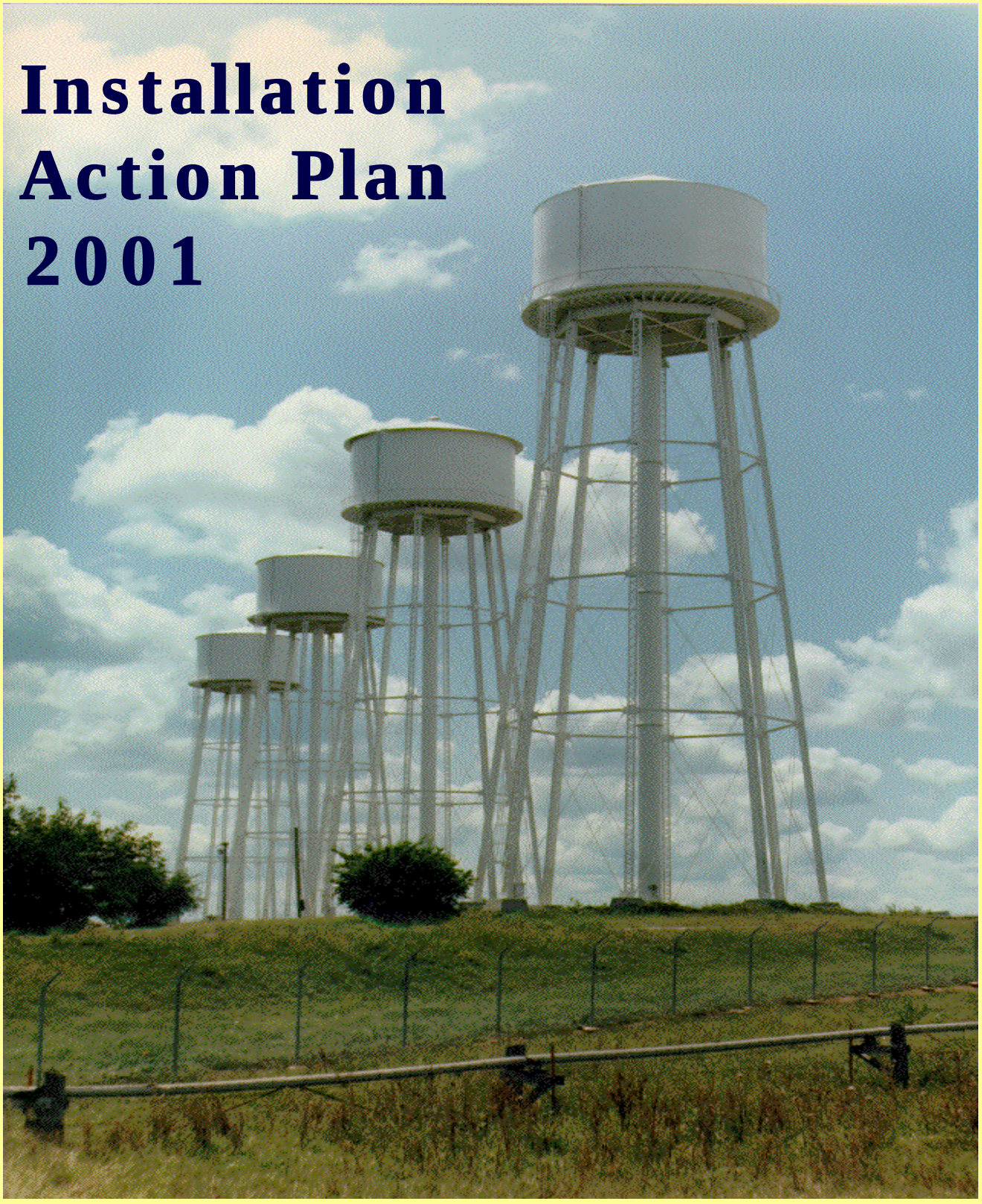
INSTALLATION ACTION PLAN

For

SUNFLOWER ARMY AMMUNITION PLANT

March 2001

Installation Action Plan 2001



SUNFLOWER AAP

INSTALLATION ACTION PLAN 2001

SUNFLOWER AAP

STATEMENT OF PURPOSE

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Installation Restoration Program (IRP) for Sunflower Army Ammunition Plant (SFAAP). 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 SFAAP. 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 over-all Army funding levels and is therefore subject to change. The goal is to have all remedies in place at SFAAP by the end of 2014. Long term monitoring and remedial action operations will be conducted beyond 2014, if necessary.

CONTRIBUTORS TO THE INSTALLATION ACTION PLAN

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Randy Carlson	Kansas Department of Health and Environment
Gerald Cooper	City of DeSoto
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Blaine Hastings	General Services Agency (GSA)
Dennis Karns	Corps of Engineers, Kansas City District
Johnna Lingle	Johnson County Commissioner - RAB Co-Chair
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PREPARED BY

SUNFLOWER AAP

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APPROVAL

ARMY MATERIEL COMMAND

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INFORMATION SHARING

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

RAB Co-chair (document provided to all RAB members)

State Regulator

EPA Regulator

Installation RPM

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
CMI	Corrective Measures Investigation
CMS	Corrective Measures Study
DA	Department of Army
DD	Decision Document
DERP	Defense Environmental Restoration Program
DOD	Department of Defense
DSERTS	Defense Site Environmental Restoration Tracking System
EPA	United States Environmental Protection Agency
ER,A	Environmental Restoration, Army (formerly DERA)
FFA	Federal Facility Agreement
FORSCOM	U.S. Army Forces Command
FS	Feasibility Study
FY	Fiscal Year
GSA	General Services Adminstration
GW	Groundwater
HQ	Headquarters
IAP	Installation Action Plan
IAG	Interagency Agreement
IRA	Interim Remedial Action
IRP	Installation Restoration Program
IWTF	Industrial Wastewater Treatment Facility
KDHE	Kansas Departmtent of Health and Environment
LAP	Load, Assemble, Pack
LTM	Long Term Monitoring
LTO	Long Term Operation
MACOM	Major Command
MCL	Maximum Contaminant Level
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	Operations Support Command (replaced IOC)
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
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
REM	Removal
RI	Remedial Investigation
RIP	Remedy in Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
S&A	Supervision and Adminstration
SFAAP	Sunflower Army Ammunition Plant
SI	Site Inspection
S&R	Supervision and Review
SVOCs	Semi Volatile Organic Compounds
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

CERCLA and RCRA Acronym Conversions

CERCLA		**RCRA**
Preliminary Assessment (PA)	=	RCRA Facility Assessement (RFA)
Site Investigation (SI)	=	Confirmation Study
Remedial Investigation/ Feasibility Study (RI/FS	=	RCRA Facility Investigation/Corrective Measures Study (RFI/CMS)
Remedial Design (RD)	=	Design
Remedial Action (Construction) (RA(C))	=	Corrective Measures Implementation (Construction) (CMI(C))
Remedial Action (Operations) (RA(O))	=	Corrective Measures Implementation (Operation) (CMI(O))

SUMMARY

STATUS:
RCRA Part B Permit.
Proposed for NPL in Feb, 1995. Remains on proposed list.

TOTAL # OF DSERTS SITES: 54
ACTIVE DERA SITES: 51
RESPONSE COMPLETE (RC) SITES: 3 (+ 3 PENDING)

DIFFERENT SITE TYPES:

5 Landfills	4 Lagoons
6 Ponds	6 Disposal Areas
5 Ditches	10 Production Areas
18 Miscellaneous	

MOST WIDESPREAD CONTAMINANTS OF CONCERN:

Nitrocelluose	Nitroglycerine
Nitroguanidine	Propellants
Nitrates	Pesticides
Heavy Metals	

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

COMPLETED REM/IRA/RA:
Interim Remedial Action performed at SWMU 50 in FY97 (Total Construction Cost: $236,000).

Lagoon Closure performed as Remedial Action in FY97 (Total Construction Cost: $558,000)

CURRENT IRP PHASES:
RD/RA(C)/RA(O)/IRA at SFAAP-002, 018, 041, 042, 051, 054
LTM at SFAAP-010, 011, 013, 022, 027, 032, 041
RFI for SFAAP-001, 003, 004-009, 012, 014-017, 019-022, 025, 026, 030-041, 043, 045-049, 052-054
RC/NFA at SFAAP-023, 028, 029, 044, 050

PROJECTED IRP PHASES:
RFI at SFAAP-018
RA at:SFAAP-003, 004, 005, 006, 007, 009, 012, 019, 020, 021, 024, 025, 026, 030, 031, 033, 034, 035, 036, 037, 040, 045, 046, 047, 053
LTM 008, 009,012, 013, 014, 017, 021, 024, 048,
IRA for the following sites: SFAAP-018, 051, 054.

IDENTIFIED POSSIBLE REM/IRA/RA:
Soil excavation, treatment, and disposal at SFAAP-002, 003, 004, 005, 006, 007, 010, 011, 012, 014, 019, 021, 022, 024, 025, 026, 030, 031, 032, 033, 034, 035, 036, 037, 040, 046, 051, 053, 054
Lagoon closure/cap SFAAP-020
Landfill cap at SFAAP-018

FUNDING:

Prior Year Funding (FY 1980-2000):	$ 15,295,700
FY 2001 Funding:	$ 2,700,000
Future Requirements:	$ 37,965,000
Total Funding:	$ 59,168,700

DURATION:
Year of Inception: 1980
Year of Completion Excluding LTM: 2011
Year of Completion Including LTM: 2035

INSTALLATION INFORMATION

LOCALE

The Sunflower Army Ammunition Plant is located on 9,065 acres in rural northwestern Johnson County, Kansas. It is approximately 3 miles southwest of DeSoto, Kansas and 28 miles southwest of Kansas City. It is roughly rectangular and about 6 miles long by 3 miles wide, with the long axis oriented in a north-south direction.

COMMAND ORGANIZATION

Major Command: Army Materiel Command (AMC)
Subcommand: Operations Support Command (OSC)
Installation: Sunflower Army Ammunition Plant

IRP EXECUTING AGENCIES

U.S. Army Corps of Engineers, Kansas City District

REGULATORY PARTICIPATION

Federal: U.S. Environmental Protection Agency, Region VII, RCRA Branch
State: Kansas Department of Health and Environment, Bureau of Environmental Remediation

REGULATORY STATUS

- RCRA Part B approved permit (effective 9 December 1991). Proposed for NPL listing in Feb, 1995.

MAJOR CHANGES TO IAP FROM PREVIOUS YEAR (2000)

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INSTALLATION DESCRIPTION

DESCRIPTION

Sunflower Army Ammunition Plant (SFAAP) is an inactive Operations Support Command installation being disposed of by GSA. The state of Kansas has expressed interest in obtaining plant property in its entirety.

HISTORY

Sunflower Army Ammuntion Plan, originally known as the Sunflower Ordnance works, was established in 1941 on 10,747 acres as the world's largest powder and propellant plant. Production of propellant began in 1943 and played a significant role in U.S. history by providing munitions for three major military conflicts - WWII, the Korean Conflict and the Vietnam Conflict. The installation has been determined to be in excess of Army needs, and GSA has begun the process of disposing of all Sunflower property.

Additional installation operations included the manufacture and regeneration of nitric and sulfuric acids, and munitions proving.

During the course of its 50-plus years of operation various hazardous substances were released both inadvertently and intentionally to the environment. These releases, which are not uncommon at major industrial facilities, were from production line areas and magazine storage areas, and 54 RCRA solid waste management units (SWMU). The EPA proposed listing the installation on the National Priorities List (NPL) in 1995.

Preliminary and final investigations have been conducted on all SWMU's. In addition to studying each SWMU, two SWMU's have received final closure. Studies show that seven SWMU's will not require any remedial action. Special work perfomed on the plant includes the completion of a community relations plan, conduction of a groundwater investigation, a benthic macroinvertebrate study, grazing study, ecolgical risk assessment, public health assessment (ATSDR), and off-site well survey.

The plant has an active RAB that represents a broad range of community views. An active Technical Review Committee consisting of installation personnel, EPA, KDHE, the U.S. Army Corps of Engineers, and contractors meets monthly to discuss restoration activities and devise ways to reduce regulatory impediments.

CONTAMINATION ASSESSMENT

MISSION

Sunflower Army Ammunition Plant no longer has a military mission. The property is in the process of being disposed of by GSA.

OVERVIEW

The Sunflower Army Ammunition Plant was built to produce artillery and rocket propellant. These materials were produced during WWII, Korea, Vietnam and between 1984 and 1992. During production, spills and releases of propellant and materials contaminated several plant locations, primarily with heavy metals and nitrate compounds.

Past sampling has revealed that hazardous substances are in the soil, sediment and groundwater beneath the plant. Sunflower is continuing concentrated efforts to demolish buildings and clean-up of all production sites contaminated with these materials.

Fifty-two of the fifty-four Solid Waste Management Units (SWMUs) are included in the RCRA investigations. During preparation of RFI work plans (1993), the SWMU's were subdivided into six groups based on industrial activities, treatment processes and disposal methods. These categories are: N-5 Propellant Production Sites, Nitroguanidine Production Site, Landfill Sites, Waste Treatment Sites, Support Area Sites, and a Single Base Propellant Area.

As site specific sample data becomes available from the initial RFI studies, discussions are held at regular intervals with the Project team, EPA and KDHE to ensure that the IRP program continues to address those SWMUs with the greatest potential to impact human health and the environment.

Evaluation of Draft RFIs received to date show 11 SWMUs requiring additional sampling to fill data gaps prior to remedy selection; 6 SWMUs which can proceed to closure documentation for no further action; 33 SWMUs which require remedial design and remediation; and 2 SWMUs which require LTM only.

A corrective measures study (CMS) was completed for SFAAP-010, 011, 022, and 032. The corrective measures implementation (CMI) for SFAAP-010 and 011 began in 1999. A Groundwater Study and Grazing Study are in the review process.

Based on this process, the current planned responses include completion of RFI reports for those SWMUs where investigations are under way, collect data on nature and extent of contamination at SWMUs that are yet to be characterized, begin CMS on the highest priority SWMUs and undertake CMI at SWMUs where required.

CONTAMINATION ASSESSMENT

The State of Kansas' plan to acquire all plant property and transferr it to a private corporation for redevelopment is a major uncertainty which may affect the cleanup schedule and type of action for many of the SWMUs. The Kansas Department of Health and Environment is developing a consent order describing cleanup activities a third party owner must complete.

The activities detailed in this IAP will be accomplished using specifically appropriated funds for the cleanup of contamination resulting from past releases of potentially hazardous substances to the environment. In addition, the Army also separately addresses additional environmental issues including concerns related to existing structures and equipment and are paid for through the yearly allocation of funds.

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CONTAMINATION ASSESSMENT

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CONTAMINATION ASSESSMENT

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CONTAMINATION ASSESSMENT

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CONTAMINATION ASSESSMENT

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CONTAMINATION ASSESSMENT

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CONTAMINATION ASSESSMENT

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Origin Unknown, 1998, UST Information/Correspondence with SFAAP Environmental Engineer.

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Origin Unknown, Undated, Map of Johnson County, Kansas, description of Non-Wetland areas.

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CLASSIFICATION AREA, SFAAP-001

SITE DESCRIPTION

The Classification Area comprised approximately 42 acres along the railroad yard in the northeastern portion of SFAAP. Incoming raw materials were sorted in this area for diversion to the appropriate receiving facility within SFAAP. The area was brought into operation in 1942. Rail operations continue through the area, however it is no longer being used as a classification area.

This area produced no hazardous wastes; however, as a result of handling incoming raw materials which may be classified as hazardous, the area had the potential for contamination. Although no spills were reported, the Classification Yard was identified as an area of potential contamination in the 1980 Installation Assessment because of the materials handled and the length of time the area has been in use (USATHAMA, 1980; DM, 1989; PRC, 1990). A RFI was completed and indicated no contamination above industrial land use standards.

PROPOSED PLAN

No further investigatory or remedial action is anticipated. Remaining work includes site closure and decision document.

IRP STATUS

RRSE RATING:
Medium
CONTAMINANTS:
Solvents, metals
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA, RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
Response Complete

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	10						
IRA							
RD							
RA							
RAO							
LTM							
PROJECTED TOTAL:	$10,000						

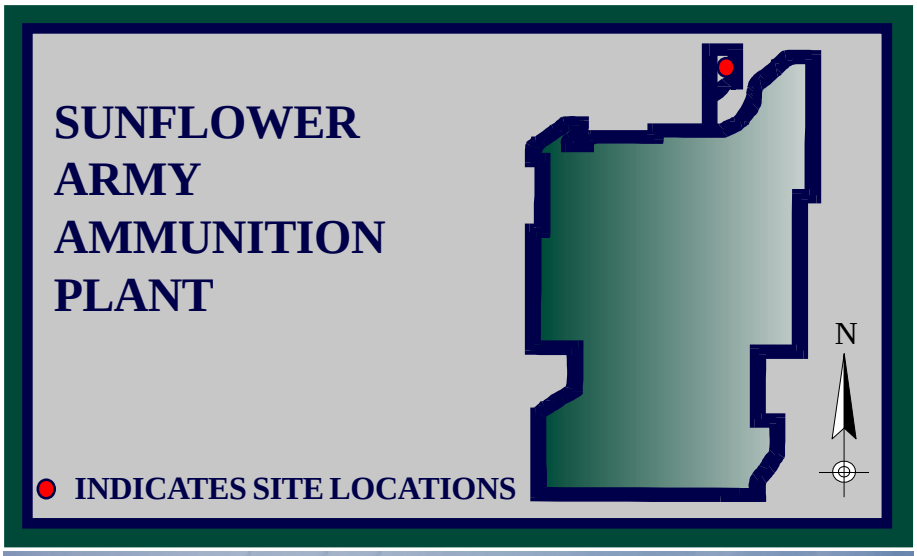
River Water Treatment Plant, Lagoons, and Dredged Material (Lime Sludge, Sludge/Backwash), SFAAP-002

SITE DESCRIPTION

The 123 River Water Treatment Plant (RWTP), located in the northern portion of SFAAP near the Kansas River, was constructed in 1943. Water from the Kansas River was treated by lime addition, sedimentation, carbon filtration and chlorination. Sludge from the RWTP was partially used to construct two lagoons south of the plant. Wastes from the RWTP were collected in the unlined lagoons (USAEHA, 1978). Water treatment operations at the RWTP ceased in 1971 thus eliminating the effluent of sludge from the RWTP into the lagoons. In the late 1970s, because of the start up of NQ production, the lagoons received about 0.200 MGD of discharge from the NQ Area, although water treatment operations ceased in 1971. This included wastewater from tank T784 (SWMU 44) which stored noncontact cooling water, steam condensate, cooling tower blowdown, and ammonia stripper discharge from the NQ production process.

Presently, the RWTP is leased to a private firm for commercial aquaculture purposes. Both lagoons support a variety of aquatic life. Beaver, muskrat, turtles, sunfish and bass, along with aquatic vascular plants and summer algal blooms are commonly observed (SFAAP, 1992).

Initial RFI results indicated the need for additional GW and sediment sampling.



PROPOSED PLAN

This site will be included in an installation wide stream study. Additional RFI data will be collected. If contamination is found in the sediment, it will be removed and hauled to an offsite disposal facility and confirmatory samples will be collected.

IRP STATUS

RRSE RATING:
Medium
CONTAMINANTS:
Metals
MEDIA OF CONCERN:
Soil, Groundwater, Surface Water, Sediment
COMPLETED IRP PHASE:
PA, RFA, RFI
CURRENT IRP PHASE:
DES, CMS, CMI
FUTURE IRP PHASE:
CMI

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD	3						
RA	21	22					
RAO							
LTM							
PROJECTED TOTAL:	$46,000						

MAIN SEWAGE TREATMENT PLANT AND DISPOSAL POND, SFAAP-003

SITE DESCRIPTION

The main Sewage Treatment Plant (STP) is located on approximately 3 acres in the northeastern portion of SFAAP. Operations began in 1943. The plant treated sanitary wastewater from the installation. Following treatment, water from the plant was discharged into Kill Creek. During the 1950s and 1960s, solids (sludge) from the STP were placed in drying beds east of the Imhoff tank. The digester was last emptied in 1974 (USAEHA, 1974; USAEHA, 1980a; USAEHA, 1980c; USAEHA, 1987; PRC, 1990). Wastewater from various production facilities and laboratories, including a photographic laboratory, processed at the plant may have contained hazardous constituents. According to a 1974 report no chlorination was provided (USAEHA, 1974; PRC, 1990).

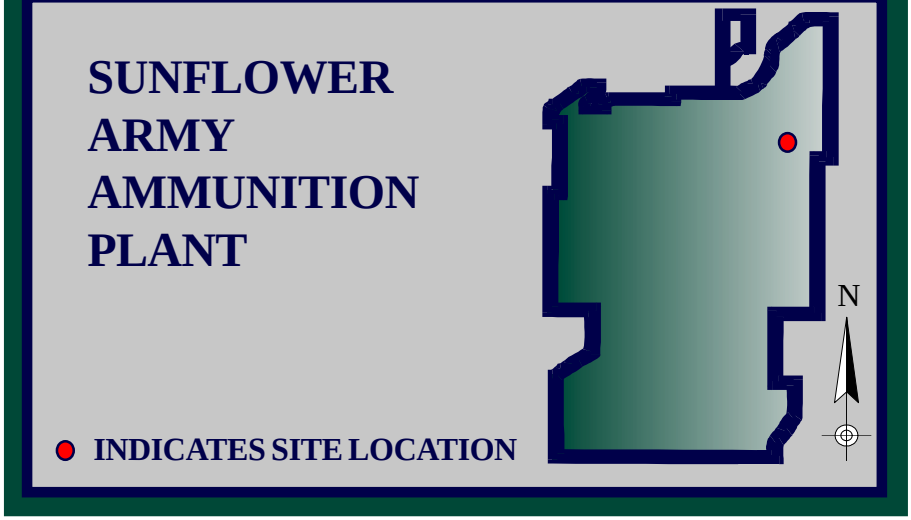
No signigicant contamination was found during the initial RFI activities, however, further soil investigation is warranted to fully delineate the site.

