during 1996.

REMEDIATION ACTIVITIES

FUTURE REM/IRA/RA

D. Future REM/IRA/RA/LTM Opportunities:

Operable Units 3, 4, and 5 (Groundwater): Groundwater within the installation boundary which contains explosive contamination. Remedial action - groundwater treatment remedy in place in FY 2007.

Operable Unit 5 (ADA and Burning Ground): Soils in the Burning Ground and Demolition Area contains unexploded ordnance and is contaminated with metals and explosives. Remedy in place in FY 2005.

E. Innovative means to expedite study process to RA phase. Efforts to expedite the process to the RA phase MAAP have included the following approaches:

Concurrent Reviews of Workplan and Reports as appropriate.

Use of accelerated schedules as goals.

Separation of the site into Operable Units and Study Areas to facilitate acceleration of better defined sites.

Installation personnel have fostered and maintained a good working level relationship with EPA Region IV and the Tennessee Department of Environmental and Conservation.

COST ESTIMATES

PRIOR YEAR FUNDS

FY 78	Initial Assessment	\$ 50.0K
FY 79	Contamination Survey: Phase I	\$ 237.8K
FY 80	Contamination Survey: Phase I	\$ 2.5K
FY 82	Contamination Survey: Phase II	\$ 453.5K
	O-Line Ponds Sediment Reactivity Testing	\$ 21.6K
	O-Line Ponds Physical Soil Analysis	\$ 4.5K
	Groundwater Assessment Support	\$ 4.2K
		<hr/>
		\$ 483.8K
FY 83	Bid Package Preparation - O-Line Ponds Closure	\$ 35.8K
FY 84	O-Line Ponds Closure Construction	\$ 954.5K
	GW Monitoring/O-Line Closure Plan	\$ 11.9K
		<hr/>
		\$ 966.4K
FY 85	CE S&A Support	\$ 17.9K
FY 86	O-Line Ponds RI/FS	\$ 103.0K
FY 88	O-Line Ponds RI/FS	\$ 22.0K
	Groundwater Monitoring Support	\$ 22.2K
		<hr/>
		\$ 44.0K
FY 89	RI for O-Line Ponds, Open Burning Grounds and 8 SWMUs	\$ 839.8K
	CLASS Contract Analysis in Support of RI for O-Line Ponds, Open Burning Grounds and 8 SWMUs	\$ 453.2K
	Installation Site Support	\$ 24.7K
		<hr/>
		\$ 1,317.7K
FY 90	RI Contract Modification	\$ 491.1K
	CLASS Contract Addition in Support of RI	\$ 452.3K
	CLASS Contract Addition in Support of RI	\$ 263.2K
	Off-Post Well Lease Agreements	\$ 3.7K
		<hr/>
		\$ 1,210.3K

COST ESTIMATES

PRIOR YEAR FUNDS

FY 91	Project Support	\$ 17.4K
	State Reimbursement (FY 90)	\$ 7.7K
	RI Contract Modification	\$ 572.2K
	RI Follow-On (Northern Effluent Ditches)	\$ 1,380.0K
	O-Line Ponds FS	\$ 411.6K
	Analytical Support	\$ 3.5K
	Lease	\$ 4.4K
		<hr/>
		\$ 2,396.8K
FY 92	Installation RI/FS (FS O-Line Pond Modification, Treatability Study) (A171E)	\$ 1,049.6K
	Lease Agreements	\$ 2.4K
	State Reimbursement	\$ 43.6K
	Monitoring/Support	\$ 49.9K
		<hr/>
		\$ 1,145.5K
FY 93	Installation RI/FS/ROD North (City of Milan)	\$ 3,321.4K
	Installation RI/FS (South Area)	\$ 2,560.2K
	State Reimbursement	\$ 39.3K
	Monitoring	\$ 99.9K
	IRA F/Lead Contaminated Soil	\$ 418.9K
	Lease Agreements	\$ 1.3K
		<hr/>
		\$ 6,441.0K
FY 94	Installation RI/FS/ROD (O-Line)	\$ 357.0K
	Monitoring/Support	\$ 581.0K
	RD/RA F/OU1	\$ 8,543.0K
	City of Milan Potable Well System	\$ 9,147.0K
	Active-Installation Restoration	\$ 1,150.0K
	Lease Agreements	\$ 62.0K
	New Deep Well F/Area I	\$ 326.0K
	OU4 City of Milan Pilot Study (FS)	\$ 453.5K
		<hr/>
		\$ 20,619.0K

