FINAL FIVE YEAR REVIEW REPORT

THIRD FIVE-YEAR REVIEW
LAAP OU-1 (AREA P LAGOONS)
And
FIRST FIVE-YEAR REVIEW
LAAP OU-8 (Y-LINE CHROMIC ACID ETCHING FACILITY)

LOUISIANA ARMY AMMUNITION PLANT
LAD No. 0213820533

Contract No. GS10F-0048J
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Prepared for:

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Acronyms and Abbreviations

AMCCOM	U.S. Army Armament, Munitions, and Chemical Command
ARAR	Applicable or Relevant and Appropriate Requirements
ARMS	Armaments Retooling Manufacturing Support
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	Constituents of Concern
DNT	Dinitrotoluene
ESE	Environmental Science and Engineers
ETA	Engineering Technologies Associates
FFA	Federal Facilities Agreement
FOSET	Finding of Suitability for Early Transfer
FOST	Finding of Suitability for Transfer
FS	Feasibility Study
FYR	Five Year Review
HMX	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine or high melting explosive
IRA	Interim remedial action
IT	IT Corporation
Kg	Kilogram
LAAP	Louisiana Army Ammunition Plant
LAARNG	Louisiana Army National Guard
LAC	Louisiana Administrative Code
LAP	Load/Assemble/Pack
LDEQ	Louisiana Department of Environmental Quality
mg	Milligram
NCP	National Contingency Plan
NFA	No Further Action
NPL	National Priorities List
OU	Operable Unit
O&M	operations and maintenance
ppm	parts per million
RA	Remedial action
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine or Research Department Explosive
RI	Remedial Investigation
ROD	Records of Decision
SAIC	Science Applications International Corporation
SARA	Superfund Amendments and Reauthorization Act
Shaw	Shaw Environmental, Inc.
SA	Sniffen Around, LLC

Acronyms and Abbreviations (continued)

TNB	Trinitrobenzene
TNT	2,4,6-Trinitrotoluene
USACE	U.S. Army Corps of Engineers
USAEC	U.S. Army Environmental Center
USC	United States Code
USATHAMA	U.S. Army Toxic and Hazardous Materials Agency
USEPA	U.S. Environmental Protection Agency
VOC	Volatile Organic Compound
WES	Waterways Experiment Station

Executive Summary

On behalf of the United States Army Environmental Center (USAEC), Shaw Environmental, Inc. (Shaw) conducted the third Five-Year Review (FYR) of Louisiana Army Ammunition Plant (LAAP) operable unit (OU)-1 (Area P Lagoons) and the first FYR of LAAP OU-8 (Y-Line Chromic Acid Etching Facility) located on the former LAAP near Doyline, Louisiana. The purpose of this review is to ensure that the remedial actions are functioning as intended and are protective of human health and the environment. The initial triggering action for LAAP OU-1 was completion the first remedial action in October 1990. The triggering action for this third statutory FYR was the signature date of the previous FYR, September 22, 2000. The LAAP OU-8 trigger date was the signature date of the February 2000 Record of Decision (ROD).

The FYR process consists of the notification and involvement of stakeholders, review of existing and relevant documentation and data, identification and review of recent and new information, and an assessment of site conditions. This report presents the findings, conclusions, and recommendations from the review.

LAAP was a U.S. Army Armament, Munitions, and Chemical Command (AMCCOM) installation that was used to load, assemble, and pack ammunition items. Operations began in 1942 with eight ammunition lines and one ammonium nitrate graining plant. Ammunition production ceased in August 1945 at the close of World War II and the facility was placed in a standby status. It was reactivated in February 1951 to support the Korean conflict and all ammunitions loading lines were operational including a metals forging and machining plant area known as the Y-Line Chromic Acid Etching Facility. The Y-Line was used to manufacture 155-mm projectiles. In February 1958, the installation was again placed in standby status. In September 1962, the plant was reactivated in support of the Vietnam war with four production areas used for classified ammunition items. The LAAP installation continued ammunition production for the U. S. military until 1994. In October 1997, the Y-Line facility was leased to Valentech Corporation for manufacturing of munitions for Israel.

The Area P Lagoons were in active use between 1940 and 1981. During this time, untreated explosives-laden wastewater from industrial operations was collected in concrete sumps at each of the various load line areas, hauled by tanker trucks to Area P, and emptied into the lagoons. After numerous investigations and assessments, it was determined that the nitroaromatic contamination in soils and sediments from the Area P lagoons was a major contributor to the groundwater nitroaromatic contamination.

To protect the shallow groundwater below the Area P Lagoons from leaching through nitroaromatic contaminated soil into the groundwater, an Interim Remedial Action (IRA) was

conducted in 1987 through 1990. Actions at Area P included draining and treating lagoon wastewater, soil excavation, and soil treatment by incineration. Soil in the lagoons and surrounding area was excavated until a total field-determined explosives concentration of octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine or high melting explosive (HMX) and hexahydro-1,3,5-trinitro-1,3,5-triazine or Research Department Explosive (RDX) less than 100 milligrams per kilogram (mg/kg) was reached. This minimum concentration was agreed upon by both the United State Environmental Protection Agency (USEPA) and the Louisiana Department of Environmental Quality (LDEQ). The IRA resulted in the incineration of 101,929 tons of soil and the treatment of 53,604,490 gallons of wastewater and rain water. The Area P Lagoons and surrounding area, were then backfilled with the incinerated soil, covered with a minimum 2-foot thick cap of compacted clay, and re-vegetated with Bermuda grass. A four-strand barbed wire fence, 4-feet in height, was installed around the cap and is posted with warning signs.

In September 1996 following completion of the IRA, a ROD was prepared. Using a baseline and ecological risk assessment prepared for Area P and six other study areas, the ROD determined that no potential human health or ecological risks are associated with the soils and therefore, No Further Action (NFA) was required. The six additional study areas include: LAAP OU-2 Burning Ground No. 5, LAAP OU-3 M-4 Waste Water Lagoon, LAAP OU-4 Burning Ground No. 8 Landfill, LAAP OU-5 Landfill No. 3, LAAP OU-6 Oily Waste Landfarm, and LAAP OU-7 Burning Ground No. 8 Pink Water Lagoons. These study areas were identified by the USEPA as the Soil/Source OU.

The September 1996 ROD for these OUs required that no remedial actions or institutional controls were required to be taken to protect human health and the environment; therefore, a FYR of the remedies for these OUs, excluding LAAP OU-1 (Area P), was not required. A FYR for Area P is necessary to ensure the area remains in the industrial use scenario because nitroaromatic contaminated soil remains on-site and prevents unlimited use and unrestricted exposure. Also, a FYR is necessary for continued verification that precipitation is not migrating through the cap into the shallow groundwater. The BG-5, BG-8, and LF-3 areas must remain under an industrial-use scenario; however, M-4 and OWL have no use restrictions.

A ROD for LAAP OU-8 was prepared in February 2000. The ROD determined that no remedial action is necessary at the Y-Line for protection of human health and the environment. A NFA remedy was selected due to the conclusions of the baseline human and ecological risk assessments determining that unacceptable exposures to hazardous substances in the soils will not occur as long as the facility remains in the industrial use scenario. Because this remedy results in leaving hazardous substances, pollutants, or contaminants on-site above levels that allow for unlimited use and unrestricted exposure, a FYR is required.

These FYRs conclude that the remedies at LAAP OU-1 through LAAP OU-8 are functioning as intended. The NFA remedy remains successful in protection of human health and environment. Although LAAP is currently being leased to the State of Louisiana, land use conditions have not changed and all discussed study areas are still in an industrial use scenario. The clay protective cover at Area P has not subsided since initial construction and the fence and warning signs remain in good condition. Some bare spots on the clay cap have remained since the 2000 FYR but do not appear to have any effect on the function of the cap. The clay cap continues to prevent downward migration of nitroaromatic concentrations from the former lagoons with evidence shown by decreasing analytical concentrations in the Upper Terrace aquifer. Lower Terrace aquifer concentrations were found to be increasing but this is interpreted to be from a downward migration of concentrations from the Upper Terrace.

FYR recommendations for LAAP OU-1 through LAAP OU-8 are a continued review of land conditions to verify that an industrial setting is maintained. To assure the protectiveness of the Area P cap IRA for the long-term, inspection and maintenance of the soil cover, fencing, and protective warning signs is also recommended to continue in association with the long-term, biannual groundwater monitoring and sampling.

The next five-year review for LAAP OU-1 through OU-7 and LAAP OU-8 will be due October 2010, five years from the due date of this report.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name *(from WasteLAN)*: LOUISIANA ARMY AMMUNITION PLANT		
EPA ID *(from WasteLAN)*: LA0213820533		
Region: VI	**State: LA**	**City/County: Webster Parish**

SITE STATUS	
NPL status: ☒ Final ☐ Deleted ☐ Other (specify)	
Remediation status (choose all that apply): ☐ Under Construction ☐ Operating ☒ Complete	
Multiple OUs?* ☒ YES ☐ NO	**Construction completion date:**
Has site been put into reuse? ☒ YES ☐ NO	

REVIEW STATUS	
Lead agency: ☒ EPA ☒ State ☐ Tribe ☒ Other Federal Agency ____Army_____	
Author name: Glen Landry	
Author title: Project Manager	**Author affiliation: Shaw Environmental, Inc.**
Review period:** 10 / 2000 to 2 / 2006	
Date(s) of site inspection: _2__ / _16__ / _2006_____	
Type of review: ☒ Post-SARA ☐ Pre-SARA ☐ NPL-Removal only ☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead ☐ Regional Discretion	
Review number: ☐ 1 (first) ☐ 2 (second) ☒ 3 (third) ☐ Other (specify) _____	
Triggering action: ☐ Actual RA Onsite Construction at OU #____ ☐ Actual RA Start at OU#____ ☐ Construction Completion ☐ Previous Five-Year Review Report ☒ Other (specify) Second Five Year Review	
Triggering action date *(from WasteLAN)*: _9__ / _22__ / _2000__	
Due date *(five years after triggering action date)*: _9__ / _22__ / _2005_____	

* ["OU" refers to operable unit.]
** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form, cont'd.