PROPOSED PLAN

In accordance with draft RFI recommendations, existing sludge removal and disposal practices at the sludge drying beds will continue. Additional RFI activities will be performed to determine how much soil needs to be removed. Confirmatory sampling will be conducted.

IRP STATUS

RRSE RATING:
High
CONTAMINANTS:
Pesticides, metals
MEDIA OF CONCERN:
Sediment, Soil
COMPLETED IRP PHASE:
PA, RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
DES, CMI, CA



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	74						
IRA							
RD						21	
RA						300	21
RAO							
LTM							
PROJECTED TOTAL:	$416,000						

POND A AND SLUDGE DISPOSAL AREA, SFAAP-004

SITE DESCRIPTION

Pond A is an unlined pond located in the north central portion of SFAAP encompassing approximately 86,200 square feet. Pond A was constructed in the 1940s. During three periods of operation in the NC area (1943-1945; 1951-1960; and 1965-1971) Pond A was used for the sedimentation of solids and equalization of wastewater from the NC area prior to lime treatment and subsequent discharge to Pond B (SWMU 6). In addition to the NC production area wastes, Pond A received wastes from many other portions of SFAAP over the years. Present runoff streams also include the Industrial Wastewater Treatment Facility construction site. All production operations contributing to this pond were closed in 1971 and the pond now functions as part of the natural drainage system receiving storm sewer outfall from various parts of SFAAP (USAEHA, 1985b; SFAAP, 1992).

An unknown quantity of sludge dredged from Pond A was landfilled on approximately 6.4 acres known as the Sludge Disposal Area, located north of, and adjacent to, the pond. There is a potential safety hazard due to elevated nitrocellulose concentrations in the sludge. Two zero-gap tests performed on samples from the sludge disposal area were negative; however, the samples were not collected from areas with elevated nitrocellulose concentrations.

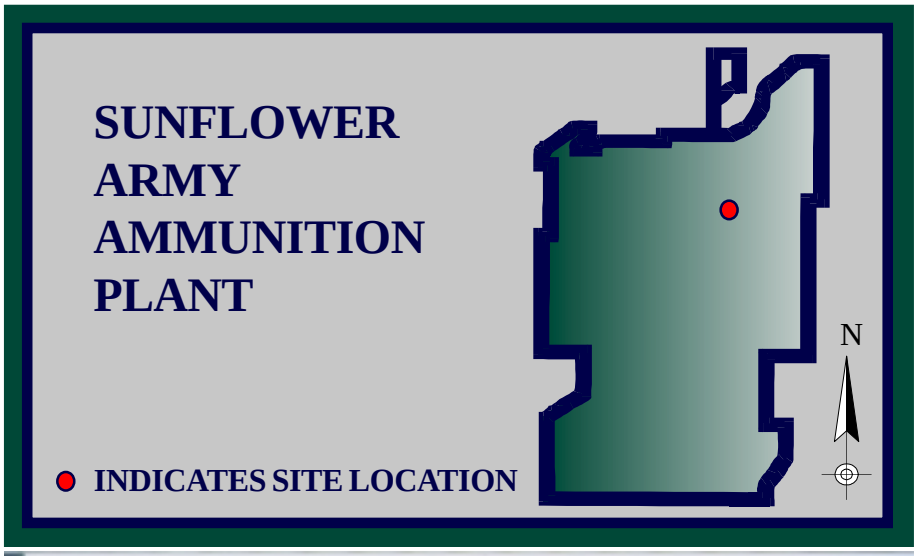
PROPOSED PLAN

Initial RFI results indicated elevated levels of nitrocellulose.

Additional investigatory activities will be conducted to fully define the extent of contamination. Approximately 4,000cy of soil will be removed and treated. A pond closure plan will be developed and the pond will be closed.

IRP STATUS

RRSE RATING:
Medium
CONTAMINANTS:
Nitrocellulose, metals
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA, RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
CMS, DES, CMI



CONSTRAINED COST TO COMPLETE

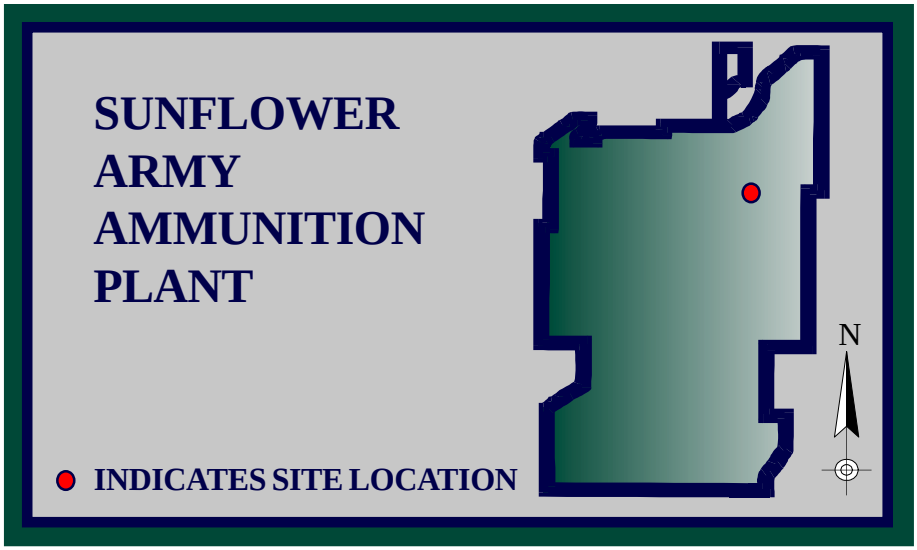
PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	80						
IRA							
RD			70				
RA				890			
RAO							
LTM							
PROJECTED TOTAL:	$1,040,000						

POND A NEUTRALIZATION AREA, SFAAP-005

SITE DESCRIPTION

The Pond A acid neutralization unit is located on the southeast edge of the pond. It was constructed in 1942/43 to treat the acidic wastewater flowing into Pond A from the NC area and had two periods of operation: 1942 - 1950 and 1952 - 1960 (DM, 1989; PRC, 1990). The pH of the Pond A effluent was adjusted in the neutralization unit before draining into Pond B (SWMU 6). Neutralized wastes and unsettled flocculent were discharged to an open drainage ditch leading to Pond B (DM, 1989; PRC, 1990). During a visual inspection in 1990 a white sludge identified as "pebble lime" was piled up along the southeast edge of the plant.

Initial RFI data indicates elevated levels of metals in GW and elevated levels of nitrocellulose in soil.



PROPOSED PLAN

Approximately 5,000cy of soil will be removed and treated. A pond closure plan will be developed and the pond will be closed.

IRP STATUS

RRSE RATING:
High
CONTAMINANTS:
Nitrocellulose, metals
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA, RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
CMS, DES, CMI

CONSTRAINED COST TO COMPLETE

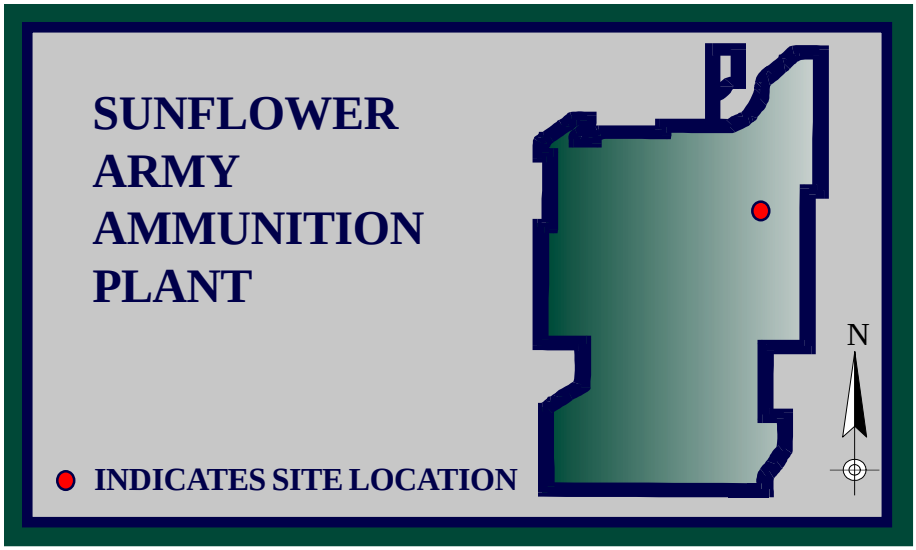
PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	23						
IRA							
RD			52				
RA				710			
RAO							
LTM							
PROJECTED TOTAL:	$785,000						

B POND AND SLUDGE DISPOSAL AREA, SFAAP-006

SITE DESCRIPTION

Pond B is located in the east-central portion of SFAAP, downstream of Pond A. It is an unlined impoundment situated upon limestone bedrock with a surface area of approximately nine acres and a capacity of approximately 2.2 million cubic feet (16.5 million gallons). The pond was constructed in the 1940s for sedimentation of solids from the neutralized wastewater discharged from the Pond A Neutralization Unit (SWMU 5). Unknown quantities of sludge were occasionally dredged from pond B and landfilled west of the pond (USAEHA, 1980c; DM, 1989; PRC, 1990). Pond B discharges into Kill Creek (DM, 1989; PRC, 1990). The pond supports a variety of aquatic life. Small fish were observed in the pond during a site visit in 1988 (USAEHA, 1987; DM, 1989).

The risk assessment indicated that potential risk exists through exposure to Kill Creek surface water by recreational receptors. Dieldrin is the primary contributor due to ingestion of fish. Initial RFI results indicated elevated levels of nitroglycerine in GW.



PROPOSED PLAN

Additional investigatory activities will be conducted to determine the extent of contamination. Approximately 40,000cy of soil will be removed and treated. It is recommended that the ponds be closed and capped. Periodic GW sampling may be required.

IRP STATUS

RRSE RATING:
High
CONTAMINANTS:
Solvents, metals, nitrocellulose, pesticides, nitroglycerine
MEDIA OF CONCERN:
Soil, Groundwater, Sediment
COMPLETED IRP PHASE:
PA, RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
CMS, DES, CMI

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	44						
IRA							
RD				180			
RA					2245	305	
RAO							
LTM							
PROJECTED TOTAL:	$2,774,000						

NORTH ACID AREA-CHROMATE AREA, SFAAP-007

SITE DESCRIPTION

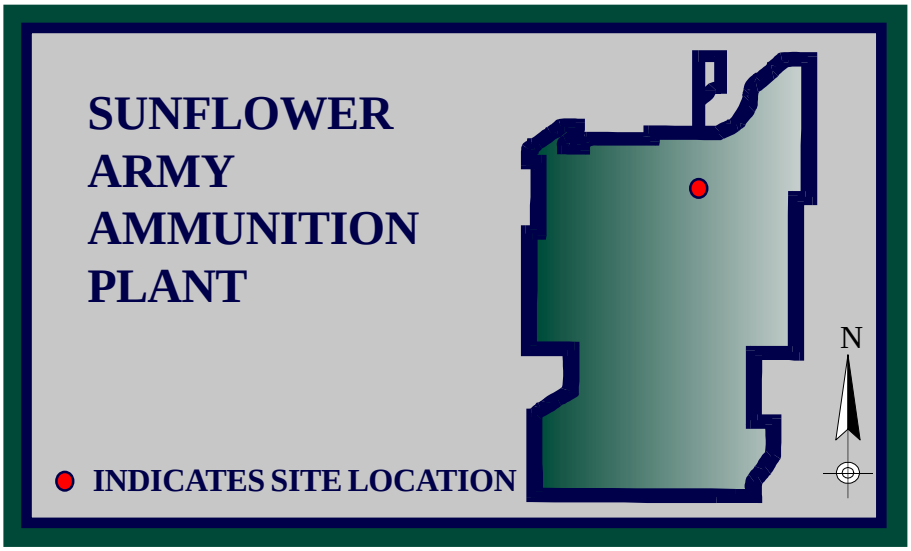
The Chromate Area is located in the north-central portion of SFAAP. It consists of approximately one half acre within the North Acid Area and was the location of a former treatment unit. The North Acid Area manufactured ammonium nitrate liquor from 1947 to 1948. The Chromate Area consisted of a cooling tower in which chromium-contaminated wastewater was reportedly produced through the use of corrosion inhibitors on the tower. Chromate liquid may have been disposed in pipes subsequently left buried in the area, and the potential is present for heavy metal contamination. The Area was dismantled in 1958, but the basin in which the wastewater was collected remains on the site. On several occasions, a liquid has been observed filling the cylindrical basin at this site. During the 1991 review of SFAAP the liquid reportedly did not have a greenish-yellow color characteristic of chromium compounds; however, during site visits in 1988 and 1992, the liquid in the cylindrical basin did have a greenish-yellow tint. A geophysical survey was conducted and several subsurface anomalies were identified. Initial RFI activities indicate the need for additional soil and SW delineation due to heavy metal and PAH contamination.

PROPOSED PLAN

Additional RFI activities will be performed and the SWMU will remain fenced. Approximately 1500cy of soil will be removed, treated and disposed offsite. The removal action will include excavation of debris (subsurface anomalies). Any existing surface water in the basins will be removed. Five years of LTM will be conducted.

IRP STATUS

RRSE RATING:
High
CONTAMINANTS:
Metals
MEDIA OF CONCERN:
Soil, Surface Water
COMPLETED IRP PHASE:
PA, RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
CMS, DES, CMI, LTM



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	144						
IRA							
RD				125			
RA				107		1473	
RAO							
LTM					30		
PROJECTED TOTAL:	$1,879,000						

NORTH ACID AREA-CHROMATE CONCENTRATION POND, SFAAP-008

SITE DESCRIPTION

The North Acid Area is located in the north-central portion of SFAAP. The Chromate Concentration Pond is known to have been located within the North Acid Area, but because the pond has been drained, its location remains uncertain. Reportedly, chromate was used as a corrosion inhibitor in the fixation process at the Nitrogen Fixation Plant. This plant was located in the North Acid Area and was in operation between 1953 and 1954. It has been reported that when the plant was dismantled in 1958, the pond and surrounding ground became contaminated. In 1968, several cows died from drinking water in this area (USATHAMA, 1980; PRC, 1990).

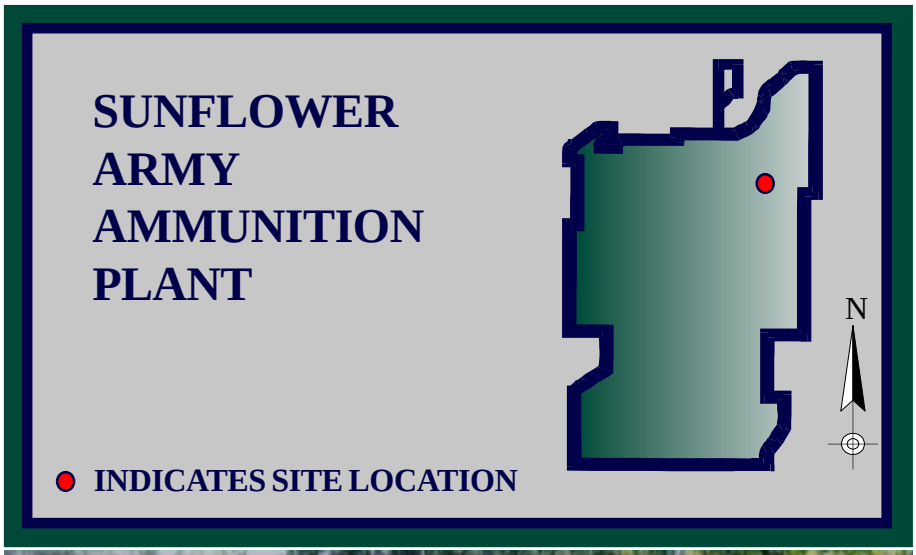
Chromate salts from the neutralization process used to treat chromium sludge were reportedly stored in drums located in the magazine area (PRC, 1990). These salts proved non-hazardous, and SFAAP received state approval to dispose of the salts in an on-site landfill (SFAAP, 1992). The risk assessment found that the primary risk drivers were hexavalent chromium in surface water and [illegible].

PROPOSED PLAN

Additional investigation and removal work at this site will be performed under SFAAP-007. Five years of LTM will be performed.

IRP STATUS

RRSE RATING:
High
CONTAMINANTS:
Metals
MEDIA OF CONCERN:
Surface Water, Soil
COMPLETED IRP PHASE:
PA, RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
LTM



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	50						
IRA							
RD							
RA							
RAO							
LTM		21					
PROJECTED TOTAL:	$71,000						

NORTH ACID AREA WASTEWATER TREATMENT LAGOON, SFAAP-009

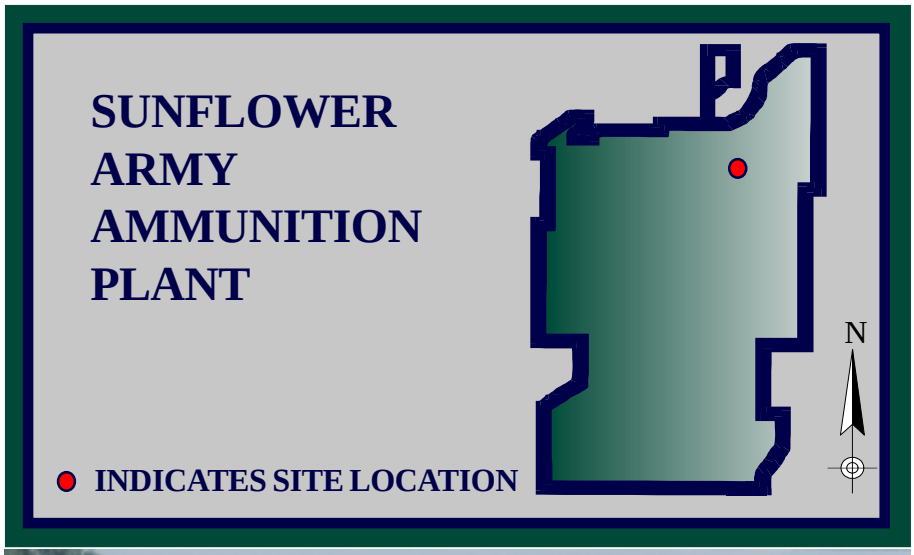
SITE DESCRIPTION

The North Acid Area is located in the north-central portion of SFAAP. The past operations conducted in the North Acid Area were similar to those performed in the South Acid Area. Thus, although wastewater treatment practices for the North Acid Area were not documented, it is believed the processes practiced were similar to the traditional wastewater treatment operations recently practiced in the South Acid Area. This treatment involved lime addition to the wastewater followed by discharge to a holding pond or lagoon.

The South Acid Area produced calcium sulfate sludges. Similar sludges were believed to have been produced in the North Acid Area; however, their fate was not documented. In addition, there is a possibility that chromate-contaminated water may have been released as waste to this lagoon. The risk assessment found that primary risk drivers were hexavalent chromium in surface water and PAHs in surface soil.

PROPOSED PLAN

Additional investigation and removal work at this site will be performed under SAAP-007. Five years of LTM will be performed



IRP STATUS

RRSE RATING:
High
CONTAMINANTS:
Metals
MEDIA OF CONCERN:
Soil and Surface Water
COMPLETED IRP PHASE:
PA, RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
LTM

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	50						
IRA							
RD							
RA							
RAO							
LTM		21					
PROJECTED TOTAL:	$71,000						

F-LINE DITCHES, SFAAP-010

SITE DESCRIPTION

The F-Line Area is located in the east-central portion of SFAAP. The F-Line consisted of a blender house in which explosive propellant was received and blended with lead salicylate; rolled into sheets; slit and wound into carpet rolls; and extruded by large hydraulic presses into solid propellant grains. Any propellant that was on the floor was washed into the drain with the wastewater. Most of the effluents were then discharged, via unlined ditches, to settling ponds and eventually to Spoon and Kill Creeks; however, one group of the ditches discharged directly to a field adjacent to Spoon Creek. The F-line ditches were located on the east side of the F-Line press houses. Occasionally, propellant solids settled in these ditches before reaching the ponds. The ditches were used periodically from the early 1950s to 1971. Several ditches served as discharge points for runoff from storm drains along the streets in the area (USATHAMA, 1980; USAEHA, 1985b; USAEHA, 1987; PRC, 1990).

The draft RFI indicates nitroglycerin in soil at concentrations that exceed EPAs target risk range for carcinogenic risk. Lead was found at concentrations exceeding EPA and KDHE guidance values.