COST ESTIMATES

PRIOR YEAR FUNDS

FY 95	RD/RA F/Western Boundary Area (Design)	\$ 1,041.0K
	RD/RA O-Line Ponds OU1 (S&A/Mods)	\$ 386.0K
	O&M Groundwater Treatment Plants/ Systems	\$ 100.0K
	Monitoring/Support	\$ 479.0K
	Active-Installation Restoration	\$ 89.0K
	City of Milan Potable Well System	\$ 100.0K
	Lease Agreements	\$ 15.0K
	RD/RA F/OU3 (Design)	\$ 1,332.0K
	Tech Support and Comm/RAB	\$ 147.0K
	RI Southern Study Area	\$ 1,319.0K

\$ 5,008.0K

FY 96	RD/RA F/Western Boundary Area	\$ 64.0K
	O&M Groundwater Treatment Plants	\$ 1,490.0K
	RD/RA Northern Boundary Site (Const & S+A)	\$ 9,512.4K
	RA Bioremediation of Soil (Landfill)	\$ 898.0K
	Lease Agreements	\$ 15.0K
	RD/RA F/OU1	\$ 551.0K
	City of Milan Potable Well System	\$ 180.0K
	Technical Support and Comm/RAB	\$ 49.0K
	Demo/Validation of Bioremediation of Soil	\$ 2,302.0K
	FS/RD/RA F/Southern Area Study (FS)	\$ 1,500.0K
	RD/RA F/OU-2	\$ 59.0K
	Installation RI/FS/ROD (Instl. GW)	\$ 2,051.0K
	Inst RI/FS (O-Line)	\$ 296.0K
	Inst RI/FS/ROD North - City of Milan	\$ 1,549.0K
	RD/RA for OU-3 (Real Estate)	\$ 93.0K

\$ 20,609.4K

FY 97	O&M Lease Agreements	\$ 15.0K
	RD F/Western Boundary Area (S&A)	\$ 681.0K
	RI/FS Monitoring/Support	\$ 296.0K
	O&M Groundwater Treatment Plant System	\$ 1,399.0K
	IRA F/Northern Boundary Site (S&A)	\$ 213.0K
	RD Bioremediation of Soil	\$ 232.0K
	RA Bioremediation of Soil	\$ 641.0K
	RI/FS Install. Groundwater (S&A)	\$ 70.0K
	IRA F/OU1 (S&A)	\$ 1,694.0K
	RA City of Milan Potable Water Wells	\$ 50.0K
	RA F/OU2 (S&A)	\$ 9.0K

\$ 5,300.0K

COST ESTIMATES

PRIOR YEAR FUNDS

FY 98	RI/FS Monitoring/Support	\$ 268.8K
	O&M IRP Systems and Areas	\$ 1,851.5K
	RA Bioremediation of Soil	\$ 4,566.6K
	RI/FS Tech Support and Comm/RAB	\$ 24.0K
	RD F/Western Boundary Area	\$ 515.7K
	O&M Lease Agreements	\$ 10.0K
	RA City of Milan Potable Water Wells (S&A)	\$ 21.0K
	IRA Northern Boundary (S&A)	\$ 803.8K
	RI/FS Installation Groundwater	\$ 45.0K
	RI/FS City of Milan	\$ 539.0K
	RA Non-Industrial Area Soil	\$ 198.6K
	RA OU-1	\$ 240.7K
	RI/FS Southern Study Area	\$ 229.9K