Issues:

This Five Year Review is issued for all Operable Units for which a Record of Decision has been completed as of this date.

Recommendations and Follow-up Actions:

The No Further Action remedy at LAAP OU-1 through OU-8 remains successful because it is functioning as intended. LAAP OU-1 through LAAP OU-8 are still located in industrial use areas. Baseline risk assessments completed for each area noted that because hazardous soils were left in place, each must remain in the industrial risk scenario for contamination to pose no threat to human health or the environment.

Continued sampling of groundwater from monitoring wells located at Area P show a continued decrease of nitroaromatic concentrations in the Upper Terrace aquifer but an increase of concentrations in the Lower Terrace aquifer. This proves that the clay cap covering the Area P lagoons has remained successful in preventing precipitation from migrating into the lagoon area and further leaching contamination into the groundwater.

The next five-year review for LAAP OU-1 through OU-7 and LAAP OU-8 will be due October 2010, five years from the due date of this report, to again verify land use conditions, regulatory processes, and if necessary, remedial follow-up actions,.

Protectiveness Statement(s):

The No Further Action remedy for the LAAP OU-1 through OU-7 continues to be successful in protection of both human health and the environment. The IRA performed at Area P has been successful in protecting the shallow groundwater as RDX, TNT, and HMX nitroaromatic concentrations are decreasing in the Upper Terrace aquifer. Inspection of the cap condition, fence, and associated warning signs continue to be performed on a quarterly basis and any necessary repairs have been made. Usage of the former LAAP property, including the seven study areas, remains identified as an industrial exposure scenario.

The No Further Action remedy for OU-8 continues to be successful in protection of both human health and the environment. The area remains in an industrial use scenario and the human health and ecological risk assessments have determined that there is no unacceptable exposure to risks posed by the soils at the Y-Line.

Other Comments:

The site was transferred from the Army to the State of Louisiana as per a FOSET. Under the terms of the FOSET, the Army will continue its responsibilities of evaluating the remaining operable units, reaching Records of Decision, implementing the necessary remedial activities and continuing future Five Year Reviews in coordination with the State of Louisiana.

1.0 Introduction

This report presents the methods, findings, conclusions, and recommendations for the Third FYR for LAAP OU-1 (Area P Lagoons) and the First FYR for LAAP OU-8 (Y-Line Chromic Acid Etching Facility). The location and layout of the former LAAP facility is shown on Figure 1-1. The site is now the property of the State of Louisiana and called Camp Minden. The purpose of conducting the FYR is to evaluate the implementation and performance of the remedy selected in the Record of Decision (ROD) in order to determine if it is, or will be, protective of human health and the environment.

On behalf of the U. S. Army Environmental Center, Shaw Environmental, Inc. has prepared this FYR report pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 121 and the National Contingency Plan (NCP). CERLCA 121 states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section {104} or {106}, the President shall take or require such action. The President shall report to the congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such review.

The United States Environmental Protection Agency interpreted this requirement further in NCP, 40 CFR 300.430(f) (4) (ii) as:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

This is the third FYR for Area P and the first FYR for the Y-Line Chromic Acid Etching Facility. The initial triggering action for Area P was completion the first remedial action in October 1990. The triggering action for this third statutory FYR was the signature date of the previous FYR, September 22, 2000. The Y-Line trigger date was the signature date of the ROD in February 2000. A FYR for each area is required since contaminants remain at both sites greater than levels that allow for unlimited use and unrestricted exposure.

The final ROD for the Area P Pink Water Lagoons was completed by Environmental Science & Engineering, Inc. (ESE) in 1996 and accepted by the EPA in 1997. The first FYR was prepared by Science Applications International Corporation (SAIC) in 1995 (SAIC, 1995), and the second report was prepared by Sniffen Around, LLC (SA) in 2000 (SA, 2000). The final ROD for LAAP OU-8 was prepared by Engineering Technologies Associates, Inc (ETA), (ETA, 2000).

This FYR was performed in a manner consistent with the following USEPA guidance document:

- Comprehensive Five-Year Review Guidance, Office of Emergency and Remedial Response (5204G), EPA 540-R-01-007, OWSER No. 9355.7-03B-P, June 2001.

1.1 Purpose of Review

The purpose of this FYR is to evaluate whether the response actions undertaken in LAAP OU-1 and LAAP OU-8 are functioning as intended and remain protective of human health and the environment. An objective is also to identify and provide recommended remedies for any issues of concern associated with implemented response actions. Section 121(c) of the CERCLA of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, and Section 300.430(f)(4)(ii) of the National Oil and Hazardous Substances Contingency Plan mandate that a post SARA remedial action (RA) be reviewed no less often than every 5 years after initiation of the RA at sites where hazardous substances, pollutants, or contaminants remain at levels above those that allow for unlimited use and unrestricted exposure.

1.2 Site Overview

The former Louisiana Army Ammunition Plant was a military installation comprising approximately 14,949 acres of land near Doyline, Louisiana in Webster and Bossier Parishes. In 1941, the U.S. government acquired ownership of the site. LAAP was subsequently constructed and used by the U.S. Army to load, assemble, and pack (LAP) munitions and manufacture ammunition metal parts. Administrative and residential facilities occupy approximately 74 acres, 2,970 acres are devoted to production lines and mission support facilities, and 11,930 acres are woodlands. The layout of the former LAAP facility is shown on Figure 1-2. The plant is bounded by US Highway 80 to the north, US Highway 164 to the south, Dorcheat Bayou to the east and by Clarke Bayou to the west. The cities of Shreveport and Bossier City are located approximately 22 miles west of the installation and the towns of Dixie Inn and Minden are located just to the northeast. The community of Doyline is located

on the southern boundary and the unincorporated community of Goodwill is located on northern boundary.

1.3 Description and Status of Operable Units

LAAP OU-1 (Area P Pink Water Lagoons) and LAAP OU-8 (Y-Line Chromic Acid Etching Facility) are independently discussed in this FYR report. In the 1996 ROD for Area P, NFA was recommended for Area P and six other study areas (LAAP OU-1 through LAAP OU-7). The USEPA identifies Area P and the six study areas as the Soil/Source OU. Because all seven study areas received a No Further Action remedy, the history of each study area will be briefly discussed in Section 2.0. The LAAP OUs are identified as follows:

- LAAP OU-1 - Area P Pink Water Lagoons (Area P)
- LAAP OU-2 - Burning Ground No. 5 (BG-5)
- LAAP OU-3 - M-4 Waste Water Lagoon (M-4)
- LAAP OU-4 - Burning Ground No. 8 Landfill (BG-8 Landfill)
- LAAP OU-5 - Landfill No. 3 (LF-3)
- LAAP OU-6 - Oily Waste Landfarm (OWL)
- LAAP OU-7 - Burning Ground No. 8 Lagoon (BG-8 Lagoon)
- LAAP OU-8 - Y-Line Chromic Acid Etching Facility (Y-Line).

LAAP OU-1 – Following completion of the IRA at Area P Lagoons, the treated material was returned to the lagoons and capped. A baseline risk assessment determined that no potential human health or ecological risks are associated with the soils and sediments at Area P or the six other OUs (LAAP OU-2 through 7). As established by the statuary declaration of the final ROD (ESE, 1996), NFA is necessary to ensure protection of human health and the environment, but five-year reviews at Area P are to be implemented for continued remedial confirmation. The NFA condition is dependent upon the industrial-use scenario (except M-4 and OWL) as specified in the ROD.

LAAP OU-8 – As established in the ROD (ETA, 2000), no remedial action is necessary to ensure protection of human health and the environment at Y-Line Chromic Acid Etching Facility soils under an industrial use scenario. The baseline human health and ecological risk assessments concluded that unacceptable exposures to hazardous substances will not occur at the Y-Line facility soils in the industrial use scenario. Because this remedy results in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for

unlimited use and unrestricted exposure, a FYR is required to demonstrate that the conditions of the ROD are still being met.

As of January 2005, the facility was transferred to the State of Louisiana (now called Camp Minden) and the use of former LAAP areas remain as military/industrial as specified in the RODs, and therefore meet the NFA recommendation.

2.0 Site Background

This section provides brief descriptions of the location, history, characteristics, and past studies pertaining to the areas encompassed by the former LAAP site as a whole and LAAP OU-1 through LAAP OU-8. Detailed and comprehensive background information concerning the site is contained in the previously submitted Feasibility Study (FS) (ESE, 1993) and earlier investigative reports. Tables 2-1 and 2-2 present a chronology of site events at Area P Lagoons and the Y-Line Chromic Acid Etching Facility, respectively.

2.1 Site History

The primary function of LAAP as a U.S. Army Armament, Munitions, and Chemical Command installation was to load, assemble, and pack ammunition items. Under contract with Silas Mason, Co., plant operations began in 1942 with eight ammunition lines and one ammonium nitrate graining plant. Ammunition production ceased in August 1945 at the close of World War II and the facility was placed in standby status. Under contract to Remington Rand Inc, the facility was reactivated in February 1951 to support the Korean war. All ammunitions loading lines were operational as was the metals forging and machining plant. The Y-Line began operation in 1951 and was used to manufacture 155-mm projectiles. The installation was again placed in standby status in February 1958. The plant was reactivated in September 1962 in support of the Vietnam conflict with Sperry Rand Corporation as the operating contactor. Four production areas were reactivated for classified ammunition items. In 1975, Thiokol Corporation assumed the contract from Sperry Rand Corporation and operated the plant until 1996. Ammunition production operations ceased in 1994 (Shaw, 2004). In October 1997, Y-Line was leased to Valentech Corporation for manufacturing of munitions for Israel.