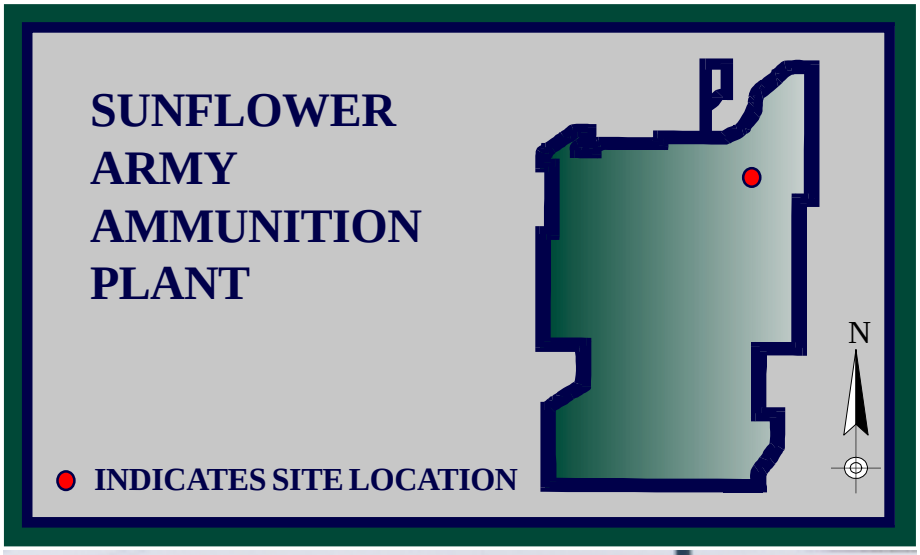
The Final Corrective Measures Study has been completed and recommends soil remediation by excavation, stabilization and incineration. The stabilization study began in September, 1999.

PROPOSED PLAN

Approximately 5,000cy of soil will be removed by excavation, stabilization, and incineration will be performed. Five years of LTM will be conducted.

IRP STATUS

RRSE RATING:
High
CONTAMINANTS:
Metals, Solvents, Ordnance Compounds
MEDIA OF CONCERN:
Soil, Groundwater, Surface Water, Sediment
COMPLETED IRP PHASE:
PA, RFA, RFI, CMS, CMI
CURRENT IRP PHASE:
LTM
FUTURE IRP PHASE:
RC



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA							
RAO							
LTM	22						
PROJECTED TOTAL:	$22,000						

F-LINE AREA SETTLING POND, SFAAP-011

SITE DESCRIPTION

The F-Line Area is located in the east central portion of SFAAP. Wastewater from the F-Line production facilities drained into ditches, which, for the most part, led to the six F-Line Area Settling Ponds (1A, 1B, 2A, 2B, 3A, and 3B) and two Blender Ponds (4A and 4B). The six Settling Ponds are unlined earthen ponds equipped with stand pipes to permit settling of solids and decantation of water. The northernmost Settling Ponds (3A and 3B) were constructed in 1943 and abandoned in 1971. The remaining ponds were operational from 1943 to 1969. These ponds were used to settle propellant solids from wastewater generated during the production of propellants. The ponds were also part of the natural drainage system, ultimately discharging into Spoon and Kill Creeks. During past operations, SFAAP occasionally removed the propellant solids which had accumulated in the ponds and burned them at the burning grounds (USATHAMA, 1980; USAEHA, 1987; PRC, 1990). The pond sediments were thought to contain raw and uncolloided propellant contaminated with lead salts, propellant waste, and NC from the manufacturing process and soil.

The draft RFI indicates nitroguanidine in soil at concentrations that exceed EPAs target risk range for carcinogenic risk. Lead was also found at concentrations exceeding EPA and KDHE guidance values. A stabilization study began in September, 1999.

PROPOSED PLAN

Approximately 5,000cy of soil will be removed by excavation, stabilization, and incineration will be performed. Five years of LTM will be conducted.

IRP STATUS

RRSE RATING: High
CONTAMINANTS: Metals, Ordnance Compounds
MEDIA OF CONCERN: Soil, Groundwater, Surface Water, Sediment
COMPLETED IRP PHASE: PA, RFA, CMS
CURRENT IRP PHASE: LTM
FUTURE IRP PHASE: RC

CONSTRAINED COST TO COMPLETE

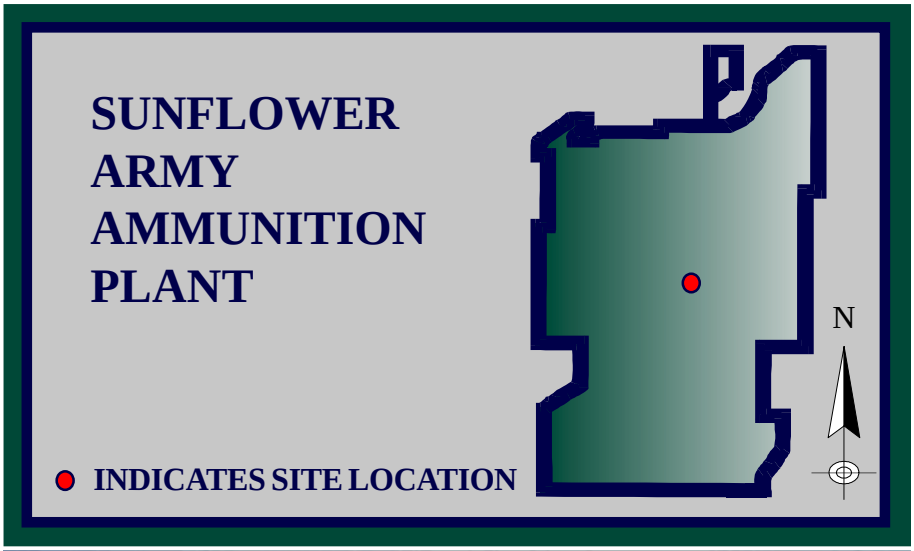
PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA							
RAO							
LTM	22						
PROJECTED TOTAL:	$22,000						

PYOTTS POND AND SLUDGE DISPOSAL AREA, SFAAP-012

SITE DESCRIPTION

Pyott's Pond is located in the east-central portion of SFAAP. It is an unlined, earthen impoundment with a surface area of approximately 1.7 acres and a capacity of approximately 697,000 cubic feet/ 5.2 million gallons. The pond was constructed in 1968 to aid in pollution control. In the past it has received drainage from the South Acid Area, the F-Line Paste Area, the NC Area, the Solvent Area and the NG Area, as well as non-contact cooling water, boiler blowdown and some process water from the South Acid Area. Neutralization of water entering the pond resulted in an accumulation of calcium sulfate sludge, which was periodically dredged and landfilled adjacent to the pond to the north and south. The pond is now used primarily for flow control and emergency containment for Koch Industries acid manufacturing. Effluent from the pond drains northeast to Kill Creek, and is monitored by NPDES Outfall 004. The pond supports an active aquatic ecosystem (USAEHA, 1980a; USATHAMA, 1980; USAEHA, 1987; DM, 1989; PRC, 1990; SFAAP, 1992). PCB's were detected in two pond sediment samples.

Initial RFI results indicated elevated levels of mercury and nitroguanidine in the SW. GW contained nitroguanidine, and sediments contained elevated levels of PAH's and nitrocellulose.



PROPOSED PLAN

Additional RFI activities will be performed to fully define the extent of contamination. 5 years of LTM will be conducted. The pond will be closed. Approximately 7,000cy of sediment and soil will be removed, treated and disposed.

IRP STATUS

RRSE RATING:
Medium
CONTAMINANTS:
Metals, Nitroguanidine, PAH's, Nitrocellulose
MEDIA OF CONCERN:
Groundwater, Sediment, Surface Water, Soil
COMPLETED IRP PHASE:
RFA, CS
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
CMS. DES, CMI, LTM

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	62						
IRA							
RD		30					
RA			440				
RAO							
LTM				25	25	25	50
PROJECTED TOTAL:	$657,000						

SOUTH AREA LIQUID WASTE TREATMENT PLANT AND EVAPORATIVE LAGOONS, SFAAP-013

SITE DESCRIPTION

The South Acid Area is located in the east-central portion of SFAAP. The Liquid Waste Treatment Plant (LWTP) consisted of five above ground tanks: three for treating wastewater, one for slurrying lime, and one for feeding wastewater to be treated. In addition, there were four unlined, earthen cells utilized as Evaporative Lagoons associated with the LWTP. Use of the LWTP and lagoons began in 1979. Volumes of waste treated at the LWTP varied with the need of production operations. The plant treated up to 1.5 million gallons of corrosive wastewater in one month. In the summer of 1986 the lagoons were reportedly nearing their effective capacity, and the wastewater from the lagoons were being applied to the land within the plant boundaries. Reportedly land application of wastewater had been performed in many areas of SFAAP including the open areas in the western and southern portions of the NQ production area.

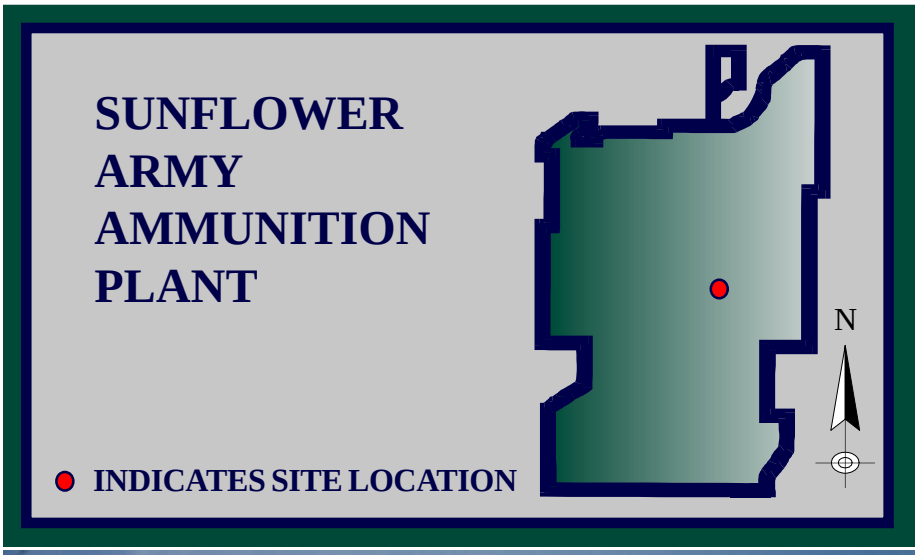
In a letter dated March 11, 1996, KDHE approved a schedule of work for remediation of the lagoon sludge and dismantlement of the lagoons which acts as partial fulfillment of requirements for Lagoon closure. The pond is being closed under state pond closure guidelines.

PROPOSED PLAN

Additional requirements to complete closure of the lagoons include groundwater monitoring at selected sites downgradient of the lagoons for a period of not less than five years and submittal of a final work plan for closure activities consistent with KDHE's pond closure/sampling verification plan.

IRP STATUS

RRSE RATING:
Low
CONTAMINANTS:
Metals, Nitrates
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA, RFA, RFI, IRA
CURRENT IRP PHASE:
LTM
FUTURE IRP PHASE:
LTM



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA							
RAO							
LTM	6	6	6	6	6	6	48
PROJECTED TOTAL:	$84,000						

ROCKET STATIC TEST AREA, SFAAP-014

SITE DESCRIPTION

The Static Rocket Test Area is located in the east-central portion of SFAAP. It encompasses approximately three acres in the northeastern portion of the Proving Ground area. The site consists in part of four firing platforms located immediately north of two Proving Ground buildings. Two outdoor firing platforms are associated with each building (DM, 1989).

The Proving Ground was used to conduct proof and surveillance tests of manufactured powder and propellants common to cannon and rocket artillery. Tests were conducted between 1965 and 1971 (USATHAMA, 1980; DM 1989; PRC, 1990).

Phase I activities indicated the presence of lead, nitroglycerine, propellants, and phthalates in surface soil above action levels. Lead and nitroglycerine were found in the GW above action levels. Phase II RFI sampling has been completed.

PROPOSED PLAN

Removal of soil "hot spots" will be performed. A portion of the cost for an installation wide stream study will be attributed to this site. Remedial activities will consist of soil excavation, incineration and offsite disposal. LTM will be conducted.

IRP STATUS

RRSE RATING:
High
CONTAMINANTS:
Metals, Nitroglycerine, Propellants
MEDIA OF CONCERN:
Soil, Groundwater, Surface Water, Sediment
COMPLETED IRP PHASE:
PA, RFA, RFI
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
DES, CMI, LTM

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	190						
IRA							
RD		17					
RA			220				
RAO							
LTM				6	6	6	12
PROJECTED TOTAL:	$457,000						

WASTE STORAGE MAGAZINES, SFAAP-015

SITE DESCRIPTION

The Waste Storage Magazines are located in the southeast portion of SFAAP, and are also known as the J-Magazine Area Buildings. The buildings included in this SWMU are J-117, J-118, J-119, J-120, J-121, J-122, J-124, J-127, and J-128. All magazines utilized natural lighting to preclude accidental detonation of explosives, are secured with locking doors, and have concrete floors with secondary containment. Materials designated to be stored in each magazine included production waste from propellant manufacturing, spent solvents, and other explosive and hazardous waste. During a site inspection in 1990, rust colored stains were noted on the concrete loading pad at J-127.

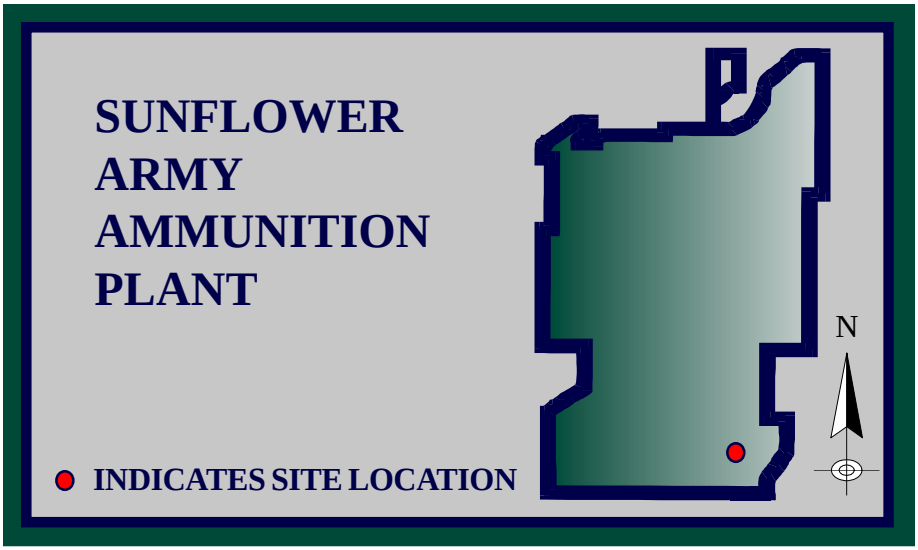
RFI activities indicated elevated levels of pesticides in the area.

PROPOSED PLAN

In accordance with draft RFI recommendations, additional sediment sampling to supplement risk calculations will be performed.

IRP STATUS

RRSE RATING:
Medium
CONTAMINANTS:
Metals, Pesticide, Ordnance Compounds
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
PA, RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
RC



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	40						
IRA							
RD							
RA							
RAO							
LTM							
PROJECTED TOTAL:	$40,000						

TEMPORARY WASTE STORAGE MAGAZINES, SFAAP-016

SITE DESCRIPTION

Most of the Temporary Waste Storage Magazines are located in the southwest-central portion of SFAAP. This includes the B-Area Storage Buildings B-14, B-16, B-20, B-21 and B-22. Also included in this SWMU is Building 181-2 which is located in the central portion of SFAAP. Building 181-2 is an inactive 12 x 15 foot metal structure that was used to store spent degreasing solvents. The building has a concrete floor and is surrounded by an earthen dike. The solvents which were stored in 181-2 were transferred in 1984 to Building J-125, where temporary spill containment was provided. When the upgrading of J-124 was complete, the solvents were then transferred from J-125 to J-124. Over time 181-2 contained approximately 550 gallons of spent degreasing solvents. During a site visit in 1990 no signs of past releases were evident. It was noted, however, that the earthen dike for spill containment for building 181-2 was "inadequate" (USAEHA, 1987) (PRC, 1990).

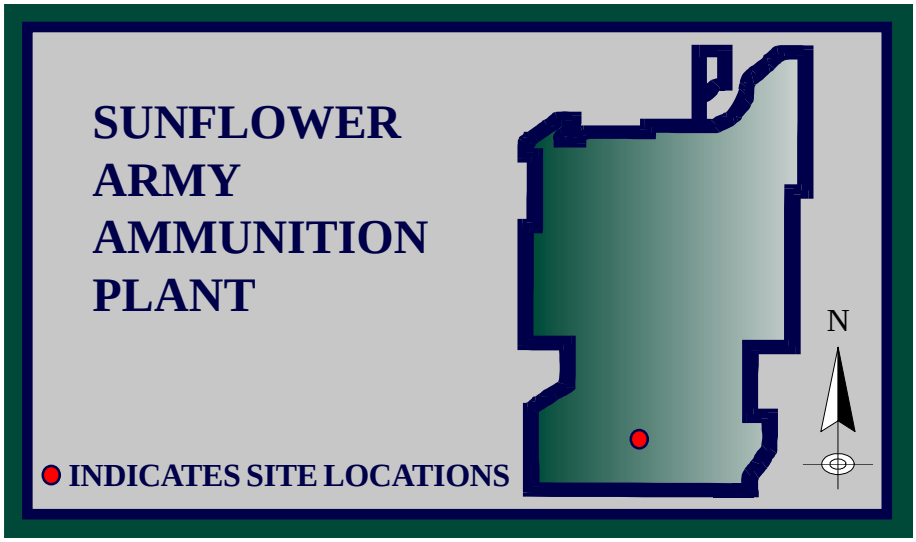
RFI activities indicated elevated levels of metals and pesticides in the soil.

PROPOSED PLAN

In accordance with draft RFI recommendations, additional sampling will be performed to fully investigate the groundwater in the area.

IRP STATUS

RRSE RATING:
Low
CONTAMINANTS:
Pesticides, Metals, Solvents
MEDIA OF CONCERN:
Soil and Groundwater
COMPLETED IRP PHASE:
PA, RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
RC



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	12						
IRA							
RD							
RA							
RAO							
LTM							
PROJECTED TOTAL:	$12,000						

G-LINE AREA DITCHES, SFAAP-017

SITE DESCRIPTION

The G-Line Area Ditches are located in the south-central portion of SFAAP. It is an idle solvent propellant area. No data were available about the period of operation for this area; however, it was reported that during the 1940s the G-line NC wringers overflowed, and NC fines had been observed along drainage ditches from the area leading to Kill Creek. It is considered likely that G-Line Area ditches received the same types of materials and followed the same historical wastewater treatment practices as the F-Line Area. The G-Line area is situated close to the basin divide between flow westward to Captain Creek and flow eastward to Spoon and Kill creeks. Consequently, it is possible for potential contamination to migrate in either direction depending on the location of the source of contamination in the G-Line area. In addition, it has been reported that NC spills occurred in the area, and NC wastes were observed in the ditches in the area. It is possible that small amounts of propellant solids containing lead salts may have settled in these ditches.

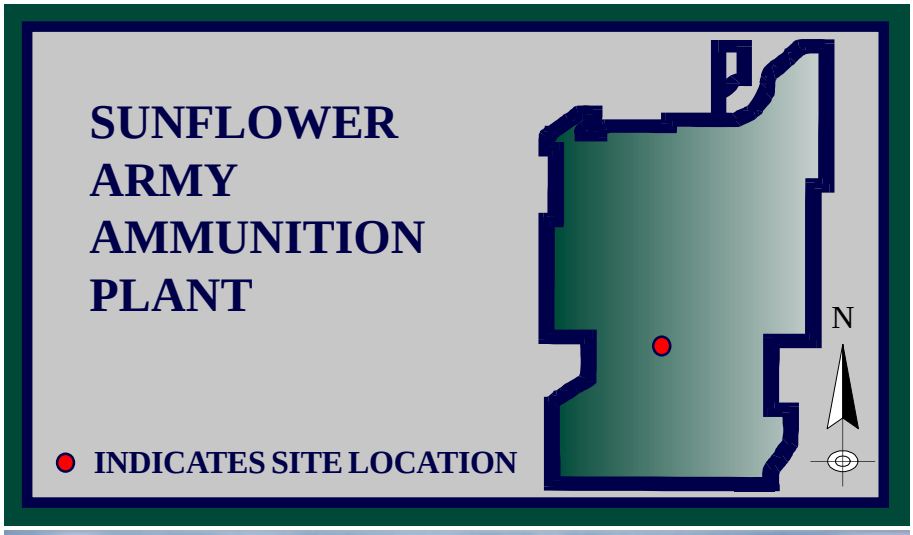
Phase I RFI GW results indicated the presence of heavy metals, nitrates, and 1,3-dinitrobenzene.

PROPOSED PLAN

In accordance with draft RFI recommendations, additional sampling will be performed to fully define the extent of contamination and to identify sumps containing contamination. LTM will be required.