\$ 9,314.6K

FY 99	RI/FS Monitoring/Support	\$ 289.1K
	O&M of IRP Systems and Areas	\$ 2,799.2K
	RA(O) Bioremediation of Soil	\$ 1,121.6K
	RA(C) Bioremediation of Soil (S&A)	\$ 228.0K
	RI/FS F/Western Boundary Area (S&R)	\$ 67.0K
	RD F/Western Boundary Area	\$ 500.0K
	RI/FS Inst. Support and Comm/RAB	\$ 23.0K
	RI/FS City of Milan (S&R)	\$ 112.0K
	RD City of Milan	\$ 605.1K
	O&M Lease Agreements	\$ 16.0K
	IRA Northern Boundary	\$ 437.8K
	RI/FS Installation Groundwater	\$ 859.7K
	RI/FS Southern Study Area (S&R)	\$ 55.0K
	RA Non-Industrial Area Soil (S&R)	\$ 22.0K

\$ 7,136.5

COST ESTIMATES

PRIOR YEAR FUNDS

FY 00

RI/FS Monitoring/Support	\$203.8K
O&M of IRP Systems and Areas	\$1,747.7K
LTO Bioremediation of Soil	\$1,108.5K
RI/FS Installation Groundwater (S&R)	\$55.0K
RD F/Western Boundary Area	\$611.3K
RA F/Western Boundary Area	\$3,468.0K
O&M Lease Agreements	\$8.0K
RI/FS Inst. Support and Comm/RAB	\$25.0K
LTO Five Year Review (S&R)	\$28.0K
RI/FS City of Milan (S&R)	\$82.0K
RI/FS Southern Study Area (S&R)	\$34.0K
RI/FS GIS Data Management	\$147.3K
LTO F/OU-3 Capture Zone Analysis	\$554.90K
RI/FS Vados Zone Study	\$374.1K
RA(C) OU-4 Region One	<u>\$3,000.0K</u>
	\$8,422.5K

TOTAL PRIOR YEAR FUNDS **\$ 90,741.6K**

MILAN AAP Cost to Complete (Constrained)

DSERTS #	SITE TITLE	RRSE	PHASE	FY01	FY02	FY03	FY04	FY05	FY06	FY07+	CTC PHASE TOTAL	SITE TOTAL	DESCRIPTION OF WORK
MAAP-002	TEST AREA	MED	RI/FS	30							30	30	FS report FY01
MAAP-003	LINE A AREA & SUMPS Groundwater	HIGH	RI/FS	69							69		FY01 - 49K for S&R and contract modifications; 20K for monitoring and support for on-site contractors
			RD				86				86		86K for design of groundwater treatment system;
			RA					304	237	329	870		871K for GW treatment system
			LTO							1399	1399	2424	78K for operation of GW treatment system each year for 18 years;
MAAP-003A	LINE A AREA & SUMPS	HIGH	LTO	132	165	165	165	165	165	689	1646	1646	For 10 years 165K each year for soil RA
MAAP-004	LINE B AREA & SUMPS Groundwater	HIGH	RI/FS	69							69		FY01 - 49K for S&R and contract modifications; 20K for monitoring and support for on-site contractors
			RD				86				86		86K for design of groundwater treatment system;
			RA					304	237	330	871		871K for GW treatment system
			LTO							1393	1393	2419	78K for operation of GW treatment system each year for 18 years;
MAAP-004A	LINE B AREA & SUMPS	HIGH	LTO	132	165	165	165	165	165	688	1645	1645	For 10 years - 165K each year for soil RA
MAAP-005	LINE C AREA & SUMPS Groundwater	HIGH	RI/FS	69							69		FY01 - 49K for S&R and contract modifications; 20K for monitoring and support for on-site contractors
			RD				87				87		87K for design of groundwater treatment system;
			RA					304	237	330	871		871K for GW treatment system
			LTO							1401	1401	2428	78K for operation of GW treatment system each year for 18 years;
MAAP-005A	LINE C AREA & SUMPS	HIGH	LTO	132	165	165	165	165	165	696	1653	1653	For 10 years 165K each year for soil RA
MAAP-006	LINE D AREA & SUMPS Groundwater	HIGH	RI/FS	69							69		FY01 - 49K for S&R and contract modifications; 20K for monitoring and support for on-site contractors
			RD				89				89		89K for design of groundwater treatment system;
			RA					304	237	326	867		871K for GW treatment system
			LTO							1399	1399	2424	78K for operation of GW treatment system each year for 18 years;
MAAP-006A	LINE D AREA & SUMPS	HIGH	LTO	132	165	165	165	165	165	696	1653	1653	For 10 years 165K each year for soil RA
MAAP-007	LINE E AREA & SUMPS Groundwater	HIGH	RI/FS	69							69		FY01 - 49K for S&R and contract modifications; 20K for monitoring and support for on-site contractors
			RD				86				86		86K for design of groundwater treatment system;
			RA					304	237	329	870		870K for GW treatment system
			LTO							1399	1399	2424	78K for operation of GW treatment system each year for 18 years;
MAAP-007A	LINE E AREA & SUMPS	HIGH	LTO	132	165	165	165	165	165	696	1653	1653	For 10 years 165K each year for soil RA
MAAP-008	LINE F AREA Groundwater	HIGH	RI/FS	69							69		FY01 - 49K for S&R and contract modifications; 20K for monitoring and support for on-site contractors
			RD				87				87		87K for design of groundwater treatment system;
			RA					304	237	330	871		871K for GW treatment system
			LTO							1399	1399	2426	78K for operation of GW treatment system each year for 18 years;
MAAP-008A	LINE F AREA & SUMPS	HIGH	LTO	132	165	165	165	165	165	696	1653	1653	For 10 years 165K each year for soil RA
MAAP-009	LINE H AREA Groundwater	HIGH	RI/FS	69							69		FY01 - 49K for S&R and contract modifications; 20K for monitoring and support for on-site contractors
			RD				87				87		87K for design of groundwater treatment system;
			RA					304	237	330	871		871K for GW treatment system
			LTO							1399	1399	2426	78K for operation of GW treatment system each year for 18 years;
MAAP-009A	LINE H AREA & SUMPS	HIGH	LTO	132	165	165	165	165	165	696	1653	1653	For 10 years 165K each year for soil RA
MAAP-010	LINE K AREA	HIGH	RI/FS	69							69		FY01 - 49K for S&R and contract modifications; 20K for monitoring and support for on-site contractors
			RD				88				88		88K for design of groundwater treatment system;
			RA					304	237	330	871		871K for GW treatment system
			LTO							1399	1399	2427	77K for operation of GW treatment system each year for 18 years;