During manufacturing of munitions for the U. S. Army, the primary functions of LAAP as an Industrial Operations Command installation were as follows (ETA, 2000):

- Loading, assembling, and packing (LAP) of ammunition items;
- Manufacture of ammunition metal parts;
- Operation and maintenance of active facilities in support of current production operations;
- Maintenance and/or layaway of standby facilities (including any machinery and package lines and production equipment packages received from industry or other government installations.

Historically, the working population of LAAP exceeded 7,000 people during high production periods. Currently, the Louisiana Army National Guard (LAARNG) staffs approximately 100 people at Camp Minden. Less than 100 workers work at the areas leased to commercial businesses.

2.1.1 LAAP OU-1, Area P Pink Water Lagoons

Area P consisted of 16 unlined lagoons of approximately 25 acres in size and is located in the south-central portion of the plant (Figures 1-2 and 2-1). The Area P Lagoons were in active use between 1940 and 1981. During this time, untreated explosives-laden wastewater from industrial operations was collected in concrete sumps at each of the various load line areas, hauled by tanker trucks to Area P, and emptied into the lagoons. The wastewater is now listed as hazardous waste according to 40 CFR 261.32, Waste from Specific Source, and classified "K047-Pink/Red water from Trinitrotoluene (TNT) Operations" (SAIC, 1995).

After numerous investigations and assessments, it was determined that the nitroaromatic contamination in soils and sediments from the Area P lagoons was a major contributor to the groundwater nitroaromatic contamination. In 1988, IT Corporation (IT) began an IRA of the Area P Lagoons. Remediation was conducted by draining and treating wastewater in the lagoons, excavating the soil from the lagoons and adjacent areas, and treating the soil in an incinerator to destroy the explosives. Soil in the lagoons was excavated until a total field-determined explosives concentration of 100 milligrams per kilogram (mg/kg) or less of HMX and RDX was achieved. The incineration of 101,929 tons of soil and the treatment of 53,604,490 gallons of wastewater and rain water collected within the 16 former pink water lagoons was completed in 1990. Area P was then backfilled with the incinerated soil, capped, and re-vegetated with Bermuda grass (SAIC, 1995).

The lagoons were covered with a minimum 2-foot thick compacted cap of uncontaminated clay soil from Area P and a nearby borrow pit on LAAP. The remediation of the site increased the elevation of the lagoon area above the surrounding topography to promote surface drainage. Drainage is to the west and south, matching the prevailing drainage in that area. After periods of heavy precipitation, most of the runoff from Area P drains to an Unnamed Ditch located south of Area P. This ditch runs west along the plant boundary to Caney Creek before leaving the plant (SAIC, 1995).

The clay cap covers not only the lagoons but all of the original Area P. It is compacted to at least 90 percent of the standard Proctor density for the material used. The cap is covered with 4-inches of topsoil and has a slope of at least 1 percent over the lagoons (SAIC, 1995). A four-strand barbed wire fence, 4-feet in height, is installed around the cap and the area is posted with signs reading "Area P Decontamination Zone".

2.1.2 LAAP OU-2, Burning Ground No. 5

BG-5 is located on the eastern-central side of the former LAAP facility (Figure 1-2). Open burning of explosives was conducted at BG-5 from approximately 1947. By 1955, the burning ground consisted of at least six burning cages and several detonation areas encompassing approximately 4.5 acres. In 1966, this study area consisted of three raised earthen berms sloping toward a concrete basin on the western side of the site. Rain falling on the burn pads flowed to the basin. The rainwater that had collected in the concrete basin was treated in a wastewater treatment system on the installation and discharged. This basin was taken out of service, dismantled, and removed in 1983. Underground detonation of explosive wastes has been conducted since 1986. Because BG-5 is still active, there is only sparse vegetation at the study area. A portion of the study area slopes to a sand pit and some detonation depressions are visible (ESE, 1996).

During three investigative studies conducted between 1982 and 1989, RDX, HMX, tetryl, 2,4,6-trinitrotouleune (TNT), 1,3,5-trinitrobenzene (TNB), 2,4-dinitrotolune (DNT), and 2,6-DNT were detected in surface and subsurface soils at BG-5. A total of 57 soil samples were collected from 20 locations at a maximum depth of 14 feet below ground surface (bgs). Concentrations of nitroaromatics detected in BG-5 soil samples ranged from 0.6 to 100 milligrams per kilogram (mg/kg) with RDX present at the highest concentrations. Soil samples were located in areas most likely to contain the highest concentrations of explosive chemicals and thus, those areas most likely to pose potential unacceptable risks and contribute site-related constituents to the groundwater were characterized (ESE, 1996).

2.1.3 LAAP OU-3, M-4 Wastewater Lagoon

M-4 is located on the western side of the former LAAP facility, immediately north of M-1 the inert storage warehouse (Figure 1-2). M-4 is an approximate 0.2 acre lagoon that received wastewater from an associated manufacturing facility. The facility was in use during the 1960s through the early 1990s for the manufacture of ammunition metal parts including the machining and metal plating of grenade components. The unlined lagoon was used from 1962 to 1964 to receive treated wastewater from the electroplating operation. This wastewater contained cyanide, cadmium, chromium, and zinc. As a result of past industrial activities, subsurface soils around the lagoon contain cyanide in concentrations ranging from non-detect to 1.91 mg/kg. However, cyanide was only detected in two of the eight boring sampled. The lagoon is still present and continually contains water (ESE, 1996).

In 1986, two surface water and five sediment samples were collected from the interior of the M-4 lagoon. These samples were analyzed for the presence of metals. Metals were not detected in the surface water or sediment samples. Additional soil samples were subsequently collected at the M-4 Wastewater Lagoon during an investigation in 1989. During the

investigation, a total of 24 soil samples were collected from eight soil borings from a maximum depth of 15 feet. These sample locations were situated primarily north and east of the M-4 lagoon. Samples were collected from areas most likely to pose potential unacceptable risks and contribute site-related constituents to the groundwater. Samples collected from the lagoon sludge were analyzed for the following inorganic constituents: cyanide, arsenic, barium, cadmium, chromium, lead, and mercury. The only constituent detected in significant concentrations was cyanide (1.82 to 4.85 mg/kg). No metals or cyanide were detected in M-4 Wastewater Lagoon soil samples (ESE, 1996).

2.1.4 LAAP OU-4, Burning Ground No. 8 Landfill and LAAP OU-7, BG-8 Lagoons

BG-8 Landfill and BG-8 Lagoons are located on the southern boundary on the eastern side of the former LAAP facility (Figure 1-2). The BG-8 area is a 60-acre tract that was used as a burning ground for primarily non-explosive material from the 1950s until some time in the 1970s and also for disposal of sanitary wastes (i.e., domestic sewage) and industrial wastes (waste residue from industrial processes such as used oils, wastewater treatment sludges, etc…). Backfilling of the area was conducted from 1970 through December 1987. The landfill was closed in 1988 per closure requirements issued to LAAP by the LDEQ Solid Waste Division. According to the closure requirements, the BG-8 Landfill was covered with "a compacted clay cap to a depth of 24-inches." The closure requirements also specified that the cap should be capable of supporting vegetation. The site supports a well-established grass cover and no evidence of prior activities remain (ESE, 1996).

Investigation activities were conducted at the BG-8 Landfill/BG-8 Lagoon area between 1982 and 1990. A total of 104 soil samples were collected from 33 locations at depths of 0, 5, 10, and 15 feet below ground surface (bgs). These samples were collected at the landfill and lagoon in areas most likely to contain the highest concentrations of RDX, HMX, and volatile organic compounds (VOCs), thus characterizing the areas most likely to pose unacceptable risks and contribute site-related constituents to the groundwater (ESE, 1996).

Concentrations of RDX and HMX in surface soil samples ranged from non-detect to 48.32 mg/kg with RDX (48.32 mg/kg) present at the highest concentration. Lead was also present in soil samples at concentrations ranging from 12.21 to 48.32 mg/kg. Concentrations of constituents dropped significantly with depth. The only explosive compound detected at the 5-foot interval was HMX at 1.3 mg/kg. No explosive chemicals or metals were detected at either the 10-foot or 15-foot bgs intervals (ESE, 1996).

2.1.5 LAAP OU-5, Landfill No. 3

LF-3 is located approximately in the center of the former LAAP facility (Figure 1-2). LF-3 originally consisted on nine former pink water lagoons that covered an area of 7.5 acres. The

lagoons were used for disposal of pink water beginning in the mid 1950s and ending sometime in the late 1960s. The lagoons were then used as landfill for non-explosive material including building debris. The landfill operations were discontinued approximately in the 1970s. The LF-3 study area was then abandoned with no formal closure. Currently, large trees are present in the area of the former lagoons (ESE, 1996).

From 1982 to 1989, three investigations collected soil samples from the LF-3 study area. A total of 44 soil samples were collected from 14 locations from a maximum depth of 40-feet bgs. Twelve of the sample locations were at LF-3 while two of the locations were immediately north of the area. Areas most likely to pose potential unacceptable risks and contribute site-related constituents to the groundwater were characterized. No explosive chemicals were detected in the soil samples from LF-3 (ESE, 1996).

2.1.6 LAAP OU-6, Oily Waste Landfarm

The OWL is located north of LF-3, immediately southeast of the Y-Line area (Figure 1-2). In 1952, metal ammunition parts began production from the Y-Line Chromic Acid Etching Facility. From early 1960 to late 1975, a series of three pits were used for the treatment of oily residues generated from the production process. These pits encompassed an area of approximately 4 acres. These residues were allowed to settle in the oil pits after settling agents had been added. The water resulting from the settling process were allowed to flow over the land surface into Boone Creek. The settled residues (sludge) were collected and worked into the soil in the surrounding area. In 1975, the pits were filled in with clean soil. As stated in the ROD, the OWL was barely discernable from the surrounding area as there is no surface expression of the former pits and the area was overgrown with shrubs and brush (ESE, 1996).