IRP STATUS

RRSE RATING:
Low
CONTAMINANTS:
Metals, Nitrates, 1,3-dinitrobenzene
MEDIA OF CONCERN:
Groundwater, Soil
COMPLETED IRP PHASE:
PA, RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
LTM, RC



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	140						
IRA							
RD							
RA							
RAO							
LTM		6	6	6	6	6	
PROJECTED TOTAL:	$170,000						

OLD/NEW SANITARY LANDFILLS, SFAAP-018

SITE DESCRIPTION

The entire Landfill Area encompasses approximately 42 acres located about one mile west of the NG Area near the central-western border of SFAAP. However, only a portion of the 42 acres make up the Old/New Sanitary Landfills. The landfills employed a trench-type operation. Several types of landfills are included in the Landfill Area: the sanitary landfill (17 acres); the ash landfill (10 acres, SWMU 19); and the asbestos landfill (1.1 acres). This Landfill Area began operation in 1943. Prior to the designation of the New Sanitary Landfill in 1967, refuse of all types was buried at a site just south of the new landfill. No records from the Old Landfill were available. SFAAP no longer uses the New Sanitary Landfill; currently, waste is disposed in temporary cells at a separate location (SFAAP, 1992). Although there was no hazardous waste placed in either landfill, there is one area reported to have received containers of a lead compound east of the landfill, and 2 areas with known asbestos waste near the Sanitary Landfill.

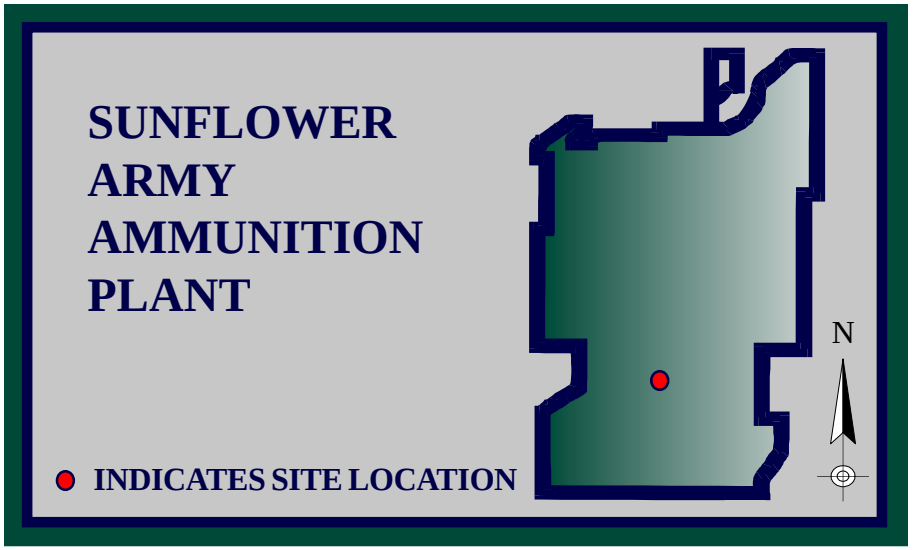
The Draft RFI report states that the primary concerns at SFAAP-018 and 019 are the constituents detected in groundwater(sulfide;cis-1,3-dichloropropane,ammonia nitrogen) and dioxins/furans in the shallow soil. Institutional controls have been implemented (fencing) to control site access.

PROPOSED PLAN

Additional RFI activities will be performed to delineate the extent of soil contamination. LTM will be required. An IRA for GW diversion and erosion control will be implemented. Remedial action activities will include diversion of groundwater flow around the landfill and construction of a landfill cap.

IRP STATUS

RRSE RATING:
High
CONTAMINANTS:
Dioxins, furans, lead
MEDIA OF CONCERN:
Groundwater, Soil, Surface Water
COMPLETED IRP PHASE:
PA, RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
CMS, DES, CMI



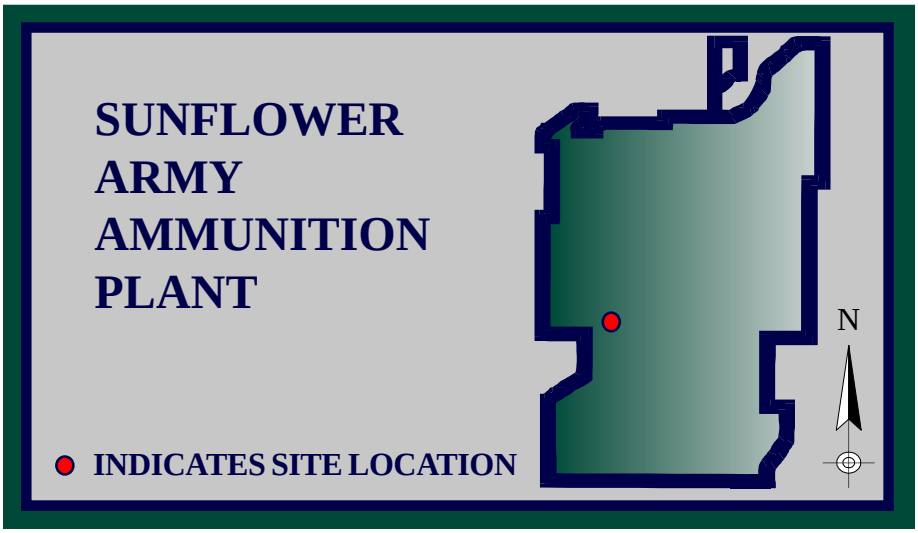
CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	17						
IRA							
RD		6					
RA		55					
RAO							
LTM							
PROJECTED TOTAL:	$78,000						

ASH LANDFILL, SFAAP-019

SITE DESCRIPTION

The unlined Ash Landfill covers an area of approximately 10 acres and is located north of the Sanitary Landfill, in the central-western portion of SFAAP. It has been reported that this landfill was used prior to 1966. The ash landfill contains unknown quantities of fly ash from the ash-sluice system and coal fines from the coal pile. Fly ash sometimes contains heavy metals (USAEHA, 1987; PRC, 1990).



PROPOSED PLAN

The area of SFAAP-019 adjacent to SFAAP-018 will be addressed under SFAAP-018. The discrete area of ash landfill at SFAAP-019 will be excavated and disposed of on the installation.

IRP STATUS

RRSE RATING:
High
CONTAMINANTS:
Metals
MEDIA OF CONCERN:
Groundwater, Soil
COMPLETED IRP PHASE:
PA, RFA, RFI
CURRENT IRP PHASE:
CMS
FUTURE IRP PHASE:
DES, CMI

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	17						
IRA							
RD		6					
RA		55					
RAO							
LTM							
PROJECTED TOTAL:	$78,000						

ASH LAGOONS AND SLUDGE DISPOSAL AREA, SFAAP-020

SITE DESCRIPTION

The Ash Lagoons and Sludge Disposal Area are located in the north-central portion of SFAAP. There are four Ash Lagoons. These lagoons began operation in 1979 to collect fly ash and bottom ash from the boiler house via an ash-sluice system. The ash wastes (which may contain heavy metals) were allowed to settle out in the lagoons and the slightly alkaline wastewater is filtered and recycled back to the boiler house. Lagoons 165-1, 165-2, and 165-3 were periodically dredged and the sludge is landfilled in the Ash Landfill (SWMU 19) (USATHAMA, 1980; USAEHA, 1983a; USAEHA, 1987; PRC, 1990). The lagoons are located just south of Pond A; however, discharge most likely flowed in the direction of the topographic slope to Pond B, located 2,000 feet east of the lagoons. Reports from site visits in 1987 and 1990 both indicated that the embankments of the lagoons appeared to be in good condition. The lagoons are reportedly unlined; however, logs from a 1992 site visit indicated one lagoon appeared to have a liner (Law, 1992). Unlined lagoons present a pathway for constituents to migrate into the ground water.

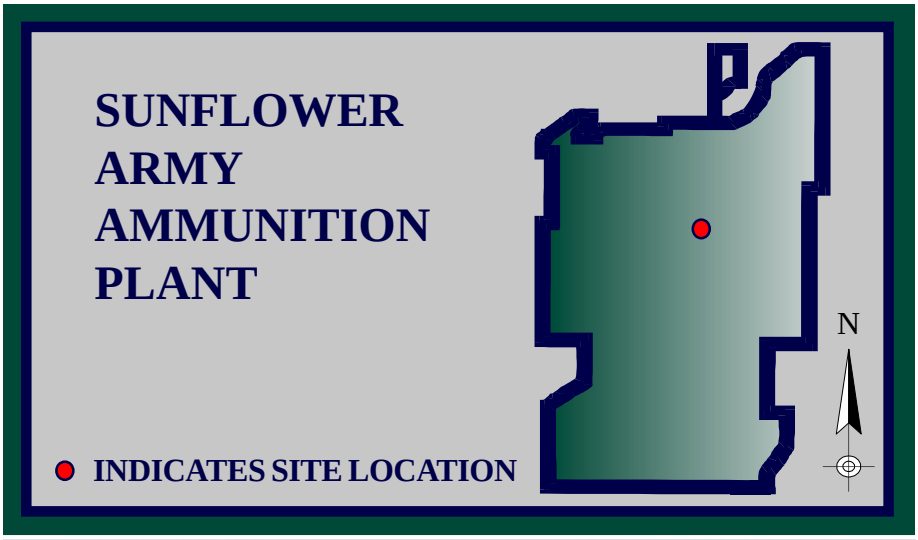
Initial RFI activities indicated no GW contamination, however, additional sampling of the lagoons will be required.

PROPOSED PLAN

The lagoons will be investigated under the CMS process and closed per State pond closure guidelines.

IRP STATUS

RRSE RATING:
High
CONTAMINANTS:
Metals
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
PA, RFA, RFI
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
DES, CMI



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	80	17					
IRA							
RD						80	
RA						1100	
RAO							
LTM							
PROJECTED TOTAL:	$1,277,000						

CONTAMINATED MATERIALS BURNING GROUND, SFAAP-021

SITE DESCRIPTION

The Contaminated Materials Burning Ground consists of approximately four acres located in the west central portion of SFAAP. The site was brought into operation in 1943 to decontaminate scrap metal (which is later salvaged) and to burn other combustible material that had been contaminated with explosives or propellants. Prior to 1970, burning of contaminated materials occurred in two open trenches. However, in about 1970, two unlined 30 x 300-foot pads were installed where the trenches were located. The pads were separated by an earth berm. Contaminated material accumulated at the site until the pad was full, which generally took approximately one to two months. Burning was initiated using diesel fuel, waste oils, and scrap wood (including telephone poles). SFAAP randomly sampled the remainder of the residue for EP toxicity metals, and upon negative results disposed the ash in the sanitary landfill. After one pad was burned, the other pad began receiving materials for the next burn. During a site visit in 1990, burn areas were observed away from the main burn pads.

Also located on the site is an open top tank, approximately eight feet in diameter, which was used to burn waste solvent. Adjacent to the tank is an elevated platform which appeared to have been used as an unloading dock for liquids to be emptied into the tank. At the time of a 1992 site visit the tank appeared to contain water (Law, 1992; SFAAP, 1992).

Ground-water and surface water runoff from the burn area flow northwest to Captain Creek or the adjacent oxbow lake.

Initial RFI results indicated the presence of dioxins, metals, solvents, and petroleum hydrocarbons in soil. Petroleum hydrocarbons were detected in GW and surface water.

Additional RFI fieldwork is complete. Data will be available in FY00.

PROPOSED PLAN

A portion of the cost for an installation wide stream study will be attributed to this site. Potential remedial action may consist of excavation and offsite disposal of wastes. Five years of LTM will be conducted.

IRP STATUS

RRSE RATING: High
CONTAMINANTS:
Metals, Petroleum Hydrocarbons, dioxins, solvents
MEDIA OF CONCERN:
Soil, Groundwater, Surface Water, Sediment
COMPLETED IRP PHASE:
RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
CMS, DES, CMI, LTM

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	126						
IRA							
RD		17					
RA		275					
RAO							
LTM			10	10	10	10	10
PROJECTED TOTAL:	$468,000						

OLD WASTE EXPLOSIVES BURNING GROUND, SFAAP-022

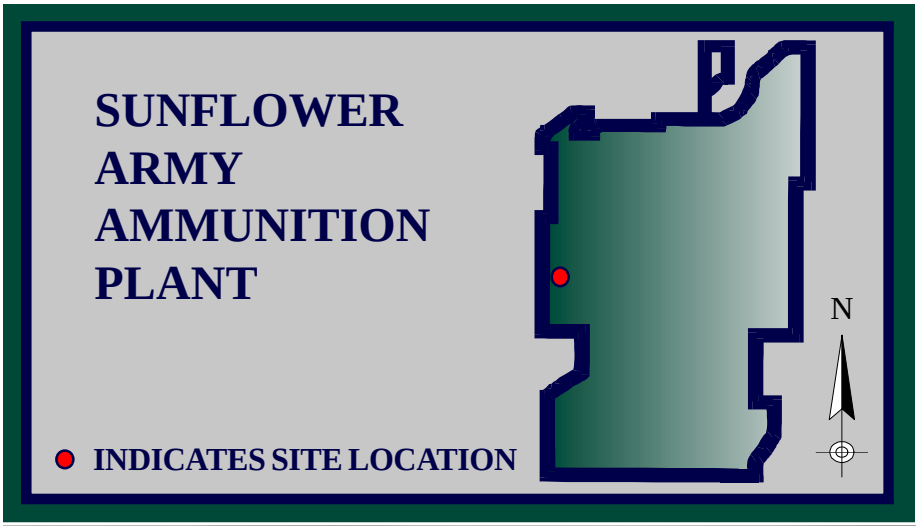
SITE DESCRIPTION

The Old Explosive Waste Burning Ground (OEWBG) is located adjacent to the Contaminated Materials Burning Ground (SWMU 21) in west central portion of SFAAP. In this area, waste explosives including NG slums (i.e., NG mixed with sawdust for stabilization) and various propellant formulations from the sumps, filters, and drains in the production areas were disposed by open burning on designated pads. The site was in operation from 1943 to 1980. It comprised approximately seven acres consisting of five burning trenches, an NG dump area, and a lead recovery area (SWMU 32). During a Ground-Water Contamination Survey in 1987 the USAEHA reported that the site was a grass covered field showing no signs of vegetative stress (SFAAP, 1992).

RFI and CMS activities are complete, however, additional RFI activities will occur for the installation wide stream study. Lead and nitroglycerine were detected in surface soil above action levels.

PROPOSED PLAN

Ex-situ stabilization will be implemented to treat contaminated soil, in accordance with CMS recommendations. A portion of the cost for the installation wide stream study will be attributed to this site. LTM will be conducted.



IRP STATUS

RRSE RATING:
High
CONTAMINANTS:
Metals, nitroglycerine
MEDIA OF CONCERN:
Soil, Groundwater, Surface Water, Sediment
COMPLETED IRP PHASE:
PA, RFA, CMS, RFI
CURRENT IRP PHASE:
LTM
FUTURE IRP PHASE:
LTM

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA							
RAO							
LTM	10	10	10	10	10		
PROJECTED TOTAL:	$50,000						

NEW EXPLOSIVES WASTE BURNING GROUND, SFAAP-023

SITE DESCRIPTION

The New Explosive Waste Burning Ground has been in operation since 1980 when it replaced the Old Explosive Waste Burning Ground (SWMU 22). It is located in the southwest portion of SFAAP and consists of a diked earthen pad measuring 130 by 340 feet. A maximum of 5,000 pounds of explosives may be burned on this pad at one time, and smaller quantities may be detonated. Waste NQ, GN, explosives, and propellants of various formulation have been burned and/or detonated at this site.

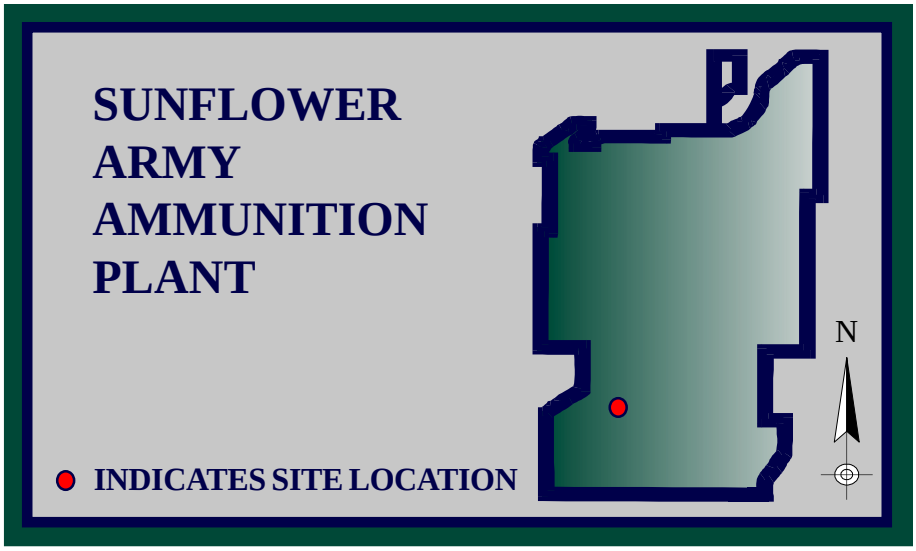
Releases to the soil were reportedly evident, as indicated by stained soils observed at the time of a site visit conducted in 1990. This unit is currently listed on SFAAP's RCRA Part A Application; and the Subpart and Part B Application. Physical remediation is complete and a final report is being prepared for submittal to the EPA and KDHE. The report will be submitted in 1st Quarter FY00. Final closure acceptance by regulatory agencies is expected in the 2nd Quarter of FY00.

PROPOSED PLAN

This site is being closed under the OB/OD program.

IRP STATUS

RRSE RATING:
Medium
CONTAMINANTS:
PAH's
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
RFA, RFI
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC



NITROGLYCERINE DITCHES, SFAAP-024

SITE DESCRIPTION

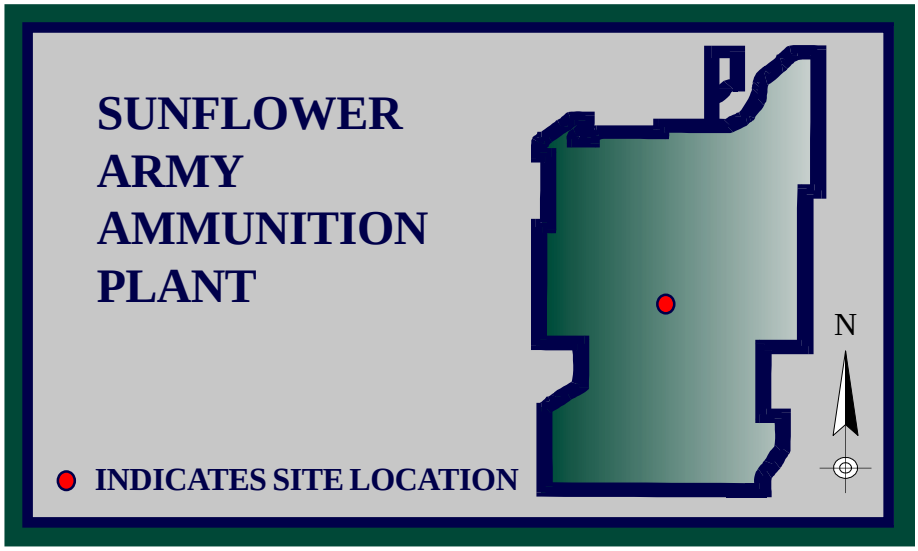
The NG area is located in the central portion of SFAAP. NG manufacturing in this area began prior to the end of World War II and continued until 1971. Two operating lines provided nitrated glycerine for use in the paste area. There were several recorded instances where various quantities of NG spilled onto the soil in the NG area. The amount of NG spilled ranged from one or two pounds to a 1,200 pound spill in August of 1944. It was reported that sometime between 1980 and 1985, an employee made skin contact with water in the drainage ditch and suffered a severe headache, which is a common side-effect from contact with NG or NG-contaminated fluids. However, in 1985 it was reported that one member of a sampling team inadvertently made direct skin contact with the water in the NG drainage and did not incur a severe headache.

Field observations in 1985 indicated the main ditch contained between ten and fifteen inches of stagnant water, with grass present throughout most of the length.

Initial RFI activities identified 11 sumps with possible explosive hazards. The sumps have been fenced to limit access. Elevated levels of lead in soil and surface water was detected.

PROPOSED PLAN

Additional RFI investigations will be performed to fully define the extent of contamination. Remedial activities will include excavation, treatment (incineration and stabilization) and hauling materials to an offsite disposal facility. The sumps will be sampled remotely and stabilized. An appropriate remedial action for the sumps will be determined. Five years of LTM will be conducted.



IRP STATUS

RRSE RATING:
High
CONTAMINANTS:
Metals, Solvents
MEDIA OF CONCERN:
Soil, Groundwater Surface Water, Sediment
COMPLETED IRP PHASE:
RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
CMS, DES, CMI, LTM

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	110	80					
IRA							
RD			55				
RA				825			
RAO							
LTM					10	10	30
PROJECTED TOTAL:	$1,120,000						

NITROCELLULOSE AREA DITCHES, SFAAP-025

SITE DESCRIPTION

The NC Area is located in the north central portion of SFAAP. NC is prepared by the reaction of cotton linters (cellulose) and a mixture of nitric and sulfuric acids. It is unclear when NC production was initiated at SFAAP; however, according to information concerning related SWMUs such as Pond A, NC was reportedly produced during two periods. The first lasted from 1942 to 1960, which included the time between World War II and the Korean War when most of the facilities on SFAAP were inactive. The second production period occurred between 1965 and 1971.