MILAN AAP Cost to Complete (Constrained)

DSERTS #	SITE TITLE	RRSE	PHASE	FY01	FY02	FY03	FY04	FY05	FY06	FY07+	CTC PHASE TOTAL	SITE TOTAL	DESCRIPTION OF WORK		
MAAP-011	LINE X AREA (SUMPS) Groundwater	HIGH	RI/FS	69							69		49K for S&R and contract modifications; 20K for monitoring and support for on-site contractors		
			RD	33	417							450		453K for design of another GW treatment system at the same DSERTS site;	
			RA	5,443	5598	2959	4036						18036		14,000K for construction of GW treatment system for Region 1; 4,036K for construction of GW treatment system for Region 2 & 3
			LTO			1024	1024	1659	1659	24381		29747	48302		1,024K each year (18) for OM of GW treatment system for Region 1; 635K for Region 2&3
MAAP-011A	LINE X AREA & SUMPS	HIGH	LTO	132	165	165	165	165	165	696	1653	1653	For 10 years 165K each year for soil RA		
MAAP-012	LINE Z AREA (SUMPS) Groundwater	HIGH	RI/FS	69							69		49K for S&R and contract modifications; 20K for monitoring and support for on-site contractors		
			RD				87				87		87K for design of groundwater treatment system;		
			RA					304	237	330	871		871K for GW treatment system		
			LTO							1399	1399	2426		77K for operation of GW treatment system each year for 18 years;	
MAAP-012A	LINE Z AREA & SUMPS	HIGH	LTO	132	165	165	165	165	165	696	1653	1653	For 10 years 165K each year for soil RA		
MAAP-013	LINE O AREA & SUMPS Groundwater	HIGH	RI/FS	69							69		49K for S&R and contract modifications; 20K for monitoring and support for on-site contractors		
			RD				87				87		87K for design of groundwater treatment system;		
			RA					304	237	330	871		871K for GW treatment system		
			LTO							1399	1399	2426		77K for operation of GW treatment system each year for 18 years;	
MAAP-013A	LINE O AREA & SUMPS	HIGH	LTO	132	165	165	165	165	165	688	1645	1645	For 10 years 165K each year for soil RA		
MAAP-014	O LINE LAGOON	HIGH	LTO	1000	1000	1000	1100	1000	1000	10957	17057	17057	LTO of pump and treat/reinjection system for 20 years with 5 year reviews		
MAAP-014A	O LINE LAGOON (SOILS)	HIGH	LTM	3	3	3	3	3	3	76	94	94	LTM (site inspections) for 36 years		
MAAP-016	AMMO DESTRUCTION AREA	HIGH	RI/FS	69							69		49K for S&R and contract modifications; 20K for monitoring and support for on-site contractors		
			RD				87				87		87K for design of groundwater treatment system;		
			RA					304	237	330	871		871K for GW treatment system		
			LTO							1399	1399	2426		77K for operation of GW treatment system each year for 18 years;	
MAAP-017	OPEN BURNING GROUNDS	HIGH	RI/FS	69							69		49K for S&R and contract modifications; 20K for monitoring and support for on-site contractors		
			RD				87				87		87K for design of groundwater treatment system;		
			RA					304	237	330	871		871K for GW treatment system		