As a result of the use of the three pits and sludge disposal (landfarming) activities, the surface and subsurface soils were suspected to contain metal chemical contaminants. In 1989 and 1990, soil samples were collected at the OWL during two investigations. A total of 76 soil samplers were collected from 21 locations from a maximum depth of 15-feet bgs. Fourteen of these sample locations were situated within the former landfarm area and 10 of these locations were situated directly east of the landfarm area. These areas were suspected to exhibit the highest concentrations of VOCs and metals. These areas were determined to be the most likely to pose potential unacceptable risks and contribute site-related constituents to the groundwater. Concentrations of arsenic and lead in OWL soil samples ranged from 1.2 to 18 mg/kg with lead being present at the highest concentrations. No VOCs were detected in OWL soil samples (ESE, 1996).

2.1.7 LAAP OU-8, Y-Line Chromic Acid Etching Facility

The Y-Line Chromic Acid Etching Facility is located in the north-central portion of the former LAAP facility approximately 1.5 miles east of the Administration Area (Figure 1-2). The Y-

Line was a former metal parts manufacturing facility and consists of Building 2600. The facility was constructed during the Korean War (1952-1953) and houses the assembly line for forging, machining, and painting 155 mm shells. Shell forging operations occurred at the east end of the building; shell machining and welding in the central portion; and paint preparation, painting, and chromic acid etching in the west end of the building (Figure 2-2).

The chromic acid etching facility, located in the west end of Building 2600, used a chromic acid bath to etch metal bands that had been welded onto the ends of 155 mm shells. This etching served as a quality assurance function to determine if the metal bands were properly adhered to the shell. Also located in the west-end of the building were two Jack Miller machines that phosphatized the shells in preparation for painting. The Jack Miller machines consist of elongated tanks that enclose a moving mechanical rack. A weak chromic acid solution was used as a rinse in the process, and excess solution was cycled into floor sumps at the west end of each machine. These chromic acid etching and rinse operations bean in the early 1960s and continued until production ceased in 1994. Two spills of chromic acid are reported to have occurred; one October 28, 1986 and one November 23, 1987 (ETA, 2000).

The reported spill in October 1986 involved a release of chromic acid in the northwest corner of Building 2600. The release consisted of seepage of approximately 50-gallons of chromic acid from cracks in the dock retainer wall along the north side of the Y-Line facility. It was believed that chromic acid leaked or spilled from the etch bath and entered the foundation soils beneath the building floor. The solutions then seeped through the cracks in the dock retainer wall to affect surrounding soils (ETA, 2000).

The second release from the Y-Line facility was discovered on November 23, 1987 and consisted of seepage of chromium-bearing liquid again apparently from cracks in the dock retainer wall located north of the Y-Line facility. The chromium-bearing liquid entered the foundation soils beneath the floor as the result of spills, washdown of parts, and chromium mist associated with the Etch Facility. Once the seepage was noticed, PVC piping was installed through the retainer wall to collect water and/or liquids in the foundation soils and route the fluids into a catchment tank. Approximately 300 gallons of fluid were reported to have been collected. The fluid was analyzed and found to contain a concentration of 13.2 parts per million (ppm) of hexavalent chromium. All fluids were subsequently treated by an on-site wastewater treatment system (ETA, 2000).

As stated in the February 2000 ROD, there was also evidence that chromium was released into foundation soils beneath other parts of Building 2600. Green staining was apparent along many cracks and seams in the foundation wall along the north, south, and west sides of the building. The green stains were thought to be from precipitated chromium and/or copper. The staining suggested that foundations soils beneath the building contained metal bearing waters

that may have subsequently leaked into the surface soils surrounding the building by way of cracks in the foundation floor/walls (ETA, 2000).

The high velocity exhaust fans on the roof of Building 2600 were used to vent mists and fumes from the Jack Miller machines. The rack passes the shells through several enclosed spray stations that clean or prepare the 155-mm shells prior to painting. A weak chromic acid solution was used as a rinse in the process, and excess solution was cycled into floor sumps at the west end of each machine (Figure 2-2). These chromic acid etching operations began in the early 1960s. The metal parts of the exhaust fans were stained with a green residue. This staining was thought to be due to the presence of chromium and/or copper precipitants. While conducting the RI soils investigation (ESE, 1987), it was assumed that if metal-bearing fumes were emitted from the exhaust fans on the roof of the building, dispersion along prevailing wind directions would have spread metal contamination to the surface soils surrounding the west end of the Y-Line Facility (ETA, 2000).

2.1.8 Preliminary Investigations

A series of investigations and studies have taken place at the former LAAP facility to evaluate the potential for, and extent of, contamination from waste management activities at the installation. An Installation Assessment Study was conducted by United States Army Toxic and Hazardous Materials Agency (USATHAMA) in 1978 that presented findings which indicated potential contamination derived from explosive wastes at several locations. These locations included explosive loading areas, unlined waste ponds, pink water leaching ponds, abandoned landfills, and burning grounds (USATHAMA, 1978).

On February 10, 1989, a Federal Facilities Agreement (FFA) was signed for LAAP which established objectives, responsibilities, procedural framework, and schedules for remediation. Thus, remediation at LAAP is being conducted pursuant to the CERCLA, as amended by the SARA and NCP requirements, with regulatory coordination by LDEQ and the USEPA (Shaw, 2004).

On March 31, 1989, due to nitroaromatic groundwater contamination from the Area P Pink Water Lagoons, LAAP was placed on the NPL with a Hazard Ranking Score of 30.60.

A Remedial Investigation/Feasibility Study (RI/FS) was conducted at seven identified study areas: Area P, BG-5, LF-3, OWL, BG-8 Landfill, BG-8 Lagoon, and M-4. Area P was determined sufficiently contaminated to require an IRA due to nitroaromatic contaminated soil, sediment, and water. Over 100,000 cubic yards of explosives-contaminated soil and over 50,000,000 gallons of wastewater were treated in 1989 and 1990. With the completion of the IRA at Area P, the Army negotiated a no further action ROD for the seven study areas in the Soil/Source OU. A ROD was approved and signed in March 1997 supporting no further action

for the anticipated land uses except for completion of a FYR for Area P only. It was determined that contamination in site-wide groundwater would be dealt with as a separate operable unit (LAAP OU-10) (ETA, 2000).

Field work for a separate remedial investigation at the Y-Line was completed in November 1996. The report concluded that no further action is required for the soils/sources at the Y-Line. Other related investigations of the Y-Line Facility included (ETA, 2000):

- Remedial Investigation, (ESE, 1987)
- Updated Remedial Investigation, (Weston, 1989)
- Geohydrologic Study No. 38-26-K968-91, (USAEHA, 1991a,b)
- LAAP Feasibility Study, Final Comprehensive Remedial Investigation, (ESE, 1992)
- Final Remedial Investigation, Y-Line Chromium Etching Facility, LAAP, (Woodward-Clyde Federal Services, 1996)
- Follow-on Investigation of the Y-Line at the LAAP, (ETA, 1997).

In February 2000, ETA prepared a ROD for the soils of Y-Line (ETA, 2000). The selected remedy of NFA was determined appropriate for Y-Line facility soil. No further remedial action is necessary under the industrial use scenario to ensure protection of human health and the environment but, because hazardous substances, pollutants, or contaminants remain on-site that do require restricted use and restricted exposure, a FYR shall be completed to assess scenario conditions.

2.2 Site Characteristics

2.2.1 Surface Water and Topography

All surface water runoff from the installation exits along the southern boundary by four natural streams that originate north of the plant (Figure 1-2). Bayou Dorcheat forms the eastern boundary of the site, while Clarke Bayou forms the western boundary. Boone Creek and its tributaries drain the eastern and central portions and flow into Bayou Dorcheat. Caney Branch and the man-made Unnamed Ditch drain the western portions then flow into Clarke Bayou.

Both Clarke Bayou and Bayou Dorcheat flow into Lake Bistineau south of the facility (Shaw, 2004).

Area P is located in the center of a broad topographic high that forms a drainage divide between Clarke Bayou, 2.5 miles to the west, and Boone Creek, 2.5 miles to the east. Surface drainage predominantly flows radially to the west-southwest and to the east. Most of the

surface water runoff from Area P has been directed via man-made levees and ditches to tributaries of Clarke Bayou to the southwest; however, some of the runoff to the southeast of Area P can flow toward Boone Creek. Surface drainage to the north and northwest is poor and standing water has been observed (Weston, 1989).

The Y-Line is located on a broad ridge that is bounded to the north and south by two unnamed tributaries that drain to the east/southeast into Boone Creek. Boone Creek is approximately 3000 feet east of the Y-Line. Surface water runoff on the north side of Building 2600 is routed into man-made ditches to the unnamed tributary approximately 1000 feet north. Surface water runoff on the south side of the Building is routed into man-made ditches to the unnamed tributary approximately 2000 feet south.

Water treated in Building 2628 is discharged into the northern ditch system via a permitted waste water outfall. The water is tested and discharged under a Louisiana Department of Environmental Quality (LDEQ) Waste Water Discharge Permit and a USEPA National Pollutant Discharge Elimination System (NPDES) permit.

2.2.2 Hydrogeologic Setting

The hydrogeologic model at the installation consists of three water-bearing units (Upper Terrace aquifer, Lower Terrace/Sparta Sand aquifer, and the Wilcox-Carrizo aquifer) and one confining unit (Cane River Formation). The shallow groundwater system includes the Upper Terrace aquifer and the Lower Terrace/Sparta Sand aquifer while the deep groundwater system is made of the Wilcox-Carrizo aquifer. The deep groundwater within the Wilcox-Carrizo is separated by confining beds of the Cane River Formation. On the west side of LAAP, the Cane River Formation is not present and the Lower Terrace sands rest unconformably on the Wilcox-Carrizo sands (Shaw, 2004).