Nitrocelluose and beryllium was detected in the soils during initial RFI activities. Elevated levels of manganese was detected in GW.

PROPOSED PLAN

Additional RFI activities will be performed to fully define the extent of contamination. Remedial activities will include excavation, treatment and disposal of contaminated soil.

IRP STATUS

RRSE RATING:
High
CONTAMINANTS:
Metals, nitrocellulose
MEDIA OF CONCERN:
Soil and groundwater
COMPLETED IRP PHASE:
RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
CMS, DES, CMI, LTM

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	50	70					
IRA							
RD			31				
RA			325				
RAO							
LTM				30			
PROJECTED TOTAL:	$506,000						

SINGLE BASE AREA WASTE WATER SETTLING SUMPS, SFAAP-026

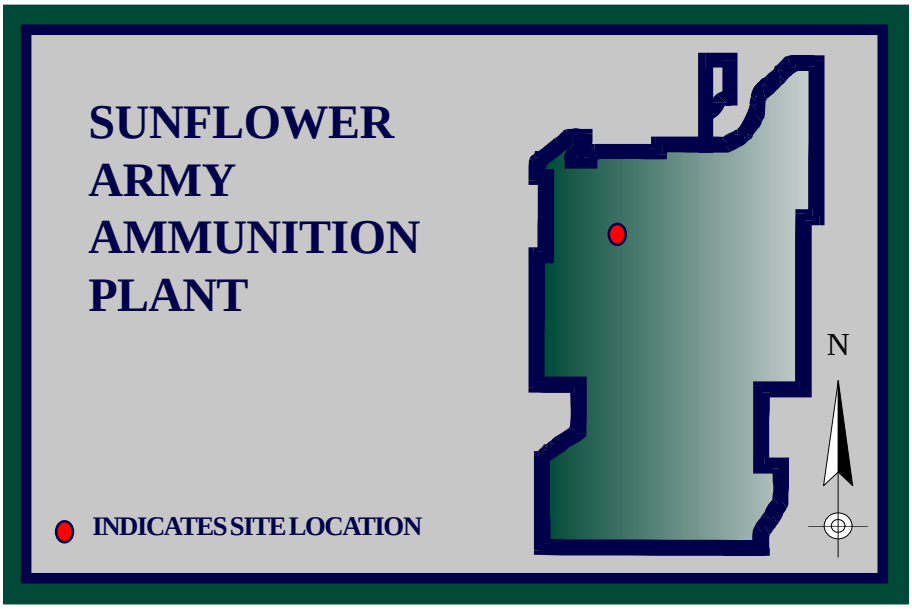
SITE DESCRIPTION

The Single Base Propellant Area consists of a series of buildings in the north-central portion of SFAAP. Single-base propellant for small arms, cannon, and rockets was produced in this area periodically from 1943 to 1971. There were four different types of production buildings in this area numbered the 1600, 1650, 1700 and 1725 series. There were wastewater sumps adjacent to each of the 1600 and 1650 series buildings which were designed to settle out solids from the building's wastewater. Flow equalization tanks were located adjacent to each of the 1700 and 1725 series buildings. Each of these tanks was covered by an open wooden grate. Wastewater from the sumps and tanks were discharged to a collection sewer which eventually discharged to open ditches. These ditches discharged to several locations, the majority of which eventually drained west into Captain Creek. A small portion of the wastewater drained east and eventually discharged into Pond A. At the time of the USAEHA study in 1985, all the sumps contained standing water, soil, and pieces of rotted wood from the baffles, all of which appeared to have partially decayed. The buildings in this area were undergoing removal via demolition and burning in 1990. At the time of the 1992 site visit, some of the buildings which fed the sumps had already been removed.

Initial RFI activities indicated the presence of SVOC's, lead and propellants in soil.

PROPOSED PLAN

Additional RFI activities will be performed to fully define the extent of contamination. Remedial activities will include excavation, treatment, and disposal of contaminated soil. Confirmatory sampling will be conducted.



IRP STATUS

RRSE RATING:
Medium
CONTAMINANTS:
Lead, SVOC's, propellants
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
CMS, DES, CMI, LTM

CONSTRAINED COST TO COMPLETE

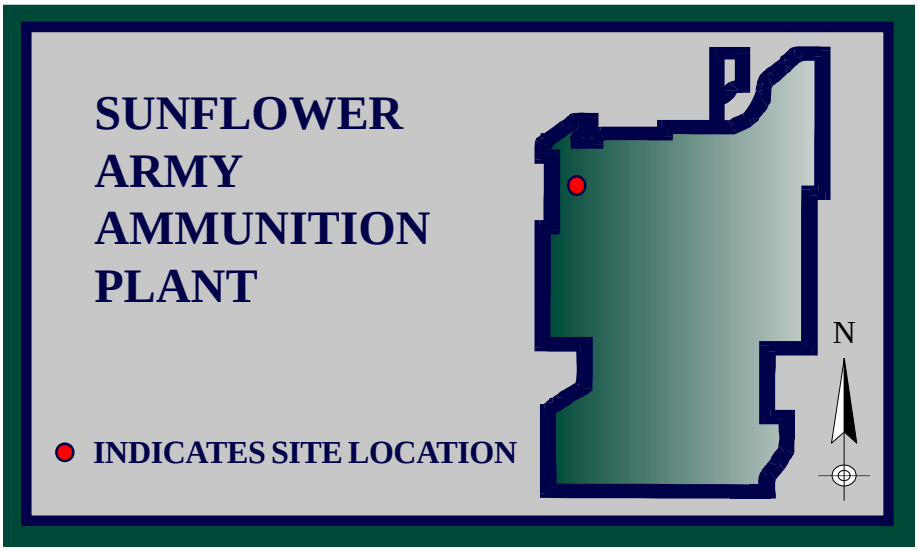
PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	93	80					
IRA							
RD			12				
RA			165				
RAO							
LTM				20			10
PROJECTED TOTAL:	$380,000						

NITROGUANIDINE AREA SAC LIQUID WASTE PLANT, SFAAP-027

SITE DESCRIPTION

The NQ Area is located in the northwest portion of SFAAP. The Sulfuric Acid Concentrator (SAC) Liquid Waste Treatment Plant (LWTP) went into operation in 1984. It consisted of a 45,000-gallon tank for distillate and a 17,000-gallon tank for other corrosives. It receiveed corrosive distillate from the SAC and some corrosive wastewater from the NQ production processes. Lime neutralizers were added to the acidic wastewater, which then flowed into the two Evaporative Lagoons located south of the LWTP. The lagoons were constructed in 1984. At the time of the 1987 investigation, the lining of the lagoons appeared damaged. Observations of higher soil moisture and occasional small amounts of water at the base of the berm on the west side of the southern lagoon indicated releases were occurring. The lining was replaced. It was reported that when the liner was replaced in one of the lagoons, the breaks in the old liner indicated that release to the underlying soil did occur (USAEHA, 1988b).

In 1996 the lagoons were remediated and dismantled under an agreement with KDHE, constituting partial fulfillment of requirements for lagoon closure. The lagoons have been capped and final grading and seeding was designed for minimal surface water infiltration and erosion.



PROPOSED PLAN

Additional requirements to complete closure of the lagoons include groundwater monitoring at selected sites downgradient of the lagoons for a period of not less than five years and submittal of a final work plan for closure activities consistent with KDHE's pond closure/sampling verification plan.

IRP STATUS

RRSE RATING:
Low
CONTAMINANTS:
Corrosives, Metals
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
RFA, RFI
CURRENT IRP PHASE:
LTM
FUTURE IRP PHASE:
LTM

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA							
RAO							
LTM	6	6	6	12		6	48
PROJECTED TOTAL:	$84,000						

WASTE CALCIUM CARBIDE TREATMENT AREA, SFAAP-028

SITE DESCRIPTION

This site is a state regulated unit and was closed and is not part of this investigation.

PROPOSED PLAN

No further action is planned under the IRP.

IRP STATUS

RRSE RATING:
Not Evaluated
CONTAMINANTS:
N/A
MEDIA OF CONCERN:
N/A
COMPLETED IRP PHASE:
N/A
CURRENT IRP PHASE:
N/A
FUTURE IRP PHASE:
N/A

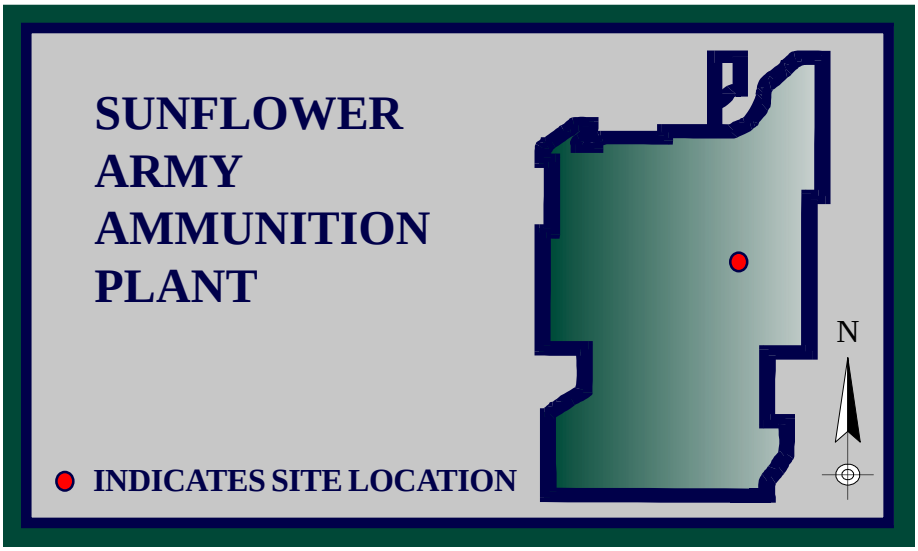
INDUSTRIAL WASTEWATER TREATMENT LAGOONS, SFAAP-029

SITE DESCRIPTION

This site is a state regulated unit and was closed and is not part of this investigation.

PROPOSED PLAN

No further action is planned under the IRP.



IRP STATUS

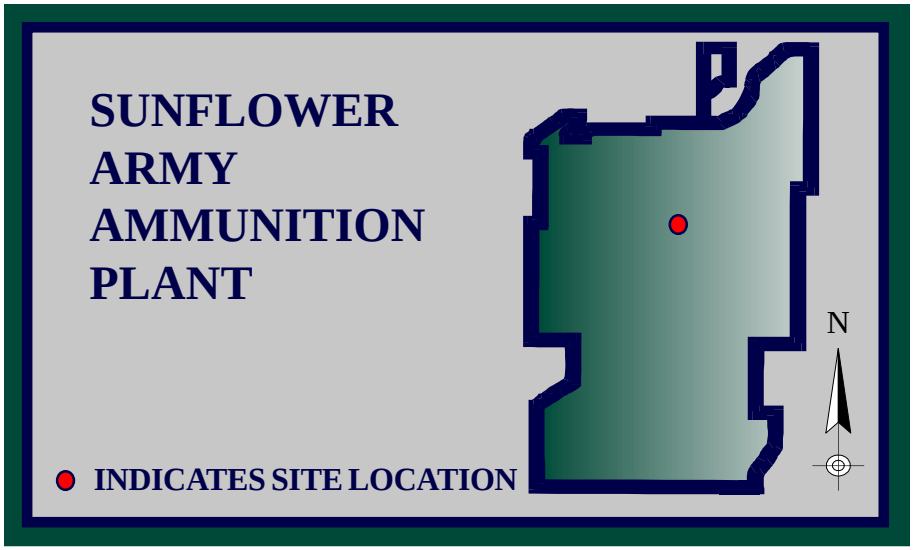
RRSE RATING:
Not Evaluated
CONTAMINANTS:
N/A
MEDIA OF CONCERN:
N/A
COMPLETED IRP PHASE:
N/A
CURRENT IRP PHASE:
N/A
FUTURE IRP PHASE:
N/A

PESTICIDE HANDLING AREA, SFAAP-030

SITE DESCRIPTION

The Pesticide Handling Area is located in the north central portion of SFAAP, with a new building erected a short distance from the old structure that it replaecd. Any contamination is assumed to have resutled from operations at the former area. The old facility and its surrounding area were reportedly cleaned of pesticide residues. The new facility meets USAEHA Criteria for Design of a Pest Control Shop, Pesticide Storage and Mixing Facility. It has been in operation since 1984. The facility contains a sump in four areas: the pesticide storage room, the herbicide storage room, the inside mixing room and the outside mixing area. Reportedly all liquid within the sumps is recycled into formulations, and there is no discharge from the sumps. No spills or releases have been recorded for this site. During a Preliminary Review site visit to the Pesticide Handling Area in 1990, an aqua-blue stain was evident at the outside sump and outside the pesticide building. It was identified as a dibromide solution which is sprayed in areas where herbicides/ pesticides are used. It was also noted that dead vegetation was observed leading from the shop and following a newly constructed road; however, SFAAP personnel indicated an underground steam line in the area may have caused the stressed vegetation.

RFI soil results indicated the presence of pesticides, herbicides, and dioxins above action levels. No contamination was found in the GW.



PROPOSED PLAN

Additional RFI information will be performed to fully define the extent of contamination. Potential remedial activities may include excavation and disposal of contaminated materials to an offsite facility. Confirmatory sampling will be performed.

IRP STATUS

RRSE RATING:
Low
CONTAMINANTS:
Pesticides, herbicides, dioxins
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
CMS, DES, CMI

CONSTRAINED COST TO COMPLETE

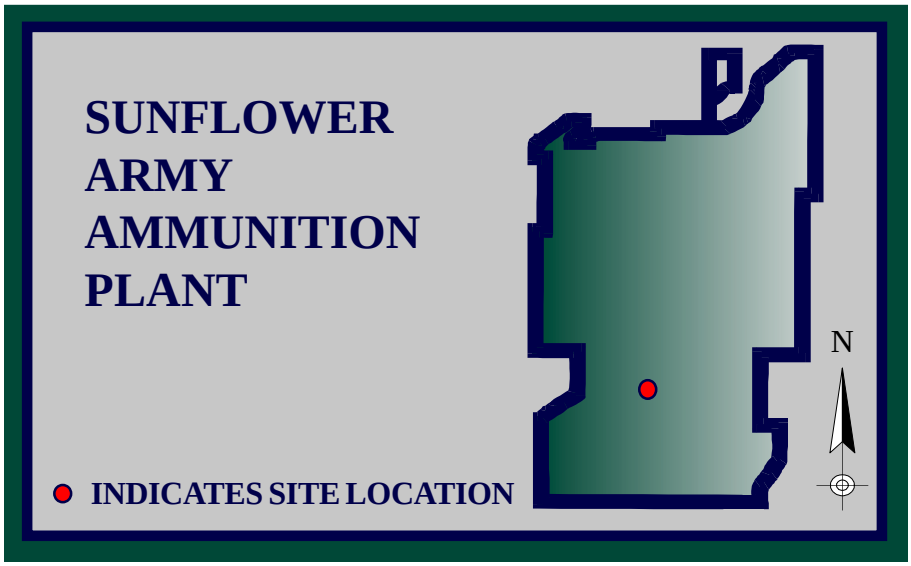
PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	55	55					
IRA							
RD							22
RA							275
RAO							
LTM							
PROJECTED TOTAL:	$407,000						

CALCIUM CARBONATE CAKE LANDFILL, SFAAP-041

SITE DESCRIPTION

The Calcium Carbonate Cake (CCC) Landfill is located in the west central portion of SFAAP. It measures approximately 350 by 315 feet and was operated from May 1986 to June 1988. Between May 1988 and December 1991, the CCC was provided to farmers rather than landfilled. This practice was discontinued in December 1991. Initially, containerized CCC was disposed of at this site, but later uncontainerized CCC was deposited. The source of CCC was NQ production. CCC is a byproduct of GN manufacturing, which is an intermediate product of NQ. A leachate collection system was installed in the CCC Landfill at the time of construction. The leachate in the collection system tank is reportedly monitored. During a site visit in 1990 it was noted that the landfill cap was cracked, vegetative cover was sparse, and erosional features had developed.

In 1998 the landfill cap was repaired and graded to minimize erosion. Also, new ground cover was established. All work was inspected and accepted by KDHE representatives.



PROPOSED PLAN

Per KDHE's requirement, one additional well will be installed. LTM and landfill maintenance will continue.

IRP STATUS

RRSE RATING:
Medium
CONTAMINANTS:
Nitrates
MEDIA OF CONCERN:
Groundwater
COMPLETED IRP PHASE:
RFA, RFI
CURRENT IRP PHASE:
RFI, CMI(O), LTM
FUTURE IRP PHASE:
CMI(O), LTM

CONSTRAINED COST TO COMPLETE

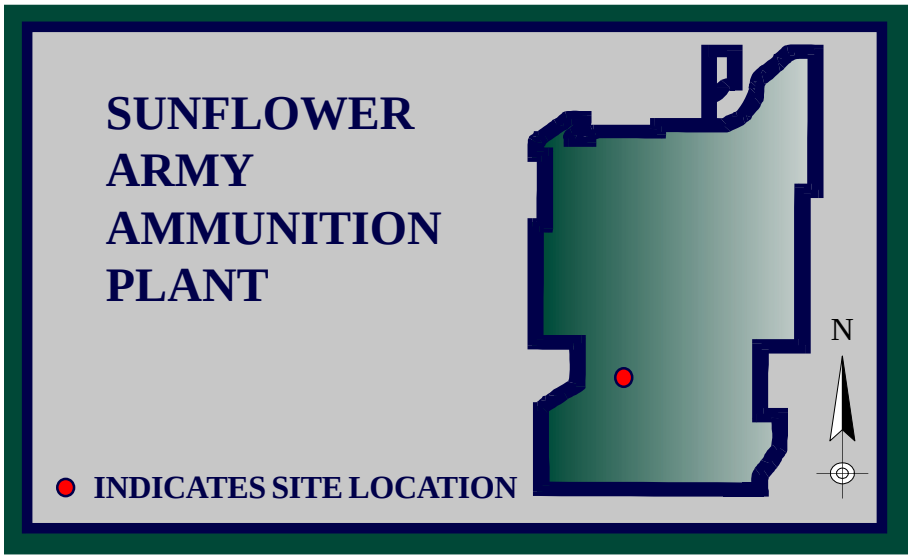
PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	17						
IRA							
RD							
RA							
RAO	22	65			23	22	506
LTM	3	3	3	3	3	3	69
PROJECTED TOTAL:	$742,000						

TEMPORARY SANITARY LANDFILL, SFAAP-042

SITE DESCRIPTION

The Temporary Sanitary Landfill is located in the west central portion of SFAAP, adjacent to the CCC Landfill discussed in the previous section (SWMU 41). It was used to manage non-hazardous solid waste consisting of general trash with very little sanitary waste. CCC was initially landfilled in the first cell; however, that practice was discontinued.

It was reported that empty pesticide bottles were observed lying in and adjacent to standing water at the time of the 1990 site visit; however, SFAAP reported these bottles were triple rinsed prior to disposal. During the site visit in 1992, it appeared the landfill consisted of three cells (PRC, 1990; Law, 1992).



PROPOSED PLAN

Landfill maintenance will continue. Groundwater monitoring will be addressed under SFAAP-041.

IRP STATUS

RRSE RATING:
Medium
CONTAMINANTS:
Nitrates
MEDIA OF CONCERN:
Groundwater
COMPLETED IRP PHASE:
RFA, RFI, CMS, CMI
CURRENT IRP PHASE:
CMI(O)
FUTURE IRP PHASE:
CMI(O)

CONSTRAINED COST TO COMPLETE

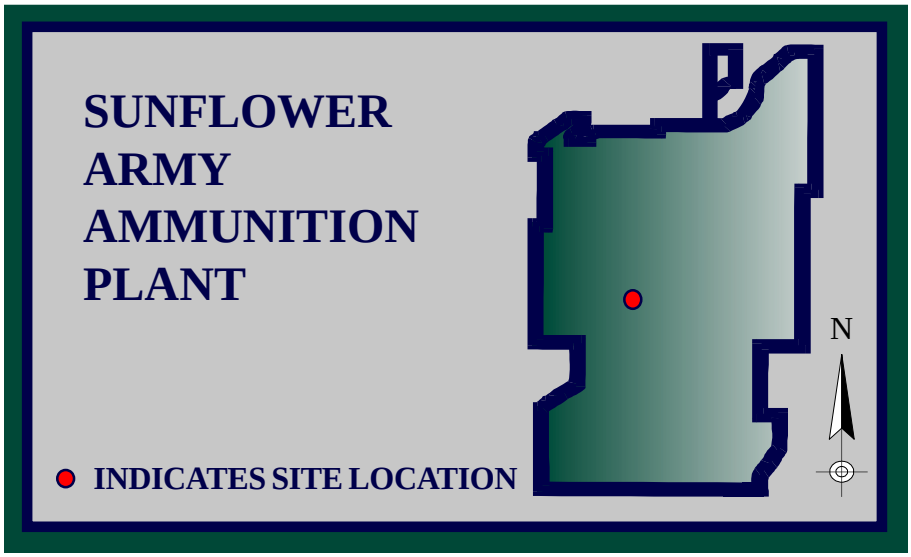
PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA							
RAO	22	22	101				493
LTM							
PROJECTED TOTAL:	$638,000						

TUNNEL DRYERS (CCC STORAGE), SFAAP-043

SITE DESCRIPTION

There are a total of six Tunnel Dryers, all were used for CCC storage. Four of the dryers are located in the west central portion of SFAAP. The two remaining dryers are located in the southern portion of SFAAP. The dryers began operation in 1986. Each dryer measures approximately 125 feet by 18 feet, with six-foot high walls, and each has a leachate collection system. As stated earlier, CCC was a byproduct of the GN step in the production of NQ. The CCC was loaded into dump trucks via conveyor in the NQ area and transported to the Tunnel Dryers. The CCC was dumped into the dryer and arranged using a front end loader. The product was ultimately offloaded from the Tunnel Dryers by vendors. The tunnel dryers are not enclosed. During a site visit in 1990, it was observed that CCC had been tracked beyond the walls of the tunnels by the trucks loading and unloading at the site (PRC, 1990; Law, 1992).