			LTO							1399	1399	2426		77K for operation of GW treatment system each year for 18 years;	
MAAP-017A	OPEN BURNING GROUN (Soils)	High	RD		181						181		FY02 design at \$181		
			RA			1814					1814	1995		Phytoremediation	
MAAP-018	CLOSED LANDFILL	HIGH	RD				86				86		86K for design of GW treatment system		
			RA					304	237	330	871		871K for GW treatment system		
			LTO							1399	1399	2356		77K for operation of GW treatment system each year for 18 years;	
MAAP-018A	CLOSED LANDFILL	HIGH	LTO	132	165	165	165	165	165	689	1646	1646			
MAAP-032	CONSTRUCTION DISPOS Groundwater	LOW	RI/FS	69							69		49K for S&R and contract modifications; 20K for monitoring and support for on-site contractors		
			RD				87				87		87K for design of GW treatment system		
			RA					304	237	330	871		871K for GW treatment system		
			LTO							1399	1399	2426		77K for operation of GW treatment system each year for 18 years;	

MILAN AAP Cost to Complete (Constrained)

DSERTS #	SITE TITLE	RRSE	PHASE	FY01	FY02	FY03	FY04	FY05	FY06	FY07+	CTC PHASE TOTAL	SITE TOTAL	DESCRIPTION OF WORK
MAAP-032A	CONSTRUCTION DISPOS	HIGH	LTO	132	165	165	165	165	165	688	1645	1645	For 10 years 165K each year for soil RA
MAAP-033	FMR AMM DESTR AREA	HIGH	RI/FS	69							69	69	49K for S&R and contract modifications; 20K for monitoring and support for on-site contractors
MAAP-034	EFF DRAINAGE DITCHES	HIGH	LTO	800	800	800	550	795	800	9652	14197	14197	800K for oper. of GW treatment system each year for 18 years, in FY11-+15 deductions made to meet POM
MAAP-035	EFF DRAINAGE DITCHES (CENTRAL)	HIGH	RI/FS	69								69	49K for S&R and contract modifications; 20K for monitoring and support for on-site contractors
			RD				87					87	87K for design of groundwater treatment system;
			RA					304	237	330		871	871K for GW treatment system
			LTO								1399	1399	2426
MAAP-036	LEAD CONTAMINATION @ WATER TOWERS	HIGH	LTM	3	3	3	3	3	3	58	76	76	
FY TOTALS IN THOUSANDS OF DOLLARS				\$ 10,000	\$ 9,982	\$ 9,583	\$ 10,000	\$10,000	\$ 9,000	\$ 79,363	\$ 137,928	\$ 137,928	
POM CONSTRAINTS				\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$9,000	\$10,387			
Cumulative DIFFERENCE				\$ -	\$ (18)	\$ (435)	\$ (435)	\$ (435)	\$ (435)	\$ (435)	\$ 68,541		
DIFFERENCE				\$ -	\$ (18)	\$ (417)	\$ -	\$ -	\$ -	\$ -	\$ 68,976		
				FY01	FY02	FY03	FY04	FY05	FY06	FY07			

COMMUNITY INVOLVEMENT

RESTORATION ADVISORY BOARD (RAB) STATUS

In June 1994 (FY 94), Milan Army Ammunition Plant (MAAP) canvassed its surrounding communities for interest in establishing a Restoration Advisory Board (RAB). After all efforts were completed, 16 community members expressed an interest in serving on a RAB. An official RAB was established in July 1994, and the first meeting was held in August 1994.