The streams at the base drain not only the surface runoff but also groundwater from both the Upper and Lower Terrace aquifers. The stream erosional valleys truncate the Lower Terrace/Sparta Sand aquifers. Clarke Bayou on the west and Bayou Dorcheat on the east form effective flow boundaries for the Upper Terrace aquifer, and to some extent the Lower Terrace/Sparta Sand aquifer (Shaw, 2004).

Shallow Water-Bearing Units. The Terrace aquifers, or Prairie Complex, consist of Pleistocene fluvial sediments deposited by the ancestral Red River. Holocene alluvium is found along the valleys of the streams and bayous that drain the facility. The Terrace is divided into the Upper Terrace and Lower Terrace aquifers that are hydraulically interconnected in some areas. Recharge to these aquifers occurs directly from precipitation. Terrace aquifer production wells are not present at the site, but some homeowner wells in the area are screened in the alluvium. The flow of the Terrace

aquifer generally follows the topography and surface water drainage features. Caney Branch, Boone Creek, and the other creeks on the property receive groundwater discharge, as well as precipitation runoff, from the Terrace aquifers (Shaw, 2004).

The Sparta Sand aquifer is directly below the Terrace aquifer, but is limited to the eastern portion of the plant. The Sparta Sand Formation origin is fluvial-deltaic, deposited by the ancestral Mississippi River, and consists of non-marine massive sands, silty sands, and occasional lignite shale. The town of Minden, northeast of the plant, uses the Sparta Sand as a principal source of drinking water. The Sparta Sand aquifer exists in both unconfined and semi-confined conditions. The Sparta Sand is in hydraulic communication with the overlying Terrace aquifer. Recharge to the Sparta Sand occurs from precipitation at outcrop areas and infiltration from the overlying Terrace aquifer (Shaw, 2004).

Confining Unit. The Cane River Formation is a low permeability marine clay unit confining the underlying Wilcox-Carrizo sand. A sandy unit of thinly-bedded fine-grained sand and silt is present near the middle of the Cane River Formation. The Cane River Formation varies in thickness from 200 to 300 feet. The Cane River is also a lower hydrogeologic boundary to the Terrace and Sparta Sand aquifers (Shaw, 2004).

Deep Water-Bearing Unit. The Wilcox-Carrizo aquifer includes the Wilcox Group and Carrizo Sand. The Upper Wilcox Group consists of massive continuous sand beds and subcrops beneath the western quarter of the site up to thicknesses as great as 550 feet. The Wilcox-Carrizo aquifer is an important drinking water and industrial use aquifer in northwest Louisiana (as well as a large portion of eastern and central Texas). The aquifer is recharged from rainfall in the outcrop areas and from the overlying alluvial sediments. The base itself, Doyline, Goodwill, Dixie Inn, and other nearby communities use this aquifer for potable water supply. The former LAAP facility also uses surface water from the Dorcheat Bayou for potable water (Shaw, 2004).

2.2.2.1 Area P Lagoons

Unconsolidated sedimentary deposits that include the Upper Terrace aquifer, Lower Terrace aquifer, and the Cane River Formation underlie Area P. The Sparta Sand has been described at Area P in earlier reports but later examination concluded that the Sparta Sand was not present (ESE, 1996). A total of 66 monitoring wells, 34 screened in the Upper Terrace aquifer and 32 screened in the Lower Terrace aquifer, are present at Area P. Based on site-wide groundwater contour maps, a groundwater flow divide is present through the middle of Area P, with groundwater flow generally in a west-southwest direction with some groundwater flow toward the east.

2.2.2.2 Y-Line Chromic Acid Etching Facility

Similar to Area P, unconsolidated sedimentary deposits are present but at the Y-Line, data from boring logs interpret the Upper Terrace and Lower Terrace aquifers as a single hydrologic unit. A total of 22 monitoring wells are associated with the Y-Line. Based on site-wide groundwater contour maps, groundwater flow at the Y-Line is from west-northwest to east-southeast. The downgradient flow to the east-southeast of the Y-Line is toward Boone Creek and an unnamed tributary to Boone Creek.

2.2.3 Current and Projected Uses of Former LAAP, Area P, and Y-Line

Former LAAP. The area surrounding former LAAP is primarily rural with several small towns located in the near vicinity. Based on 2004 U.S. Census Bureau population estimates, 198,675 people reside in Shreveport and 59,611 in Bossier City. Both cities are located approximately 20 miles to the west. The town of Minden (estimated population 13, 281) is approximately 2 miles northeast of the installation while the closest town, south and immediately adjacent to the facility, is the village of Doyline with a population of approximately 832 people.

The LAAP installation was transferred to the Military Department of the State of Louisiana in January 2005, and is now call Camp Minden. Proposed legislation requires the State to "maintain at least 13,500 acres . . . for the purpose of military training, unless the [Army] Secretary determines that fewer acres are required for such purpose." In addition, legislation requires the State of Louisiana to "assume the rights and responsibilities of the Army under the ARMS agreement between the Army and the facility use contractor . . . in accordance with the terms of such agreement in effect at the time of conveyance." Based on the legislation, it is expected that the State will continue to use the majority of the LAAP property for military training and the remaining LAAP property for commercial/industrial activities (LAAP, 2004a and 2004b).

The Armaments Retooling Manufacturing Support (ARMS) program allowed the federal government to market its industrial sites as commercial entities to private contractors. The areas of the former LAAP involved in the ARMS program included the following:

- (1) Administration area 54 acres 33 buildings
- (2) B Maintenance area 58 acres 43 building
- (3) Lines C, D, E, G, H, J, K, and S 565 acres 312 buildings
- (4) Storage facilities L and M 238 acres 246 buildings
- (5) Part operation areas Y and N 110 acres 43 buildings

- (6) Misc. Areas O, P, W, and STP 122 acres 13 buildings
- (7) Test Areas CPG, T-7, and EWI 28 acres 6 buildings
- (8) Burning grounds BG-5, -8, and DA-9 102 acres 7 buildings
- (9) 3 Landfills 7 acres 0 buildings

These properties have been transferred to the State of Louisiana under a Finding of Suitability for Transfer (FOST) (LAAP, 2004a). The remaining areas of LAAP were also transferred to the State of Louisiana under a separate Finding of Suitability for Early Transfer (FOSET) (LAAP, 2004b).

Area P. A four-strand barbed wire fence is present to demarcate Area P. The area is posted with signs reading "Area P Decontamination Zone." Access to the cap area is restricted to authorized personnel only. Besides routine maintenance of the land (grass mowing and fence repair), no industrial, commercial, private, or public activities at the former Area P Lagoons are taking place.

Y-Line Chromic Acid Etching Facility. All US military LAP and manufacturing operations at the LAAP facility were discontinued in 1994. In October 1997, the Y-Line was leased to Valentech Corporation for manufacturing of munitions for Israel. The site remains under an industrial-use scenario.

3.0 Prior Review Protectiveness Statement and Recommendations

The second FYR report of Area P was finalized in September 2000 (SA, 2000). This section provides a brief overview of the statements regarding remedial actions' protectiveness and recommendations that were presented in the second FYR for Area P. Also provided is a brief overview of the responsiveness summary from the February 2000 ROD for the Y-Line Facility Soils. Detailed discussions concerning the status of recommendations, any follow-up actions, and implemented follow-up actions are contained in subsequent sections of this report.

3.1 Prior Area P FYR Protectiveness Statement

With regard to remedial actions' protectiveness, the second FYR for Area P (SA, 2000) concluded that, "The Remedy is protective because the remedial action at Area P (operable unit) protects human health and the environment. The Interim Remedial Action removed 97% of the source material. Continued monitoring of the groundwater shows an overall reduction in contaminants."

3.2 Prior Area P FYR Recommendations

No major recommendations or follow-up actions for the cap maintenance of Area P were identified but a recommendation for continued monitoring of groundwater for verification of contaminants migration was made. Groundwater issues are currently being addressed in the site-wide groundwater investigation, but analytical results from 16 selected wells are presented in Section 5.5.3 to characterize the contaminant plume status. Minor recommendations from the second FYR include the following (SA, 2000):

- Better records of site inspections and maintenance activities should be kept.
- Grass should be planted on the bare areas, and topsoil or mulch should be used if needed.
- Topsoil should be added around monitoring wells GO109 and GO110 to fill in small eroded areas.
- The fence around Area P should be cleared of brush and mended where needed.

3.3 Prior Y-Line Chromic Acid Etching Facility ROD Summary

The baseline human health and ecological risk assessments both indicated that unacceptable exposures to hazardous substances will not occur from the Y-Line Facility soils as long as the area remains in the industrial-use scenario. The ROD recommended No Further Action (ETA,

2000). Because no further action was selected as the remedial alternative and hazardous soils do remain on-site above levels that allow for unlimited use and unrestricted exposure in the industrial use scenario, a FYR assessing use of the land is required.

4.0 Five-Year Review Process and Findings

This FYR consisted of the following activities: notification and involvement of stakeholders, review of existing and relevant documentation and data, identification and review of recent and new information, assessment of site conditions, and preparation of this report.

4.1 Administrative Components

This FYR was prepared by Shaw under contract for the USAEC. The following individuals from Shaw conducted technical tasks and report preparation:

David Kessler, PG	Geologist
Kyle Kirschenmann, PG	Geologist
Glen Landry, PE	Engineer, Manager

4.2 Community Notification and Involvement

A notice regarding the forthcoming FYR was placed in the Minden Press Herald newspaper in February 2006. No public input was received. The draft and final versions of this FYR report will be available in the public repository located at Administration Area on the former LAAP. Hard copies of documents and correspondence from previous years are physically located at the repository, along with the entire administration record. Hard copies of the administration record are also located and maintained by the USAEC at the Aberdeen Proving Ground in Maryland. In addition, the LAAP repository is maintained with electronic copies of the administrative record at two local libraries; Webster Parish Library in Minden and the Doyline Branch Library in Doyline.