Initial RFI results indicate elevated levels of guanidine nitrate, metals and nitrates in GW. Soil has not been investigated.



PROPOSED PLAN

Additional RFI data will be gathered to determine if contamination is present in the soil.

IRP STATUS

RRSE RATING:
Medium
CONTAMINANTS:
Nitrates, Metals
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA, RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
RC

CONSTRAINED COST TO COMPLETE

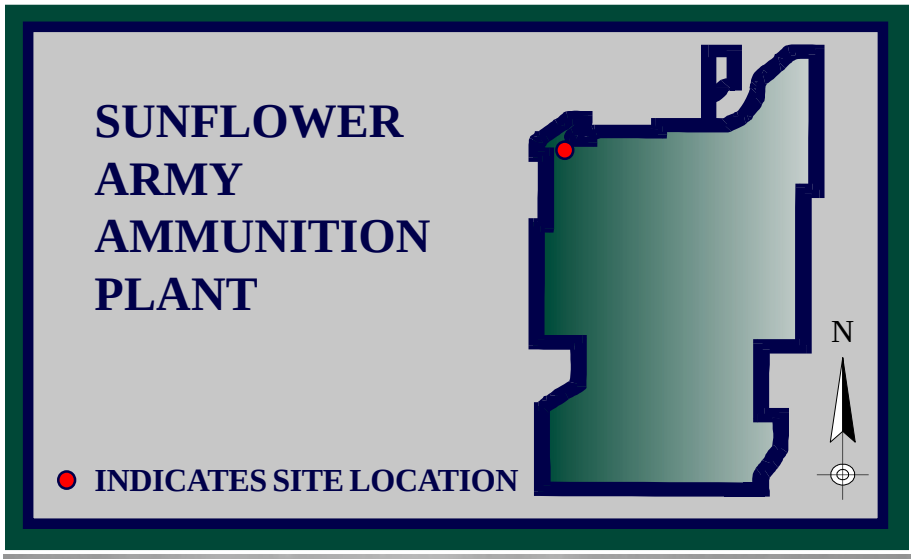
PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	22	7					
IRA							
RD							
RA							
RAO							
LTM							
PROJECTED TOTAL:	$29,000						

TANK T784, SFAAP-044

SITE DESCRIPTION

Tank T784 is located in the northwest corner of the NQ Area, which is located in the northwest portion of SFAAP. Limited production began in the NQ Area in 1981. Tank T784, also known as Structure 9049, is an above ground, circular, metal wastewater collection tank which held cooling tower blowdown water, NQ crystallizer condensate, GN evaporator condensate, and non-contact cooling water. The pipes that discharged the wastewater from T784 into the River Water Treatment Plant (RWTP) Lagoons (SWMU 2) via an underground transfer line follow the north plant boundary before turning directly north towards the lagoons. A release occurred as the result of a break in the line to the RWTP Lagoons. Tank overflows have also occurred. There are no spill containment structures for the tank (USAEHA, 1988b; PRC, 1990).

The Draft RFI report recommends no further action at this site because risk assessment calculations do not indicate risk to human health.



PROPOSED PLAN

No further action is anticipated. A decision document for site closure will be prepared and submitted.

IRP STATUS

RRSE RATING:
Medium
CONTAMINANTS:
Solvents, Nitrates
MEDIA OF CONCERN:
Soil, Groundwater, Surface Water
COMPLETED IRP PHASE:
PA, RFA, RFI
CURRENT IRP PHASE:
CMS (Decision Document)
FUTURE IRP PHASE:
RC

CONSTRAINED COST TO COMPLETE

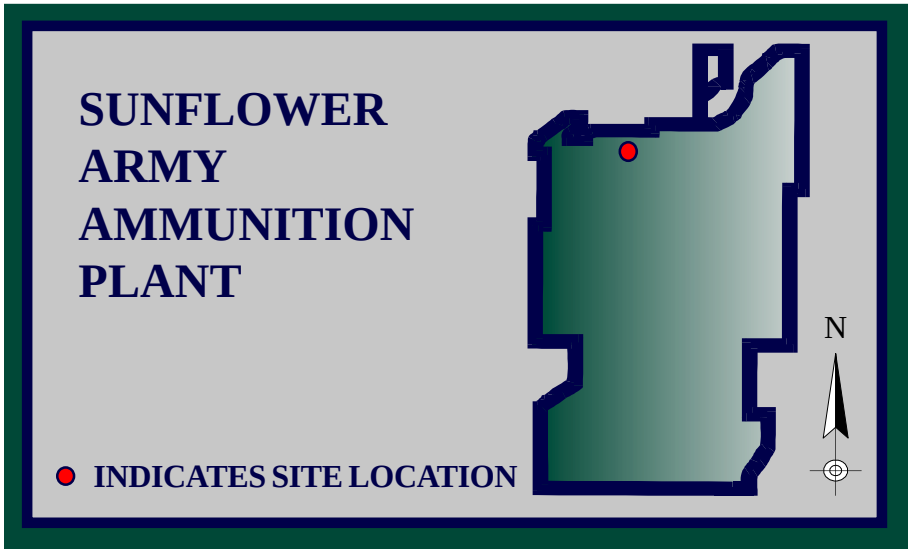
PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA							
RAO							
LTM							
PROJECTED TOTAL:	$0						

BUILDING 9040 (CALCIUM CYANAMIDE CONVEYORS & STORAGE UNIT), SFAAP-045

SITE DESCRIPTION

Building 9040 is the wet GN building. It is located in the central part of the NQ Area, which is located in the northwestern portion of SFAAP. The NQ Area began limited production in 1981. Calcium Cyanamide is produced in Building 9004 and transferred via belt conveyor to Building 9040 for use in the GN process. The belt conveyor, which lead to storage bins located on the East Side of Building 9040, is enclosed in a sheet metal galleyway elevated 25 feet above the ground. There are four 175-ton storage bins. Calcium cyanamide was released at the bins because of problems with the screw conveyors used to transport material from Building 9004. The released material was subject to transport by wind. It has been noted that grass does not grow in a portion of the area near the storage bins. A concrete pad was constructed in a small portion of the area under the storage bins; however, the pad was too small to effectively contain the spillage, especially in windy conditions. A drainage divide is located in the NQ Area running east of Building 9040 which separates the Captain Creek drainage area from the area drained by unnamed creeks flowing northward toward the Kansas River. As a result, Building 9040 drainage is divided between the two drainage systems (USAEHA, 1988b; PRC, 1990).

Initial RFI results indicate elevated levels of nitrates in GW. High levels of sodium was also detected.



PROPOSED PLAN

A CMS will be completed, including the installation of an interceptor trench (french drain) to collect contaminated (nitrates) GW. The water will be used for irrigation, if possible.

IRP STATUS

RRSE RATING:
Medium
CONTAMINANTS:
Metals, Nitrates
MEDIA OF CONCERN:
Groundwater
COMPLETED IRP PHASE:
PA, RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
CMS, CMI, CM(O)

CONSTRAINED COST TO COMPLETE

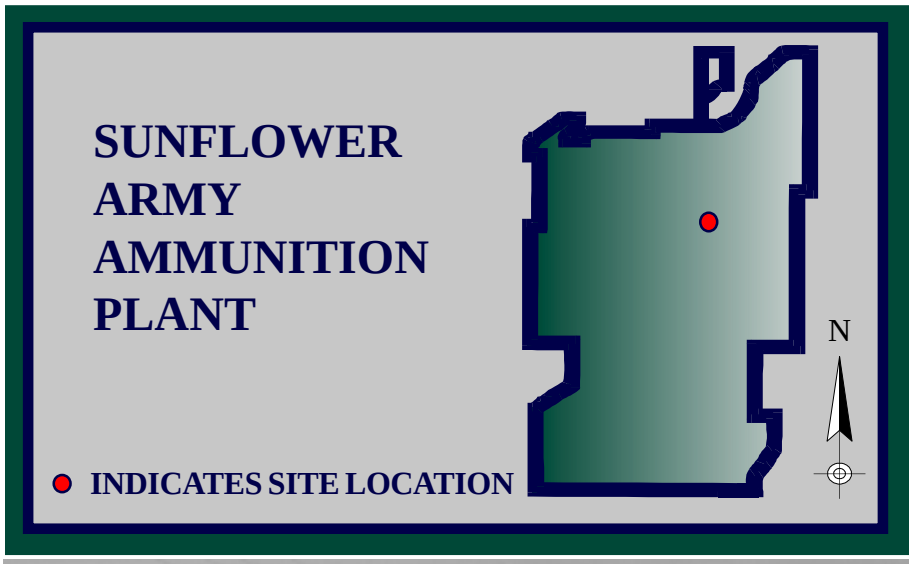
PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	180						
IRA							
RD		55					
RA		550					
RAO			22	22	22	22	572
LTM							
PROJECTED TOTAL:	$1,445,000						

DECONTAMINATION OVEN, SFAAP-046

SITE DESCRIPTION

The Decontamination Oven is located in the northeast portion of SFAAP. The oven was constructed in 1970 and was used to decontaminate oversized equipment/materials that have been contaminated with trace explosives. There were no secondary containment features at this site (PRC, 1990). Only trace explosives were treated in this area. It may have been possible for volatile contaminants to be released via the exhaust fan during heating. Metals (lead) may have been released from the equipment and vehicles decontaminated at this site.

Initial RFI results indicate elevated levels of lead in soil. GW has not been evaluated.



PROPOSED PLAN

A CMS will be conducted including soil sampling and the identification of remedial alternatives. It is expected that the contaminated soil will be excavated, stabilized and disposed. Confirmatory sampling will be conducted.

IRP STATUS

RRSE RATING:
Medium
CONTAMINANTS:
Lead
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
PA, RFA, RFI
CURRENT IRP PHASE:
CMS
FUTURE IRP PHASE:
DES, CMI

CONSTRAINED COST TO COMPLETE

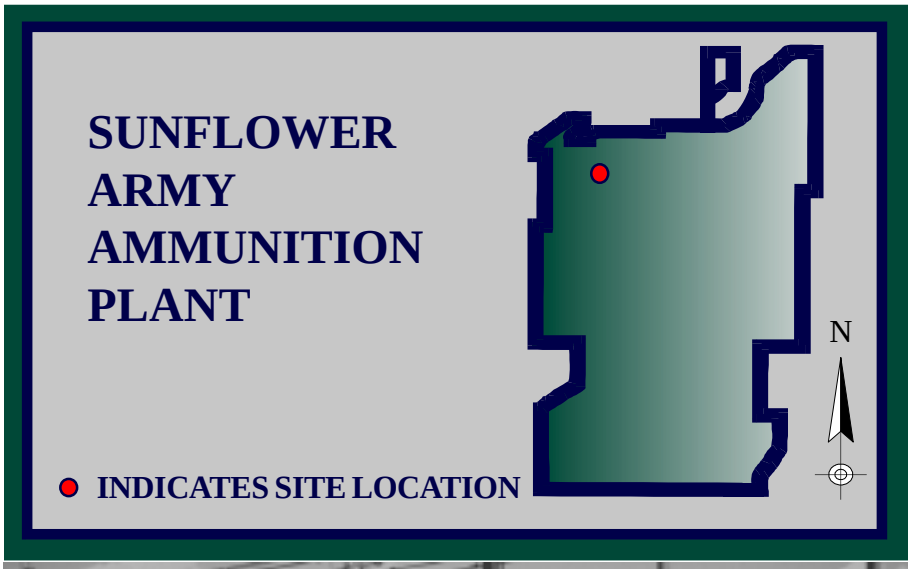
PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	55						
IRA							
RD				22			
RA					330		
RAO							
LTM							
PROJECTED TOTAL:	$407,000						

NITROGUANIDINE PRODUCTION AREA (23) SUMPS, SFAAP-047

SITE DESCRIPTION

The NQ manufacturing facilities are located in the northwest corner of SFAAP. Construction of these facilities began in the late 1970s, and limited production began during 1981. During August 1984 the plant began production of NQ, producing approximately 4.9 million pounds in 1985, and 7.7 million pounds in 1986. All of the buildings had associated sumps which received the wastewater generated in the NQ Area as a result of various operations including washdowns, spills, runoff, and non-contact operations such as cooling water and steam condensate. The wastewater may have been acidic, and may potentially have contained contaminants such as NQ and GN, as well as raw process materials or intermediates of the NQ process.

Initial RFI results indicate elevated levels of nitrates in GW. High levels of sodium was also detected.



PROPOSED PLAN

A CMS will be completed, including the installation of an interceptor trench (french drain) to collect contaminated (nitrates) GW. The water will be used for irrigation, if possible. Twenty-three sumps will be excavated and backfilled with clean soil.

IRP STATUS

RRSE RATING:
High
CONTAMINANTS:
Metals, Ordnance Compounds
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA, RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
CMS, CMI, CM(O)

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	105	80					
IRA							
RD		132					
RA			1260				
RAO							
LTM				6	6	6	162
PROJECTED TOTAL:	$1,757,000						

NITROGUANIDINE SUPPORT AREA, SFAAP-048

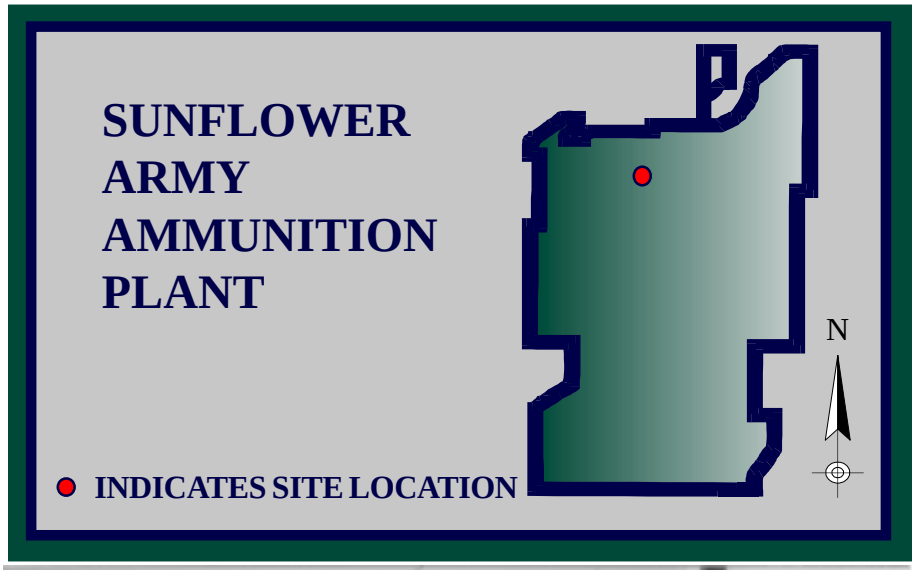
SITE DESCRIPTION

The NQ Support Area is located in the north central portion of SFAAP in Buildings 2000 and 2012 and included equipment such as dryer bays, aboveground storage tanks, and half tanks. This was the location of the pilot-scale production plant known as the NQ Support Equipment (NSE) facility. The NSE facility was constructed during 1977-1980 and was operated periodically as a partial proveout from May 1979 to June 1984. In August 1984 the main NQ plant began production. The majority of the pilot plant was demolished sometime following shut down; however, Buildings 2000 and 2012 are still present.

RFI results indicate elevated levels of nitrates and sulfates in GW.

PROPOSED PLAN

LTM will be conducted.



IRP STATUS

RRSE RATING:
Low
CONTAMINANTS:
Nitrates, sulfates
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA, RFA, RFI
CURRENT IRP PHASE:
CMS
FUTURE IRP PHASE:
LTM

CONSTRAINED COST TO COMPLETE

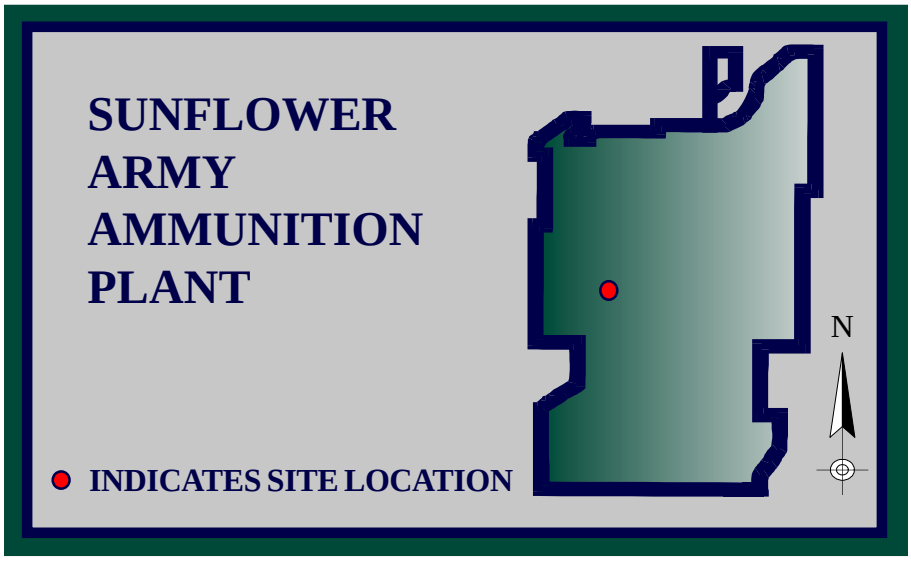
PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	17						
IRA							
RD							
RA							
RAO							
LTM		6	6	6	6	6	150
PROJECTED TOTAL:	$197,000						

ROAD JUST SOUTHEAST OF THE SANITARY LANDFILL, SFAAP-049

SITE DESCRIPTION

The Sanitary Landfill is located near the central western border of SFAAP. Along the road located just southeast of the Sanitary Landfill is a steep slope, which, upon inspection revealed the presence of drums, construction rubble and other refuse apparently underlying the road. It appears the road may have been built over a landfill. There is no further information available regarding this site.

A geophysical survey indicated the presence of subsurface metal objects. No GW contamination was found.



PROPOSED PLAN

Additional soil samples will be collected. Exposed debris will be removed. A decision document will be prepared and LTM will be addressed under SFAAP-018.

IRP STATUS

RRSE RATING:
Low
CONTAMINANTS:
Metals
MEDIA OF CONCERN:
Groundwater
COMPLETED IRP PHASE:
PA, RFA
CURRENT IRP PHASE:
RFI
FUTURE IRP PHASE:
LTM

CONSTRAINED COST TO COMPLETE

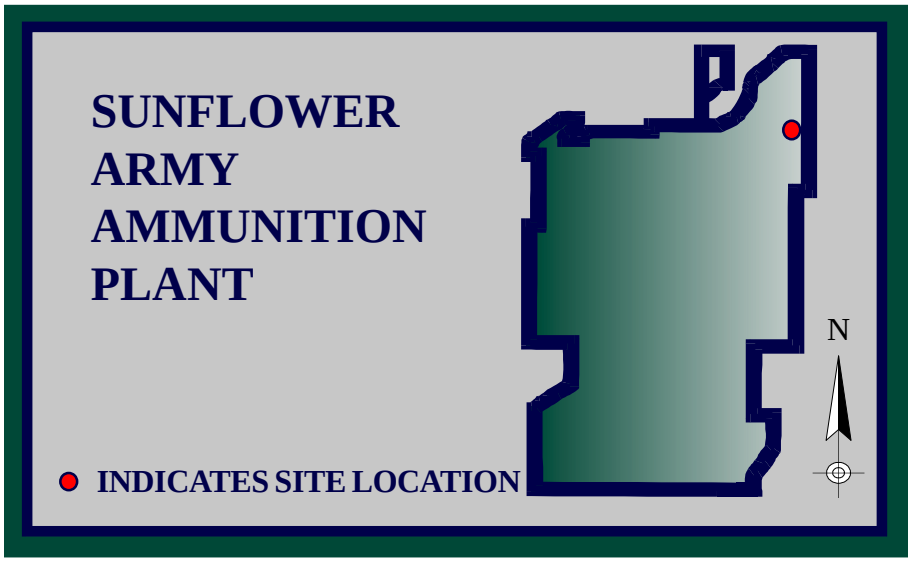
PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	22	17					
IRA							
RD							
RA							
RAO			55				
LTM							
PROJECTED TOTAL:	$94,000						

DISPOSAL SITE EAST OF THE CLASSIFICATION YARD, SFAAP-050

SITE DESCRIPTION

An abandoned dump site was discovered just beyond the eastern boundary of SFAAP near Kill Creek. Debris is scattered about the site including shingles, drums and metal slag. An interim removal was accomplished at a portion of this site in FY 97. An after action CMS is currently underway for that portion of the site. The site is larger than originally identified.