The surrounding community for MAAP includes the towns of Milan (population 7,600), Atwood (population 1100), Medina (population 700), and the community of Lavinia (population 300). Milan Army Ammunition Plant had a Technical Review Committee (TRC) prior to formation of the RAB with one member representing the general public/community and one member representing the City of Milan.

EFFORTS TAKEN TO DETERMINE INTEREST

Milan Army Ammunition Plant conducted the following to determine potential interest in establishing a RAB:

- (1) Asked the TRC community member and the City of Milan TRC member if they were interested in serving on a RAB in lieu of a TRC. Also asked a frequent observer of the TRC meetings if he was interested in serving on a RAB.
- (2) Mailed out letters to individuals, civic, community, and professional organizations. Included a fact sheet explaining what a RAB is and an Application/Survey to determine community concerns and participation interest.
- (3) Placed public notices for two weeks in four local newspapers including the weekly papers for Milan, McKenzie, and Huntingdon, TN, and the daily Jackson, TN, paper. The notice explained the purpose of a RAB, invited the public to a meeting concerning formation of a RAB, and requested applicants for membership.
- (4) Press releases were issued to local newspapers, radio stations, and TV stations which provided the same information as for the public notices.
- (5) Held a public meeting to inform the public about the RAB. There was an orientation, a question and answer session, and a display of MAAP's environmental projects and concerns.

RESULTS

- (1) The TRC community member and the City of Milan TRC representative volunteered to become RAB members and were requested to submit applications. The TRC frequent observer also volunteered and submitted an application.
- (2) Twelve members of the local communities attended the public meeting. Eight applications for membership were brought to the meeting. Eight other applications were mailed and/or hand carried to MAAP representatives.

COMMUNITY INVOLVEMENT

RESTORATION ADVISORY BOARD (RAB) STATUS

CONCLUSIONS

Based on the results of the above efforts, 15 applications for community membership and one local City of Milan representative were obtained. A selection panel consisting of the former TRC community member, the City of Milan representative, and the observer were chosen to review the applications. As a result, all 16 members were approved for RAB membership.

The 16 community members represented a diverse community group which consisted of two doctors, a chemist, two environmental specialists from local industry, three members of minority groups, a former MAAP Commander, and representatives from civic, professional, and local Government organizations.

The total original RAB membership was 21 which consisted of the 16 community members and 5 Government representatives (2 MAAP Army representatives (Commander and Environmental Coordinator) and one each representative from the U.S. Environmental Protection Agency, the Army Environmental Center, and the Tennessee Department of Environment and Conservation.

FOLLOW-UP PROCEDURES

The MAAP RAB has been successful in keeping the public involved in its Installation Restoration Program. Several community members have resigned or their membership terminated. Six new community members were recruited in early 1996 based on the recommendations and approval of the remaining community members.

Current membership is 17 which consists of 11 community members and 6 Government members (two City of Milan representatives). Current guidelines published on the RAB are being used for all RAB activities.

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

Installation, 7. RAB REPORT

01/01/2001

Command: AMC **SubCommand:** OSC

Installation: MILAN ARMY AMMUNITION PLANT

RAB Established Date: 199407 **Reason RAB Not Establish:**

RAB Adjourned Date: **Reason RAB Adjourned:**

TRC Date: 198707

RAB Community Members:

Business Community

Total RAB Community Members:

11

RAB Government Members:

Environmental Protection Agency

Total RAB Government Members:

6

RAB Activities:

Advice On Scope/Sch Studies/Cleanup

RAB Advice

Future Land Use

TAPP Application Approval Date:

TAPP Project Title:

09/30/2000

TAPP Project Description:

Scope Of Studies

Purchase Order

Award Number

Award Date

Completion Date

Study Of Cleanup Schedule