After the FYR report becomes final and includes site inspection results, public comments and suggestions, and the report is signed by lead agency personnel, the community will again be notified that the FYR process has finished and is available for review. A final notice will be published in the Minden Press Herald newspaper. Public comments received on this report and actions taken to address any such comments, titled Responsiveness Summary, will be included in Appendix A. Responses to reviewer comments are enclosed in Appendix B.

4.3 Documentation and Data Reviews

Area P. Reviews of relevant documents including the ROD, previous FYR reports, the 1992 Maintenance Plan, and monitoring data reports were conducted as part of this FYR. As mentioned in the ROD and previous FYR reports, as agreed upon by both the USEPA and

LDEQ, an IRA was conducted at Area P to protect the shallow groundwater. Soil and sediment with HMX and RDX concentrations greater than 100 mg/kg were removed and water in the lagoons was treated and properly disposed, either on-site or off-site depending on the media. Groundwater at the former LAAP installation has been designated a separate OU for investigation, assessment, and if needed, remediation efforts. No changes in local, state, or federal regulations were found that would prohibit the cap on Area P from protecting the environment.

Y-Line. Reviews of relevant documents including the FS, ROD, and monitoring data reports were conducted as part of this FYR. Remediation levels identified in the ROD were also reviewed, and Applicable or Relevant and Appropriate Requirements (ARARs) and toxicity factors were checked for updates.

4.4 Site Inspection

The last site inspection of Area P that this report will present was conducted on November 18, 2005. Continued operation and maintenance (O&M) and corrective action contracts to maintain the remedy in accordance with the approved O&M Plan for Area P is administered by USAEC. The Site Inspection Checklist and photographs of each area are located in Appendix C.

Area P. During quarterly groundwater level gauging, the remedy at Area P is inspected (e.g. soil cap, protective soil cover, protective warning signs, and drainage structures) in accordance with the approved maintenance plan (USATHAMA, 1992). During the last 2005 O&M inspection (November 18, 2005), the remedy was reported to be functioning as intended, with only minor deficiencies noted. The site inspection log book for Area P from 2000 through 2005 is included in Appendix D.

Y-Line. The ROD for the Y-Line only requires that the facility be used for industrial purposes to meet the No Further Action remedy. The Site Inspection Checklist and photographs of the area are also located in Appendix C.

4.5 Interviews

Interviews were conducted with the following people as part of this FYR to obtain additional information and public insight concerning the site. The interviewees raised no major issues, and all agreed the Area P IRA was successful. Interview records are contained in Appendix E.

- Mr. Bartolome J. Cañellas, EPA Region 6, Project Manager for LAAP site.
- Mr. Steve Flowers, Environmental Program Manager/IT Systems Manager for Valentech Systems, Inc., former LAAP Environmental Affairs Manager.

- Mr. Dallas Garner, Retired LAAP employee, former LAAP planning department employee for 30 years.
- Mr. John Halk, Louisiana Department of Environmental Quality, Environmental Scientist Manger.
- Mr. Danny Harrelson, USACE, Co-author of natural attenuation study conducted at LAAP.
- Mr. Brad King, Louisiana Army National Guard, LAAP Environmental Projects Oversight Manager.
- Colonel Ron Stuckey, Camp Minden Louisiana Army National Guard, Commander
- Mr. Doyle Williams, consultant at Engineering Environment, Inc., Army Environmental Center LAAP technical lead for 35 years.

Comments received included:

- Mr. Harrelson believed that continuity of subcontractors would have resulted in a more efficient cleanup and could have saved effort and time.
- Mr. Flowers believes that there is enough historical data collected from the remediation program that it can now be reasonably concluded within the year. Long-term groundwater monitoring should be sufficient to allay anyone's concerns regarding potential contamination.
- Mr. Halk added that it was his desire to work with the new owner of the LAAP facility to continue to address the environmental issues at the site and continue the cooperation of all parties in the future. It is important that all parties understand their respective roles so that environmental issues are dealt with in a sound manner.
- Col. Stuckey indicated he had some concerns about some house keeping issues in the Area N scrap yard and in a drainage ditch in Area F.

5.0 LAAP OU-1 Area P Lagoons

5.1 Remedial Objectives

The objective of the IRA was complete removal of all contaminated soils and sediment containing HMX and RDX with concentrations greater than 100 mg/kg from the Area P lagoons. The 100 mg/kg limit was established and approved by the EPA and LDEQ. The purpose of the IRA was to prevent further leaching of nitroaromatic compounds from the lagoon soil and sediment into the shallow groundwater. No cleanup of groundwater was required by the IRA. Groundwater contaminant issues for the LAAP OU-1 through OU-8 and the entire site will be addressed in the Groundwater OU.

5.2 Remedy Selection

To further characterize the potential current and future threats to human health and the environment posed by remaining nitroaromatic compounds, a baseline risk assessment and an expanded risk assessment were conducted. Results of the risk assessment concluded that no potential human health or ecological risks are associated with the soils at Area P as long as the site remains in an industrial type scenario. Since the risks assessments determined that remaining soils did not pose an unacceptable risk to human health and environment and was a cost effective remedial alternative, the FS considered only No Further Action as the clean-up alternative (ESE, 1993).

In September 1996, the Soil/Source OU ROD (LAAP OU-1 through LAAP OU-7) was signed by the USEPA and LDEQ. The remedy for Area P included placement of the cap/soil cover to satisfy the remedial objective, periodic operation and maintenance (O&M) inspection, maintenance, and repair of the cover to assure that exposure to remaining contaminated soil and contaminant migration to groundwater would not take place.

5.3 Remedy Implementation

The initial remedial action at Area P began in 1987. Activities began with the collection of 24 soil and sediment samples from 19 locations followed by excavation and treatment of lagoon soil and sediment by incineration, and treatment of lagoon water and wastewater generated during IRA activities prior to discharge. During and after excavation activities, a total of 345 soil samples were collected from the areas to confirm that all soil with HMX and RDX concentrations greater than 100 mg/kg had been removed. The IRA was determined to be a success as 267 samples from the total of 345 samples showed non-detectable levels of explosives compounds. The remaining 78 samples revealed HMX and RDX analytical concentrations of 91 mg/kg or less (ESE, 1996).

After the excavated soil and sediment was incinerated, the treated ashes were returned to the excavated lagoons to fill in the excavations. The filled lagoons and surrounding area (area noted as Area P), were then covered with a minimum 2-foot thick clay cap, followed by 4-inches of topsoil, and seeded with native grass. A four-strand barbed wire fence four feet in height was installed to demarcate the capped area and was posted with signs reading "Area P Decontamination Area" (ESE, 1996).

5.4 Follow Up Actions

Interim remedial actions for Area P were completed in 1990 followed by a close-out plan in August 1990 (U. S. Army Corps of Engineers [USACE], 1990), a maintenance plan in 1992 (USATHAMA, 1992), and a final report of the decontaminations operations (IT, 1992). As required by the ROD, the first FYR was completed in December 1995 (SAIC, 1995). Four deficiencies requiring responsive action were noted in the report along with a recommendation to test the infiltration rate effectiveness of the cap material. The deficiencies noted were:

- Repair of damaged fence due to fallen pine tree
- Re-seeding of bare areas on cap greater than 1-foot in area
- Filling-in, grading, re-seeding of ponded water on cap near wells GO068, GO109, and GO110, and
- Replacement of damaged monitoring wells GO010 and GO011.

The damaged fence, bare areas, and ponded water area were addressed and corrected but replacement of the monitoring wells was not conducted.

A second FYR for Area P was prepared and submitted September 2000 (SA, 2000), five-years after acceptance of the first FYR. The EPA conclusions of the report were that the No Further Action remedy was still protective of human health and the environment. The conclusion was based on interviews with persons familiar with the interim remedial action, two site inspections, and review of groundwater analytical data and currently applicable regulatory requirements. Groundwater analytical results from surrounding monitoring wells indicated that there was a lack of movement of the contaminants, an overall decrease in concentration levels, and a decrease in the total mass of the nitroaromatic compounds. The report also noted that the clay cap material had been tested for its infiltration rate effectiveness and been found to retard downward water movement as designed. The EPA had no major recommendations or follow-up actions for the Area P cap but several minor recommendations were noted:

- Keeping of better site inspection and maintenance activity records.
- Seeding of bare areas on the cap.

- Addition of topsoil around monitoring wells GO109 and GO110.
- Clearing of brush around the fence and repair where needed.
- Posting of additional identification signs on the fence.

For this 2005 FYR report; from September 2000 to December 2005, no major failures of the Area P cap have been recorded. Follow-up actions of minor recommendations made for better record keeping and additional maintenance items for continued cap efficiency have been conducted. The bare areas on the cap have been seeded and fertilized several times, but a lack of precipitation keeps the grass from growing well, hence the inspections often find bare patches in the same locations.

5.5 System Operations / O&M

As required by procedures and guidelines identified in the 1992 maintenance plan (USATHAMA, 1992), Area P cap and perimeter fence inspections, in conjunction with gauging of monitoring well water levels, have continued on a quarterly basis. Groundwater sampling from 2000 through 2004 was continued on a biannual basis. Copies of the Area P site inspection logbook entries, from 2000 through 2004, are included in Appendix D.**5.5.1**

5.5.1 Cap and Fence Inspection

A cap and fence inspection was last conducted on November 18, 2005. Notes from this final 2005 site inspection documented that grass on the cap was in good shape, but that the 10-foot strip of grass outside the perimeter fence needed mowing. Notes also included several bare areas greater than 1-square foot present on the cap, but that erosion was not occurring in these areas. Ponding of water was not noted in any areas. A previous inspection (April 27, 2005) noted that the fence needed mending in several places. Acknowledging previous recommendations made for the 2000 FYR, additional warning signs were posted on the fence in February 22, 2002. The overall conclusion from field notes in 2005 was that Area P was in satisfactory condition.