Action involving removal of debris is being performed.



PROPOSED PLAN

A CMS will be performed that will define the work completed and should determine that the presumptive remedy was appropriate.

IRP STATUS

RRSE RATING:
High
CONTAMINANTS:
Metals, Solvents
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA, RFA, RFI, IRA (at 50 South)
CURRENT IRP PHASE:

FUTURE IRP PHASE:
RC

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
IRA							
RD							
RA							
RAO							
LTM							
PROJECTED TOTAL:	$0						

BATTERY HANDLING AREA, SFAAP-051

SITE DESCRIPTION

The Battery Handling Area is located in the north central portion of SFAAP in the salvage yard. A few battery anodes and various plastic parts from batteries were observed on the ground in this area. Batteries have been stored in this area for many years (SFAAP, 1992). Wastes typically associated with batteries include acids and metals, particularly mercury, lead and/or cadmium depending upon the types of batteries stored in this area.

Initial RFI results indicated elevated levels of lead in soil.

PROPOSED PLAN

3200 cubic yards of lead contaminated soil will be excavated, treated and disposed. Confirmatory sampling will be conducted.

IRP STATUS

RRSE RATING:
Medium
CONTAMINANTS:
Lead
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
RFA
CURRENT IRP PHASE:
IRA
FUTURE IRP PHASE:
RFI

CONSTRAINED COST TO COMPLETE

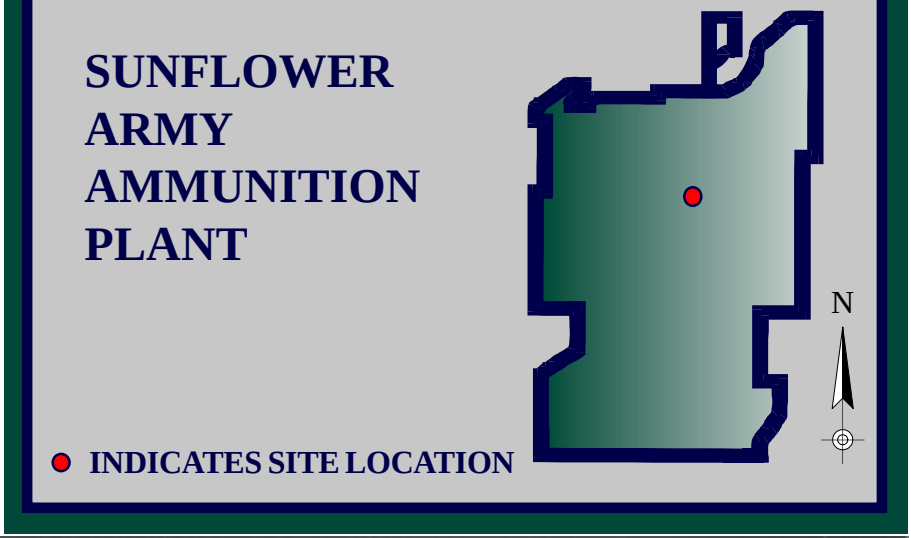
PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS		17					
IRA	385						
RD							
RA							
RAO							
LTM							
PROJECTED TOTAL:				$402,000			

PAINT BAY BUILDING 542, SFAAP-052

SITE DESCRIPTION

Building 542 is located in the north central portion of SFAAP. A paint bay, located within the building, was used to repaint vehicles. Fumes and overspray were vented through the side of the building where stressed vegetation has been observed. Wastes typically associated with paint bays include volatile organics, and metals such as chromium, cadmium and lead.

There were no constituents above the levels of concern found during the RFI.



PROPOSED PLAN

A decision document for closure will be prepared.

IRP STATUS

RRSE RATING:
Low
CONTAMINANTS:
Metals
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
PA, RFA, RFI
CURRENT IRP PHASE:
CMS (Decision Document)
FUTURE IRP PHASE:
RC

CONSTRAINED COST TO COMPLETE

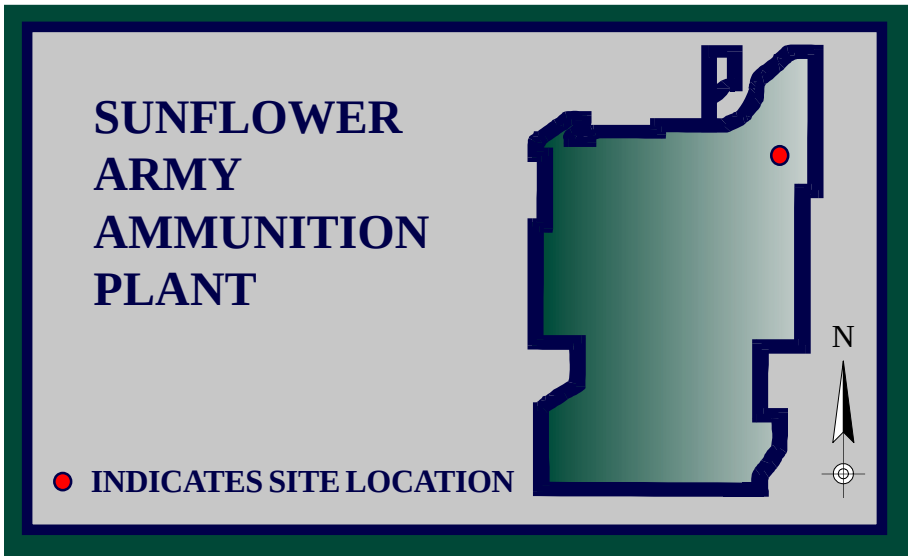
PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	17						
IRA							
RD							
RA							
RAO							
LTM							
PROJECTED TOTAL:	$17,000						

NEW OPEN BURN/OPEN DETONATION AREA, SFAAP-053

SITE DESCRIPTION

A sequence of aerial photographs were taken of SFAAP beginning in 1941 and ending in 1991. They clearly show the old waste pile/landfill. Although the 1941 photos are somewhat blurry, it is shown that there were two quarries in the area most likely used by farmers and later during the construction of the plant. These are later referred to as “ground scars”. An inspection was done on September 18, 1997. A wood pile is still there, but the road is covered over with vegetation. The landfill appears to begin around the fence line near the main road by the sewage treatment plant. It is comprised of construction debris including heavy duty concrete rubble, rusted out 55 gallon steel drums, glass rubble, broken insulators, pipe debris, wood scraps, telephone poles, wire fencing, concrete pipe pieces, iron scraps and asbestos materials. The landfill goes from the fence line, following the creek down until reaching the open area where the former quarry exists. Debris is on both sides of the creek and in the creek bed itself. There is no further information available regarding this site.

The results of an relative risk site evaluation indicated the site is a high.



PROPOSED PLAN

Initial RFI activities will begin. Any contaminated materials will be excavated and hauled to an offsite disposal facility.

IRP STATUS

RRSE RATING:
High
CONTAMINANTS:
VOCs
MEDIA OF CONCERN:
Groundwater and Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RA(C)

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	45	22					
IRA							
RD							
RA		55					
RAO							
LTM							
PROJECTED TOTAL:	$122,000						

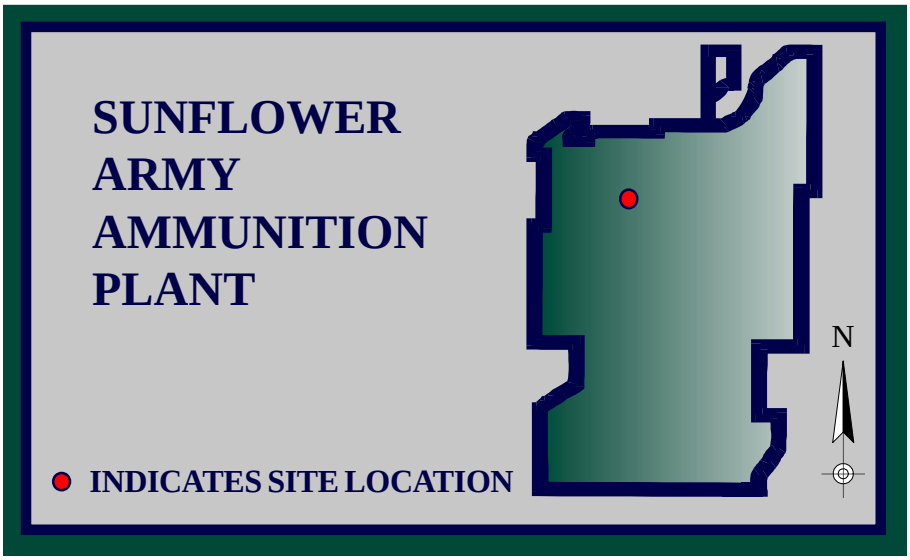
FLUORESCENT TUBE WELL SFAAP-054

SITE DESCRIPTION

The fluorescent lamp disposal well/cistern is located in the northwestern portion of SFAAP, east of the NQ production area.

The site consists of a well/cistern as part of an old, pre-SFAAP homestead. The well is 5 feet in diameter, about 12 feet deep and has a concrete wall. The well has been used as a fluorescent lamp bulb disposal pit. It is uncertain when this occurred, but is suspected to have taken place prior to 1976. The well is uncovered and full of water.

A representative of the U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM) visited the well site, collected soil and water samples and performed a relative risk site evaluation. The information will be used to determine the order in which corrective/remedial actions will be taken at SFAAP. This site was determined as having "medium" risk and reported by CHPPM in "Hazardous and Medical Waste Study No. 37-EF-9063-99" dated 5 November 1998.



PROPOSED PLAN

The contents (sludge and debris) of one well will be excavated and disposed. Confirmatory sampling will be conducted.

IRP STATUS

RRSE RATING:
Medium
CONTAMINANTS:
Mercury
MEDIA OF CONCERN:
Soil and groundwater
COMPLETED IRP PHASE:
PA/SI, IRA
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RC

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	12						
IRA							
RD							
RA							
RAO							
LTM							
PROJECTED TOTAL:	$12,000						

SCHEDULE

PAST MILESTONES

IRP Phase	Completion Date
IRP PA Initiation	April 1980
RFA	September 1990
Community Relations Plan	February 1997
Non-RCRA Groundwater Well Closures	September 1995

PROJECTED MILESTONES

Completion of Long Term Monitoring	September 2030
Project completion date of IRP excluding LTM:	September 2030

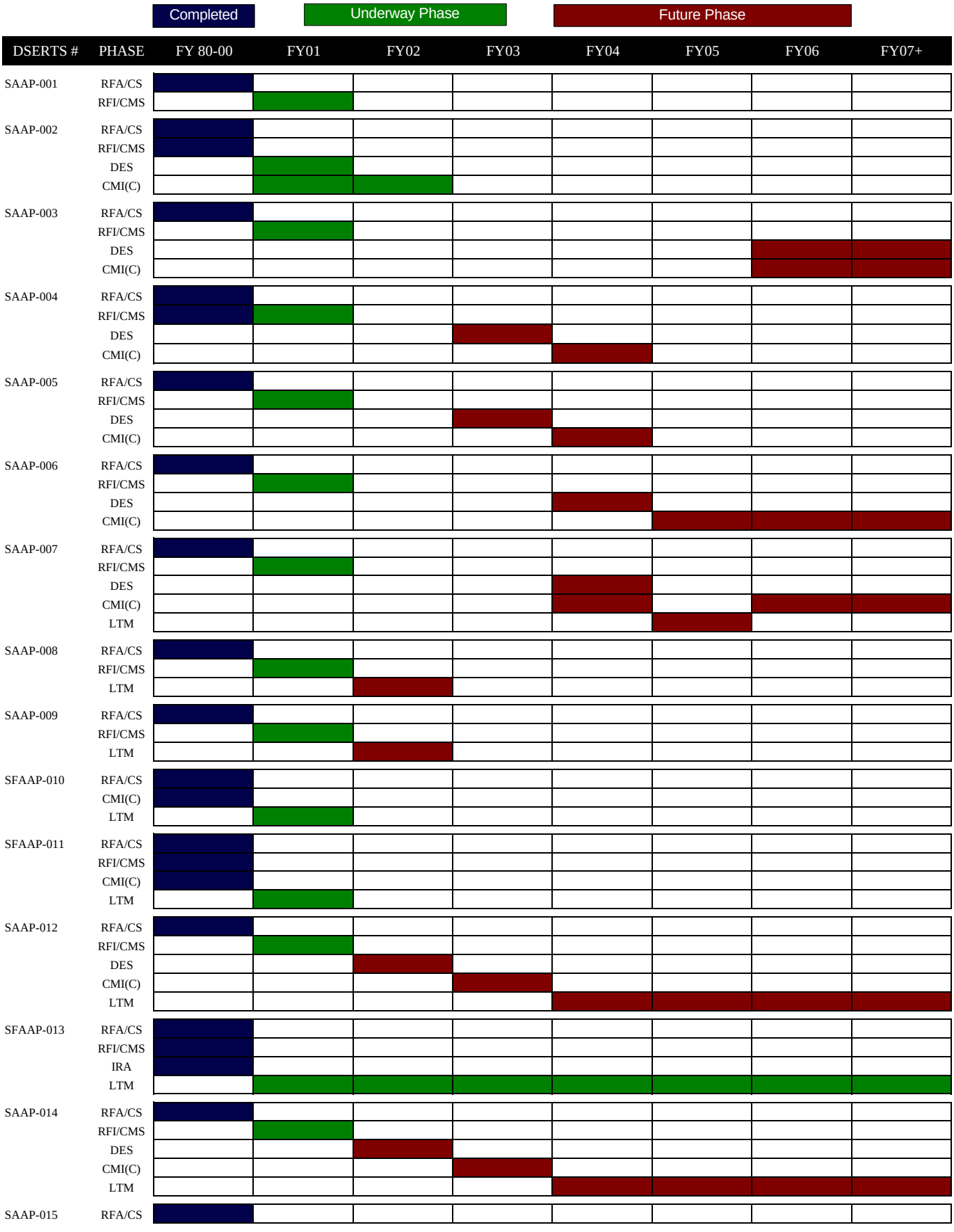
SCHEDULE

NO FURTHER ACTION SITES (ACTUAL RC DATES)

DSERTS NUMBER	RC DATE	RC REASON
SAAP-023	200003	SITE BEING CLOSED UNDER OB/OD PROGRAM
SAAP-028	198004	STUDY COMPLETED, NO CLEANUP REQUIRED
SAAP-029	198004	STUDY COMPLETED, NO CLEANUP REQUIRED

SUNFLOWER AAP IRP Schedule

(Based on current funding constraints)



SUNFLOWER AAP IRP Schedule

(Based on current funding constraints)

Completed | Underway Phase | Future Phase

DSERTS #	PHASE	FY 80-00	FY01	FY02	FY03	FY04	FY05	FY06	FY07+
	RFI/CMS								
SAAP-016	RFA/CS								
	RFI/CMS								
SAAP-017	RFA/CS								
	RFI/CMS								
	LTM								
SAAP-018	RFA/CS								
	RFI/CMS								
	IRA								
	DES								
	CMI(C)								
	CMI (O)								
	LTM								
SAAP-019	RFA/CS								
	RFI/CMS								
	DES								
	CMI(C)								
SAAP-020	RFA/CS								
	RFI/CMS								
	DES								
	CMI(C)								
SAAP-021	RFA/CS								
	RFI/CMS								
	DES								
	CMI(C)								
	LTM								
SAAP-022	RFA/CS								
	RFI/CMS								
	CMI(C)								
	LTM								
SAAP-024	RFA/CS								
	RFI/CMS								
	DES								
	CMI(C)								
	LTM								
SAAP-025	RFA/CS								
	RFI/CMS								
	DES								
	CMI(C)								
	LTM								
SAAP-026	RFA/CS								
	RFI/CMS								
	DES								
	CMI(C)								
	LTM								
SFAAP-027	RFA/CS								
	RFI/CMS								
	LTM								
SAAP-030	RFA/CS								
	RFI/CMS								
	DES								
	CMI(C)								
SAAP-031	RFA/CS								
	RFI/CMS								
	DES								
	CMI(C)								

SUNFLOWER AAP IRP Schedule

(Based on current funding constraints)

Completed | Underway Phase | Future Phase

DSERTS #	PHASE	FY 80-00	FY01	FY02	FY03	FY04	FY05	FY06	FY07+
SAAP-032	RFA/CS								
	RFI/CMS								
	DES								
	LTM								
SAAP-033	RFA/CS								
	RFI/CMS								
	DES								
	CMI(C)								
SAAP-034	RFA/CS								
	CS								
	RFI/CMS								
	DES								
	CMI(C)								
	CMI (O)								
	LTM								
SAAP-035	RFA/CS								
	RFI/CMS								
	DES								
	CMI(C)								
SAAP-036	RFA/CS								
	RFI/CMS								
	DES								
	CMI(C)								
SAAP-037	RFA/CS								
	RFI/CMS								
	DES								
	CMI(C)								
SAAP-038	RFA/CS								
	RFI/CMS								
SAAP-039	RFA/CS								
	RFI/CMS								
SAAP-040	RFA/CS								
	RFI/CMS								
	DES								
	CMI(C)								
SAAP-041	RFA/CS								
	RFI/CMS								
	DES								
	CMI(C)								
	CMI (O)								
	LTM								
SFAAP-042	RFA/CS								
	RFI/CMS								
	DES								
	CMI(C)								
	CMI (O)								
	LTM								
SAAP-043	RFA/CS								
	RFI/CMS								
SAAP-044	RFA/CS								
	RFI/CMS								
	DES								
	CMI(C)								
	CMI (O)								
	LTM								
SAAP-045	RFA/CS								
	RFI/CMS								

SUNFLOWER AAP IRP Schedule

(Based on current funding constraints)

Completed | Underway Phase | Future Phase

DSERTS #	PHASE	FY 80-00	FY01	FY02	FY03	FY04	FY05	FY06	FY07+
	DES								
	CMI(C)								
	CMI (O)								
SAAP-046	RFA/CS								
	RFI/CMS								
	DES								
	CMI(C)								
SAAP-047	RFA/CS								
	RFI/CMS								
	DES								
	CMI(C)								
	CMI (O)								
SAAP-048	RFA/CS								
	RFI/CMS								
	LTM								
SAAP-049	RFA/CS								
	RFI/CMS								
	CMI (O)								
SAAP-050	RFA/CS								
	RFI/CMS								
	IRA								
SAAP-051	RFA/CS								
	RFI/CMS								
	IRA								
SAAP-052	RFA/CS								
	RFI/CMS								
SAAP-053	RFA/CS								
	RFI/CMS								
	CMI(C)								
SAAP-054	RFA/CS								
	RFI/CMS								
	IRA								

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

Site, 4. Installation Phase Summary Report 1/11/01

Installation: SUNFLOWER AAP

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: 52

Phase / Status / Sites

PA

C	U	F	RC
52	0	0	0

SI

C	U	F	RC
51	0	0	3

RI / FS

C	U	F	RC
30	18	0	18

RD

C	U	F
3	0	22

RA(C)

C	U	F	RC
2	2	23	1

RA(O)

C	U	F	RC
1	0	2	1

LTM

C	U	F	N
0	2	9	41

Remedy / Status / Sites (Actions)

IRA

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

FRA

C	U	F
2 (2)	2 (2)	23 (23)

RIP Total: 0

RC Total: 23

Reporting Period End Date: 03/31/2001

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

Site, 9. RISK INSTALLATION ACTION PLAN REPORT 01/11/2001

Installation: SUNFLOWER AAP
Major Command: AMC

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

Subprogram Options: Compliance, Restoration, UXO

Site	RRSE	Media Evaluated	Phase (s) Completed	Phase (s) Underway	Phase (s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	RIP Date	RC Date
SAAP-001	2A	GW SL	PA SI	RI					N		200109
SAAP-002	2A	GW SEM SH SL WEF WH	PA SI	RI					N		200109
SAAP-003	1A	SEM SH	PA RI SI		RAC RD				N		200709
SAAP-004	2A	GW SEM SH	PA RI SI		RAC RD				N		200409
SAAP-005	1A	SEM SH	PA RI SI		RAC RD				N		200409
SAAP-006	2A	GW SEM SH SL	PA RI SI		RAC RD				N		200609
SAAP-007	1A	WEF WH	PA RI SI		RAC RD				F		200709
SAAP-008	1A	WEF WH	PA RI SI						N		200009
SAAP-009	1A	SEF SH	PA RI SI						N		200009
SAAP-010	1A	GW SEF SH SL WEF WH	PA RD RI SI	RAC					N		200109
SAAP-011	1A	GW SEM SH SL WEF WH	PA RD RI SI	RAC					N		200109
SAAP-012	2A	GW SEM SH	PA SI	RI	RAC RD				F		200312
SAAP-013	3A	SL	PA RAC RAO SI						U	199909	199909
SAAP-014	1A	GW SEF SH SL WEF WH	PA RI SI		RAC RD				F		200409
SAAP-015	2A	SL	PA RI SI						N		200009
SAAP-016	3A	SL	PA RI SI						N		200009
SAAP-017	3A	GW SL	PA RI SI						N		200009