5.5.2 Land Survey Results

Following requirements of the maintenance plan, a survey was conducted of the Area P cap. The purpose of the survey is to compare current cap elevations with 1990 cap elevations and determine if any subsidence has occurred. The survey was conducted in November 2004 by BALAR Engineers and Surveyors, a registered surveying firm in the State of Louisiana. The survey was conducted on a 100-foot grid and translated to the Louisiana State Plane Coordinate system. Survey results indicate that no major subsidence or erosion (greater than 1-foot difference from 1990 to 2005) has occurred since 1990 cap installation. Figure 5-1 shows 2005 topographic contours compared with the original 1990 contours. Surface drainage from the cap is to the southwest and has remained unchanged since 1990.

5.5.3 Groundwater Sampling Results

Primary constituents of concern (COC) at Area P in the soil and groundwater are the following nitroaromatic compounds:

- RDX Hexahydro-1,3,5-trinitro-1,3,5-triazine
- HMX Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
- 2,4,6-TNT 2,4,5-Trinirotoluene
- 1,3-DNB 1,3-Dinitrobenzene
- 2,4-DNT 2,4-Dinitrotoleune
- 2,6-DNT 2,6-Dinitrotoleune
- 1,3,5-TNB 1,3,5-Trnintrobenzene
- NB Nitrobenzene
- Tetryl Trinitrophenylmethylnitramine

Groundwater data collected since completion of the IRA in 1990 has been evaluated and compared to historical results. Groundwater samples have been collected by a variety of environmental subcontracting firms (SAIC, Weston, USACE Waterways Experiment Station (WES), Program Management Company (PMC), ESE, and IT/Shaw) by several different methodologies; with bailers or by pumping using the low-flow minimal drawdown method. WES has collected groundwater samples from Area P, beginning in February 1996. Groundwater samples were collected for use in a natural attenuation research project with nitroaromatic compounds. Regardless of the method used for sample collection, the end result of collecting shallow groundwater indicative of the native Upper or Lower Terrace was obtained. Groundwater from these sampling events, at a minimum, was analyzed for nitroaromatic compounds by EPA Method 8330.

To demonstrate the effectiveness the Area P cap, contaminant trend graphs for TNT, RDX, and HMX from 16 monitoring wells (Figure 2-1) at Area P are presented in Appendix F. The trend graphs include data from post-IRA (1990) through 2004. Groundwater samples were collected by various USACE subcontractors as well as WES. Ten of the presented monitoring wells are screened in the Upper Terrace aquifer (GO009, GO012, GO013, GO083, GO084, GO085, GO104, GO109, GO111, and GO140) and six are screened in the Lower Terrace (GO105, GO108, GO110, GO112, GO141, and GO168). As stated in Section 2.2, both aquifers are part of the shallow groundwater. Groundwater analytical results for explosives only are presented in Table 5-1.

Upper Terrace. A distinct decreasing trend in TNT, RDX, and HMX concentrations is evident in the groundwater of the Upper Terrace aquifer (Appendix F). Concentrations of TNT, RDX, are decreasing in all wells. Concentrations of HMX have decreased in 7 of 10 Upper Terrace wells, with slight increases seen in wells GO104, GO109, and GO111. This decreasing trend in the Upper Terrace aquifer indicates that the clay cap is protecting the upper shallow groundwater from further explosives contamination.

Lower Terrace. Groundwater nitroaromatic concentrations of RDX, TNT, and HMX in 6 wells screened in the Lower Terrace aquifer are also presented in Appendix F. Only monitoring well GO168 exhibited a decreasing trend of all 3 nitroaromatic compounds since 1990. Monitoring well GO108 shows a decreasing trend of RDX and TNT, while well GO105 exhibited only a decreasing HMX trend. The remaining 3 wells, GO110, GO112, and GO141 show increasing trends of RDX, TNT, and HMX since 1990. These Lower Terrace wells are paired with wells installed into the Upper Terrace (GO109[Upper] and GO110[Lower], GO111[Upper] and GO112[Lower], GO140[Upper] and GO141[Lower]). Well pair GO109/GO110 are located near the center of the former pit, well pair GO111/GO112 are located northeast of the perimeter, and well pair GO140/GO141 are located northwest of the perimeter. The concentration trend graphs in Appendix F show that for the constituents RDX, HMX, and TNT, the initial concentrations were higher in the Upper Terrace wells (GO109, GO141) than in the Lower Terrace wells (GO110, GO141). Additionally, as the Upper Terrace wells show decreasing concentration trends, the Lower Terrace wells are showing increasing concentration trends. This was predicted in the fate and transport groundwater modeling performed in the "Follow-On Remedial Investigation for Soils and the Sited-Wide Groundwater Operable Units" (Shaw, 2005) Volume 1, Appendix I, which showed migration (not infiltration) downward from the Upper Terrace into the Lower Terrace as a result of hydraulic connection between these two units, which in this area are separated by silty clays and sometimes are directly connected. The increasing trends seen in the Lower Terrace aquifer are a result of contaminant migration from the Upper Terrace aquifer, although the source of contaminants in soil above 100 mg/kg has been removed.

5.5.4 O&M Costs

Total O&M costs at Area P since that last FYR in February 2000 are estimated to be $24,000 per year for an estimated total of $120,000. Costs have included quarterly site inspections, maintenance, groundwater sampling, and analytical charges.

5.6 Technical Assessment

5.6.1 Question A: Is the remedy functioning as intended by the record of decision?

In order to answer this question, the objective listed in Section 5.1 must be addressed to determine if it is being met by the IRA and subsequent actions taken.

Soil/Source OU Remedy Purpose established by ROD for Area P: To protect the shallow groundwater, all soil and sediment at Area P containing more than 100 mg/kg of RDX and HMX should be removed and area capped with clay.

> Yes. This remedial action was performed and completed in 1990. Excavation and incineration of all soil and sediment with nitroaromatic concentrations greater than 100 mg/kg has been accomplished. Confirmation of the absence of nitroaromatic contaminated soil and sediment was confirmed by the collection and analysis of 345 soil samples. Results concluded that no RDX or HMX soil samples with concentrations greater than 100 mg/kg remained in the former lagoon area. A 2-foot thick clay cap was placed over Area P to prohibit precipitation from leaching remaining nitroaromatic contaminated soil, further impacting the shallow groundwater.
>
> A fence with identification signs has been installed around Area P to demarcate the area and prevent personnel from entering the capped area. The soil cover and area is maintained, mowed, and inspected as described previously. Institutional controls consist of a deed restriction that prohibit the use of Area P. Quarterly inspections of the area are performed that allow sufficient time to detect and repair the cover prior to any type of catastrophic failure of the protective measure.

The remedy appears to be functioning as intended in the ROD (ESE, 1996). As concluded in the first (SAIC, 1995) and the second (SA, 2000) FYR, the integrity of the soil cap protecting the untreated soil from the environment has remained effective. Although all groundwater measures at the Soil/Source OU are included as part of the Groundwater OU, in order to determine the effectiveness of the IRA at Area P in protecting the shallow groundwater, sampling of groundwater in monitoring wells in and around the area has been performed. Analytical results of RDX, TNT, and HMX nitroaromatic compounds detected in the groundwater from selected Area P wells, beginning with the first sampling event after completion of the IRA to present, has been reviewed (Table 5-1 and Appendix F). Data shows that there is a significant decrease in analytical concentrations in the Upper Terrace shallow groundwater but an increase in levels in the Lower Terrace shallow groundwater. This distinctly shows that no additional nitroaromatic contamination is leaching from the former lagoons at Area P into the shallow groundwater. The increase in the nitroaromatic concentration levels in the Lower Terrace is interpreted to be downward migration from the Upper Terrace (refer also to section 5.5.3, Lower Terrace) . With the source removed (cap placed on former leaching Area P lagoons), Lower Terrace contaminant levels should become static or decrease with time. However, migration of contaminants from the Upper Terrace into the Lower Terrace is the scope of the site-wide groundwater investigation, LAAP-010. Therefore, the IRA and ROD objectives continue to function as intended.

5.6.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and interim remedial action objectives used at the time of the remedy still valid?

During this review, it was necessary to consider the exposure assumption made in the September 1996 Soil/Source OU ROD (ESE, 1996) and how this assumption may differ at the present time. The only assumption that would affect the human health and ecological risk determinations was the exposure pathway:

Exposure pathway. The exposure pathway assumptions included in the Soil/Source OU (LAAP OU-1 through OU-7) ROD is still accurate and valid. Area P is currently controlled by the State of Louisiana. No land use activities, besides quarterly site inspections and groundwater well sampling, are taking place. No new human health or ecological routes of exposure to soil have been determined at Area P. The industrial exposure scenario assumptions remain valid. However, the ROD did not evaluate additional exposure scenarios involving exposure of ecological receptors to soil. The ecological risk results will be discussed in the ROD for the Groundwater OU.

5.6.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No. No other information has come to light that calls into question the protectiveness of the remedy.

5.7 LAAP OU-1 through OU-7 Protectiveness Statement

The No Further Action remedy for the LAAP OU-1 through OU-7 continues to be successful in protection of both human health and the environment. The IRA performed at Area P has been successful in protecting the shallow groundwater as RDX, TNT, and HMX nitroaromatic concentrations are decreasing in the Upper Terrace aquifer. Inspection of the cap condition, fence, and associated warning signs continue to be performed on a quarterly basis and any necessary repairs have been made. Usage of the former LAAP property, including the seven study areas, remains identified as an industrial exposure scenario.

Long-term protectiveness of the IRA at Area P will be further verified by obtaining additional groundwater samples to further evaluate the downward migration of the nitroaromatic compounds in the Lower Terrace aquifer.

6.0 LAAP OU-8

6.1 Remedial Objectives

The remedial objective at LAAP OU-8 (Y-Line Chromic Acid Etching Facility) is to conduct an action that will protect both human health and the environment from the contaminated soils. Cleanup objectives of any groundwater contamination issues specifically at the Y-Line Chromic Acid Etching Facility is not part of this FYR but will be addressed under the upcoming site-wide Groundwater OU.