SAAP-018	1A	GW SL	PA SI	RI	RAC RD		F	200710
SAAP-019	1A	GW SL	PA RI SI				N	200009
SAAP-020	1A	GW	PA SI	RI	RAC RD		N	200609
SAAP-021	1A	GW SEF SH SL WH	PA SI	RI	RAC RD		F	200409
SAAP-022	1A	GW SEF SL WEF	PA RAC RD RI SI				N	200009
SAAP-023	2A	GW SL	PA SI				N	199909
SAAP-024	1A	GW SEM SH SL WEF WH	PA SI	RI	RAC RD		F	200409
SAAP-025	1A	SEF SH	PA SI	RI	RAC RD		F	200609
SAAP-026	2A	SEM SH	PA RI SI				N	200009
SAAP-027	3A	SL	PA RI SI				U	199909
SAAP-028	NE		PA SI				N	198004
SAAP-029	NE		PA SI				N	198004
SAAP-030	3A	GW SL	PA SI	RI	RAC RD		N	200809
SAAP-031	2A	GW SH WEF WH	PA SI	RI	RAC RD		N	200309
SAAP-032	1A	GW SL	PA SI	RI			N	200109
SAAP-033	1A	SEF SH	PA SI	RI	RAC RD		N	200312
SAAP-034	1A	SEM SH	PA SI	RI	RAC RD		N	200309
SAAP-035	2A	SEM SH	PA SI	RI	RAC RD		N	200309
SAAP-036	2A	GW SEM SH SL WEF WH	PA SI	RI	RAC RD		N	200309
SAAP-037	2A	SL	PA RI SI				N	200009
SAAP-038	1A	SL WEF WH	PA RI SI				N	200009
SAAP-039	2A	SH WEF WH	PA RI SI				N	200009
SAAP-040	2A	GW SH SL WEF WH	PA SI	RI	RAC RD		N	200309
SAAP-041	2A	GW	PA RI SI				F	200009
SAAP-042	2A	GW	PA SI	RI			F	200109

SAAP-043	2A	GW SH	PA RI SI					N		200009
SAAP-044	2A	GW SL WH	PA RI SI		RAC RAO RD			N	200303	201409
SAAP-045	2A	GW	PA RI SI					N		200009
SAAP-046	2A	SL	PA RI SI		RAC RD			N		200309
SAAP-047	1A	GW SL	PA SI	RI	RAC RAO RD	1		N	200611	201409
SAAP-048	3A	GW SL	PA RI SI					N		200009
SAAP-049	3A	GW	PA RI SI					N		200009
SAAP-050	1A	GW SL	PA RI					N		200009
SAAP-051	2A	SL	PA RI SI		RAC			N		200209
SAAP-052	3A	SL	PA RI SI					N		200009

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: 03/31/2001

REMEDIATION ACTIVITIES

PAST REM/IRA/RA

IRA - SFAAP 50, Disposal Site East of the Classification Yard, FY 97, $236 K

Lagoon Closure performed as Remedial Action in FY97 (Total Construction Cost: $558,000)

CURRENT REM/IRA/RA

LTM, SWMUs 13/27
IRA – SFAAP 50 North, Disposal Site East of Classification Yard, FY99, $700K
RA – SWMU 10/11, F-Line Ditches and Settling Pond, FY99, $1,500K

Potential Accelerated Actions:
SAAP-022, Old Waste Explosives Burning Ground, FY99, $4K

FUTURE REM/IRA/RA

As sites are investigated the potential exists for IRA through the RSAD process.

COST ESTIMATES

PRIOR YEAR FUNDS

1993-1995

RFI - 1185K
RD - 1327K
RA - 3386K
TOTAL: 5898K

1996

RFI - 2073K
CMS - 331
RD - 21K
TOTAL: 2425K

1997

RAB - 24K
RFI - 260K
CMS - 80K
RA 236K
TOTAL: 600K

1998

RAB - 24K
RFI - 248K
CMS - 56K
LTM - 26K
TOTAL: 353K

1999

RAB - 24K
RI/FS - 697.9K (Grazing Study @ 23.2K; SWMUs 33, 34, & 35 @ 51.9K; SWMUs 14 and 21 @ 600.1K; SWMU 10/11 @ 22.7K)
RA - 2088.8K (SWMU 50 @ 658.1K; SWMU 10/11 @ 1430.7K)
TOTAL: 2810.7K

2000

RI/FS - 549 K
IRA- 55 K (3 sites, SAAP-018, 051, 054)
RA - 2545 K
RAO- 44 K
LTM- 15 K
TOTAL: 3,208K

TOTAL PRIOR YEAR FUNDING: $15,295,700.00

SUNFLOWER AAP COST TO COMPLETE (CONSTRAINED)

DSERTS #	SITE TITLE	RRSE	PHASE	FY01	FY02	FY03	FY04	FY05	FY06	FY07+	SITE TOTAL	DESCRIPTION OF WORK
SAAP-001	CLASSIFICATION AREA	MED	RI/FS	10								Preparation and finalization of NFA Decision Document
											10	
SAAP-002	RIVER WATER TREATMENT PLANT	MED	RI/FS									Additional RFI and stream study (105K); CMS (95K)
			RD	3								400cy Soil Removal and off-site disposal
			RA(C)	21	22							FY01 - 400cy Soil Removal and off-site disposal (21K); FY02 Confirmatory sampling (22K)
											46	
SAAP-003	MAIN SEWAGE TREATMENT PLANT	HIGH	RI/FS	74								RI (74K)
			RD						21			Source removal, treatment and disposal design
			RA(C)						300	21		FY02-500cy soil removal & treatment (300K); FY03-confirmatory sampling (21K)
											416	
SAAP-004	POND A AND SLUDGE DISPOSAL AREA	MED	RI/FS	80								FY00 - soil sampling; FY01- CMS activities
			RD			70						Source removal, treatment and disposal design
			RA(C)				890					4,000cy soil removal and treatment for propellants and metals
											1040	
SAAP-005	POND A NEAUTRALIZATION AREA	HIGH	RI/FS	23								CMS activities (soil)
			RD			52						Source removal, treatment and disposal design
			RA(C)				710					5,000cy soil removal and treatment for propellants and metals
											785	
SAAP-006	B POND AND SLUDGE DISPOSAL AREA	MED	RI/FS	44								CMS activities (soil) (6K); RFI activities (soil and GW) (21K); 3 GW monitoring wells (17K)
			RD				180					Source removal, treatment and disposal design
			RA (C)					2245	305			40,000cy soil removal and treatment for propellants and metals (2537K); periodic sampling, 4 wells (13K)
											2774	
SAAP-007	NORTH ACID AREA- CHROMATE AREA	HIGH	RI/FS	144								RFI activities (SW & soil) (46K); CMS activities (SW & soil) (98K)
			RD				125					Source (soil) removal, treatment and disposal design; SW removal & subsurface anomaly removal
			RA(C)				107		1473			1500cy soil removal and treatment for metals and SW removal and treatment (1493K); sump removal (107K)
			LTM					30			**1879**	5 years, 3 wells
SAAP-008	NORTH ACID AREA- CHROMATE CONCENTRATION POND	HIGH	RI/FS	50								RFI activities (SW & soil) (35K); CMS activities (SW & soil) (15K)
			RD									
			RA(C)									
			LTM		21						**71**	5 years, 3 wells
SAAP-009	NORTH ACID AREA- WASTEWATER TREATMENT LAGOON	HIGH	RI/FS	50								check # of wells
			LTM		21						**71**	5 years, 3 wells
SAAP-010	F-LINE DITCHES	HIGH										
			RA(C)									Soil excavation, stabilization, and disposal
			LTM	22							**22**	5 years, 3 wells
SAAP-011	F-LINE AREA SETTLING POND	HIGH										
			RA(C)									Soil excavation, stabilization, and disposal
			LTM	22							**22**	5 years, 3 wells

SUNFLOWER AAP COST TO COMPLETE (CONSTRAINED)

DSERTS #	SITE TITLE	RRSE	PHASE	FY01	FY02	FY03	FY04	FY05	FY06	FY07+	SITE TOTAL	DESCRIPTION OF WORK
SAAP-012	PYOTTS POND AND SLUDGE DISPOSAL AREA	MED	RI/FS	62								RFI (GW, SW, Soil, Sediment) (35K); CMS activities (soil, sediment) (15K); Installation & sampling of 2 wells (12K)
			RD		30							Removal and disposal of soil design
			RA(C)			440						Removal and disposal of soil and sediment
			LTM				25	25	25	50	**657**	5 years, 3 wells
SAAP-013	SOUTH AREA LIQUID WASTE TREATMENT PLANT AND EVAPORATIVE LAGOONS	LOW										
			LTM	6	6	6	6	6	6	48	**84**	3 wells, semi-annual sampling for nitrates and sulfates
SAAP-014	ROCKET STATIC TEST AREA	HIGH	RI/FS	190								RFI (Stream Study) (110K); CMS (80K)
			RD		17							"Hot Spot" removal design
			RA(C)			220						"Hot Spot" removal
			LTM				6	6	6	12	**457**	3 wells, semi-annual sampling for lead and nitroglycerine
SAAP-015	WASTE STORAGE MAGAZINES	MED	RI/FS	40								RFI activities (soil) (20K); CMS activities (Closure documentation) (20K)
											40	
SAAP-016	TEMPORARY WASTE STORAGE MAGAZINES	LOW	RI/FS	12								Installation and sampling of one well (one sampling event)
											12	
SAAP-017	G-LINE AREA DITCHES	LOW	RI/FS	140								RFI acti vities (soil, GW, SW, sediment) (125K); CMS activities (closure documentation) (15K)
			LTM		6	6	6	6	6		**170**	5 wells, semi-annual sampling
SAAP-018	OLD/NEW SANITARY LANDFILLS	HIGH	RI/FS		110	95						RFI activities (soil , GW, and SW) (110K); CMS activities (95K)
			RD					550				landfill cap design
			IRA	220								GW diversion and erosion control
			RA(C)						1200	13200		landfill cap construction
			RA(O)					30	30	840		landfill maintenance
			LTM					12	12	336	**16635**	5 years, 8 wells (semi-annual for 5 years, then annual for 25 years)
SAAP-019	ASH LANDFILL	HIGH	RI/FS	17								CMS activities (decision document)
			RD		6							excavation and disposal design
			RA(C)		55							1000cy excavation and disposal of soil
											78	
SAAP-020	ASH LAGOONS AND SLUDGE DISPOSAL AREA	HIGH	RI/FS	80	17							FY00-Additional investigation (80K); FY01 CMS activities (17K)
			RD						80			lagoon closure design
			RA(C)						1100			lagoon closure activities
											1277	
SAAP-021	CONTAMINATED MATERIALS BURNING GROUND	HIGH	RI/FS	126								RFI (Stream Study) (110K); CMS (16K)
			RD		17							excavation and disposal design
			RA(C)		275							soil excavation and disposal
			LTM			10	10	10	10	10	**468**	5 wells, semi-annual sampling
SAAP-022	OLD WASTE EXPLOSIVES BURNING GROUND	HIGH	RI/FS									RFI (Stream Study)
			RA(C)									excavation, treatment and disposal
			LTM	10	10	10	10	10			**50**	7 wells, semi-annual monitoring

SUNFLOWER AAP COST TO COMPLETE (CONSTRAINED)

DSERTS #	SITE TITLE	RRSE	PHASE	FY01	FY02	FY03	FY04	FY05	FY06	FY07+	SITE TOTAL	DESCRIPTION OF WORK
SAAP-023	NEW EXPLOSIVES	MED	RI/FS									
	WASTE BURNING		RD									
	GROUND		RA(C)									
	RC - take out											
			LTM								**0**	
SAAP-024	NITROGLYCERINE	HIGH	RI/FS	110	80							FY00 - RFI (additional sampling) (110K); FY01-CMS (80K)
	DITCHES		RD			55						Excavation, treatment and disposal design
			RA(C)				825					Excavation, treatment and disposal (includes 11 sumps)
			LTM					10	10	30	**1120**	7 wells, semi-annual monitoring
SAAP-025	NITROCELLULOSE	HIGH	RI/FS	50	70							RFI (soil and GW) (50K); CMS (70K)
	AREA DITCHES		RD			31						Excavation, treatment and disposal design
			RA(C)			325						Excavation, treatment and disposal
			LTM				30				**506**	4 wells, semi-annual monitoring
SAAP-026	SINGLE BASE AREA	MED	RI/FS	93	80							RFI (soil and groundwater) (93K); CMS (80K)
	WASTE WATER		RD			12						Excavation, treatment and disposal design
	SETTLING SUMPS		RA(C)			165						Excavation, treatment and disposal
			LTM				20			10	**380**	6 wells, semi-annual monitoring
SAAP-027	NITROGUANIDINE AREA	LOW										
	SAC LIQUID											
	WASTE PLANT											
			LTM	6	6	6	12		6	48	**84**	
SAAP-028	WASTE CALCIUM CARBIDE	NE	RC									
	TREATMENT											
	LAGOONS											
											0	
SAAP-029	INDUSTRIAL WASTEWATER	NE	RC									
	TREATMENT											
	LAGOONS											
											0	
SAAP-030	PESTICIDE HANDLING	LOW	RI/FS	55	55							FY00 RFI (soil) (55K); FY01 CMS (55K)
	AREA											
			RD							22		Excavation, treatment and disposal design
			RA(C)							275		Excavation, treatment and disposal
											407	
SAAP-031	CONTAMINATED WASTE	MED	RI/FS	55	55							RFI (soil and GW, also 1 well installation and sampling) (55K), CMS (55K)
	PROCESSOR/		RD			12						excavation, treatment and disposal design
	EVAPORATIVE		RA(C)			110	30					excavation, treatment and disposal, confirmatory sampling
	LAGOONS											
											262	
SAAP-032	LEAD DECONTAMINATION	HIGH	RI/FS									RFI (Stream Study)
	AND RECOVERY UNIT		RD									
			RA(C)									excavation, treatment and disposal (includes UST area)
			LTM	10	10	10	10	10			**50**	7 wells, semi-annual monitoring
SAAP-033	PASTE AREA HALF	HIGH	RI/FS	80								CMS
	TANKS AND		RD		45							excavation, treatment and disposal and capping design
	SETTLING POND		RA(C)		550							excavation, treatment and disposal, confirmatory sampling (including lagoon capping) (consider TERC contract)
											675	
SAAP-034	FIVE CORNERS	HIGH	RI/FS	80								CMS
	SETTLING POND		RD		10							excavation, treatment and disposal design
			RA(C)			110						excavation, treatment and disposal, confirmatory sampling
											200	

SUNFLOWER AAP COST TO COMPLETE (CONSTRAINED)

DSERTS #	SITE TITLE	RRSE	PHASE	FY01	FY02	FY03	FY04	FY05	FY06	FY07+	SITE TOTAL	DESCRIPTION OF WORK
SAAP-035	NITROGLYCERIN	MED	RI/FS	80								CMS
	AREA SETTLING		RD		20							excavation, treatment and disposal and capping design
	POND		RA(C)		330							excavation, treatment and disposal, confirmatory sampling (including lagoon capping)
											430	
SAAP-036	N-LINE AREA	MED	RI/FS	100	90							RFI (soil and GW investigation and stream study (100K); CMS (90K)
			RD			22						excavation, treatment and disposal design
			RA(C)				275					excavation, treatment and disposal of soil and sump contents, confirmatory sampling
											487	
SAAP-037	SANDBLAST AREA	MED	RI/FS	22								CMS
			RD		6							excavation, treatment and disposal design
			RA(C)		55							excavation, treatment and disposal of soil, confirmatory sampling
											83	
SAAP-038	OIL SEPARATOR	HIGH	RI/FS	30	17							RFI (soil sampling) (30K); CMS (17K)
											47	
SAAP-039	SOUTH ACID AREA	MED	RI/FS	6								CMS (Closure document)
											6	
SAAP-040	CALCIUM CARBIDE	MED	RI/FS	100	80							RFI (investigation) (100K); CMS (80K)
	DISPOSAL AREA		RD			12						excavation, treatment and disposal design
			RA(C)			110						excavation, treatment and disposal of soil, confirmatory sampling
											302	
SAAP-041	CALCIUM CARBONATE	MED	RI/FS	17								Closure document and installation and initial sampling of one well.
	CAKE LANDFILL											
			RA(O)	22	65			23	22	506		landfill maintenance
			LTM	3	3	3	3	3	3	69	**742**	2 wells, 30 years
SAAP-042	TEMPORARY	MED										
	SANITARY											
	LANDFILL											
			RA(O)	22	22	101				493		landfill maintenance
											638	
SAAP-043	TUNNEL DRYERS	MED	RI/FS	22	7							RFI (soil investigation) (22K); CMS (closure document) (7K)
	(CCC STORAGE)											
											29	
SAAP-044	TANK T784	MED	RI/FS									CMS (Decision Document)
											0	
SAAP-045	BUILDING 9040	MED	RI/FS	180								CMS (includes interceptor trench (french drain)
			RD		55							design of interceptor trench
			RA(C)		550							construction of interceptor trench
			RA(O)			22	22	22	22	572		collection of GW and irrigation (if possible)
											1445	
SAAP-046	DECONTAMINATION	MED	RI/FS	55								CMS (soil investigation and remedial alternative selection)
	OVEN		RD				22					excavation, treatment and disposal design
			RA(C)					330				excavation, treatment and disposal of contaminated soil, confirmatory sampling
											407	

SUNFLOWER AAP COST TO COMPLETE (CONSTRAINED)

DSERTS #	SITE TITLE	RRSE	PHASE	FY01	FY02	FY03	FY04	FY05	FY06	FY07+	SITE TOTAL	DESCRIPTION OF WORK
SAAP-047	NITROGUANIDINE PRODUCTION	HIGH	RI/FS	105	80							RFI (105K);CMS (includes interceptor trench (french drain) and stream study) (80K)
			RD		132							design of interceptor trench (22K); sump removal (50cy @ $50/cy) (110K)
	AREA		RA(C)			1260						construction of interceptor trench(150K); removal of 23 sumps and backfill (1110K)
	(23) SUMPS		RA(O)				6	6	6	162		collection of GW and irrigation (if possible)
			LTM								**1757**	
SAAP-048	NITROGUANIDINE SUPPORT AREA	HIGH	RI/FS	17								CMS
			LTM		6	6	6	6	6	150	**197**	3 wells, semi-annual monitoring
SAAP-049	ROAD JUST SE OF THE SANITARY LANDFILL	LOW	RI/FS	22	17							RFI (soil sampling) (22K); CMS (17K)
			RA(O)			55						debris removal or cap (includes design)
											94	
SAAP-050	DISPOSAL SITE EAST OF THE CLASSIFI-CATION YARD	HIGH	RI/FS									CMS (summarize 2 IRA's and closure documents)
											0	
SAAP-051	BATTERY HANDLING AREA	MED	RI/FS		17							CMS (Closure document)
			IRA	385								Excavation, treatment, and disposal of lead contaminated soil
											402	
SAAP-052	PAINT BAY BUILDING	LOW	RI/FS	17								CMS (Decision Document)
											17	
SAAP-053	NEW OPEN BURN/ OPEN DETONATION AREA	HIGH	RI/FS	45	22							RFI (soil and GW investigation (45K); CMS (22K)
			RA(C)		55							Excavation and treatment (assuming disposal on site)
											122	
SAAP-054	FLUORESCENT TUBE WELL	MED	RI/FS	12								CMS (Closure document)
			IRA									excavation and treatment
											12	
	FY TOTALS IN THOUSANDS OF DOLLARS			**$ 3,247**	**$ 3,203**	**$ 3,336**	**$ 3,336**	**$ 3,340**	**$ 4,649**	**$ 16,854**	**$ 37,965**	
	POM CONSTRAINTS as of FY 00			$3,247	$3,203	$3,336	$3,336	$3,340	$4,649	$16,854	**$37,965**	
	DIFFERENCE			$0	$0	$0	$0	$0	$0	$0		
	POM CONSTRAINTS FOR FY 01 AS OF 9/11/00			$2,700	$0	$0	$0	$0	$0	$0	$2,700	
				FY01	**FY02**	**FY03**	**FY04**	**FY05**	**FY06**	**FY07+**		

COMMUNITY INVOLVEMENT

RESTORATION ADVISORY BOARD (RAB) STATUS

On May 6, 1998 Sunflower conducted the first RAB meeting with 17 community members attending. Six additional positions were created as follows: two for the Army and one each for the operating contractor, EPA, KDHE and COE. RAB meetings were conducted monthly for the first six months and now meet bimonthly.

Previous meetings included activities such as :

An installation tour
Individual site briefings (including discussion of past practices and existing contamination)
Educational presentations (risk assessment, how investigations are conducted, explanation of technical documents, etc.)
Land use plan briefings presented by Johnson County
Presentation by potential developer on the property to explain their proposal for potential site remediation

The RAB will continue bimonthly meetings.

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

Installation, 7. RAB REPORT 01/11/2001

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

RAB Established Date: 199805 **Reason RAB Not Establish:**
RAB Adjourned Date: **Reason RAB Adjourned:**

TRC Date:

RAB Community Members: **Total RAB Community Members:** 16
Business Community
RAB Government Members: **Total RAB Government Members:** 6
Environmental Protection Agency
RAB Activities:
Est. Operating Procedures
RAB Advice
Future Land Use
TAPP Application Approval Date:
TAPP Project Title: 03/31/2001
TAPP Project Description:

Award Number	Purchase Order Award Date	Completion Date