6.2 Remedy Selection

To further characterize the potential current and future threats to human health and the environment posed by hazardous compounds in the soil, a baseline risk assessment was prepared in accordance with USEPA guidance documents. Results of the risk assessment concluded that no potential human health or ecological risks are associated with the soils at Y-Line, as long as the site remains in an industrial use scenario. Since the risk assessment determined that the soils did not pose an unacceptable risk to human health and environment and was a cost effective remedial alternative, No Further Action was chosen as the clean-up alternative (ETA, 2000).

In March and May 2000, the ROD for Y-Line facility soils was signed by the USEPA and LDEQ (ETA, 2000). Because the Y-Line facility remedy leaves hazardous substances, pollutants, and contaminants on-site above levels that allow unlimited use and unrestricted exposure, a statutory FYR is required.

6.3 Remedy Implementation

No Further Action remedy was selected as the remedial alternative for the Y-Line soils and as documented in the baseline human and ecological risk assessment, unacceptable exposures to hazardous substances will not occur from the Y-Line Facility soils as long as they remain in the industrial use scenario. Therefore, implementation of the remedy is to evaluate the current land use conditions at the Y-Line Chromic Acid Etching Facility.

Land use conditions at the Y-Line have not changed since preparation of the human and ecological risk assessment report. The Y-Line area is currently being leased to Valentech Corporation for industrial manufacturing purposes, the former LAAP facility remains under control by the State of Louisiana, and access is restricted to authorized personnel only.

6.4 Follow – Up Actions

No follow-up actions for this first FYR report is required except for continued verification of land use conditions. If the State of Louisiana gives up control or ceases to restrict access to the area or the Y-Line is no longer classified as an industrial type facility, re-evaluation of the remedy selection will be warranted.

6.5 System Operations/ O&M

Because a No Further Action remedy was selected, no cap or prohibitive cover is present above contaminated soils, and land use conditions have not changed, no system operation and maintenance is necessary. Therefore, no O&M costs have been accrued.

6.6 Current Conditions

As noted in Section 2.1, the Y-Line Chromic Acid Etching Facility was leased to Valentech Corporation for manufacturing of munitions in October 1997. To date, the Y-Line area continues to be used by Valentech Corporation for industrial manufacturing purposes.

6.7 Technical Assessment

6.7.1 Question A: Is the remedy functioning as intended by the record of decision?

Yes, the remedy is functioning as intended. As listed in Section 6.3, the ROD selected a No Further Action remedy to protect human health and the environment because as long as the contaminated soil at the Y-Line remained in an industrial type of setting, no unacceptable exposures will occur. From review of site conditions, the Y-Line has continued to remain in an industrial setting, therefore protection of human health and the environment still exists.

6.7.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

Yes, the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives reviewed for the ROD are still accurate and valid at the Y-Line today. The land use remains in an industrial scenario, former LAAP property is controlled by the State of Louisiana, no new human health or ecological routes of exposure to soil have been determined, and access to former LAAP property is restricted to authorized personnel only. Although, no risks associated with groundwater have yet been identified at the Y-Line, all groundwater issues will be addressed in the upcoming site-wide groundwater feasibility study.

6.7.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No. No other information has come to light that calls into question the protectiveness of the remedy.

6.8 LAAP OU-8 Protectiveness Statement

The No Further Action remedy for OU-8 continues to be successful in protection of both human health and the environment. The area remains in an industrial use scenario and the human health and ecological risk assessments have determined that there is no unacceptable exposure to risks posed by the soils at the Y-Line.

7.0 Recommendations

Recommendations provided in this section are based upon the results obtained and the conclusions drawn from the FYR process. Recommendations made in this section are summarized in the FYR Summary Form following the Executive Summary; the FYR Summary form also contains information concerning the party responsible to implement the recommendation, the oversight agency, milestone date, and whether the follow-up action affects either current or future protectiveness.

7.1 LAAP OU-1 through OU-7 Recommendations

NFA remedies were selected for LAAP OU-1 through LAAP OU-7 because contamination associated with the soils was determined to pose no current or potential threat to human health or the environment as long as soil of each area remains in an industrial use scenario. To assure protectiveness of this remedy, continued review of the land use is recommended to be conducted to verify that an industrial setting is maintained.

To assure the protectiveness of the Area P cap for the long-term, inspection and maintenance of the soil cover, fencing, and protective warning signs is also recommended to continue in association with the long-term, biannual groundwater monitoring and sampling. To address and track nitroaromatic contamination in the Upper and Lower Terrace aquifers, the site-wide groundwater feasibility study will be completed. With the site-wide groundwater investigation, human health and ecological remedial objective clean-up levels should be developed. These cleanup levels will assist in determining what former LAAP areas may require groundwater remedial measures. All investigations and reporting currently being performed for groundwater in the Upper and Lower Terraces is being conducted as part of the site-wide groundwater area, LAAP-010. No other recommendations are necessary besides continued review of the land use to verify that an industrial setting is maintained at the referenced LAAP OUs.

7.2 LAAP OU-8 Recommendations

A NFA remedy was selected for the Y-Line Facility soils because contamination associated with the soils was determined to pose no current or potential threat to human health or the environment as long as the facility remains in an industrial use scenario. To assure protectiveness of the Y-Line Facility remedy, continued review of the land use should be conducted to verify that an industrial setting is maintained at LAAP OU-8.

8.0 Statement of Protectiveness

The No Further Action remedy at LAAP OU-1 through OU-8 remains successful because it is still protective of human health and the environment and is therefore functioning as intended. LAAP OU-1 through LAAP OU-8 are still located in industrial use areas. Baseline risk assessments completed for each area noted that because hazardous soils were left in place, each must remain in the industrial risk scenario for contamination to pose no threat to human health or the environment.

Continued sampling of groundwater from monitoring wells located at Area P show a continued decrease of nitroaromatic concentrations in the Upper Terrace aquifer with an increase of concentrations in the Lower Terrace aquifer. The remedial action at the Area P lagoons allowed up to 100 mg/kg of RDX and HMX to be left in soils; no leaching of these constituents as a result of precipitation and infiltration through the clay cap is occurring, or there would be increasing contaminant concentration in the Upper Terrace wells; the decreasing concentrations in the Upper Terrace wells demonstrate the effectiveness of the clay cap. This proves that the clay cap covering the Area P lagoons has remained successful in preventing precipitation from migrating into the lagoon area and further leaching contamination into the shallow groundwater of the Upper and Lower Terrace. However, migration of contaminants from the Upper Terrace into the Lower Terrace is the scope of the site-wide groundwater investigation, LAAP-010. The site-wide groundwater feasibility study will address the contamination in the Lower Terrace aquifer and recommend any remedial alternatives, if needed.

9.0 Next Review

To again verify land use conditions, regulatory processes, and if necessary, remedial follow-up actions, the next five-year review for LAAP OU-1 through OU-7 and LAAP OU-8 will be due October 2010, five years from the due date of this report.

10.0 References

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Tables

Table 2-1
Chronology of Site Events
LAAP OU-1 Area P Lagoons
Louisiana Army Ammunition Plant

Event	Date
Initial discovery of problem or contamination	Phase I Investigation, May 1978
Pre-NPL responses	Remedial Investigation/Feasibility Study for Area P, August 1987
NPL listing	Proposed 7/22/1987, Final 3/13/1989
Superfund State Contract, Cooperative Agreement, or Federal Facility Agreement signature	FFA signed January 1989
Removal actions	Interim Remedial Action (IRA) at Area P, excavation and incineration of soil with capping of lagoons, 1987-1990
Remedial design start	IRA signed 1/31/1989
Remedial design complete	Revised cleanup criteria, 12/21/1989
Construction dates (start, finish)	1989-1990
Construction completion date	October 1990
Final Close-out Report	Closure Plan, August 1990 Maintenance Plan, 1992 Decontamination Operations Report, 1992 Proposed Plan, November 1995
ROD signature	Submitted September 1996 Signed March 4, 1997, No Further Action for the seven soil/source areas (LAAP OU-1 thru OU-7).
ROD Amendments or ESDs	NA
Enforcement documents (CD, AOC, Unilateral Administrative Order)	NA
Deletion from NPL	NA
Previous five-year reviews	1st - SAIC, December 1995 2nd - Sniffen Around LLC, September 2000

Table 2-2
Chronology of Site Events
Y-Line Chromic Acid Etching Facility
Louisiana Army Ammunition Plant

Event	Date
NPL listing	Proposed 7/22/1987, Final 3/13/1989 (due to Area P lagoons)
Superfund State Contract, Cooperative Agreement, or Federal Facility Agreement signature	FFA signed January 1989
Initial discovery of problem or contamination	Draft Remedial Investigation, November 1994
Final Close-out Report	Final RI, May 1998 Proposed Plan, June 1998
ROD signature	Submitted February 2000 Signed May 19, 2000, No Further Action for Y-Line facility soils
ROD Amendments or ESDs	NA
Enforcement documents (CD, AOC, Unilateral Administrative Order)	NA
Deletion from NPL	NA
Previous five-year reviews	NA

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO009			GO009			GO009		
	Collection Date	10/26/1990			2/25/1994			7/10/2003		
	Sample Purpose	REG			REG			REG		
	Units	mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.0311			0.029			0.00328		U
1,3-Dinitrobenzene	99650	0.000678			0.000458		U	0.0002		U
4,4AZOXY	4,4AZOXY							0.001		U
2,4,6-Trinitrotoluene	118967	0.056			0.0283			0.00166		
2,4-Diamino-6-nitrotoluene	6629294							0.002		U
2,4-Dinitrotoluene	121142	0.00236			0.037			0.0002		U
2,6-Diamino-4-nitrotoluene	59229753							0.001		U
2,6-Dinitrotoluene	606202	0.00115		U	0.0006		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782							0.0131		
2,2AZOXY	2,2AZOXY							0.001		U
4-Amino-2,6-dinitrotoluene	19406510							0.00668		
TNX	13980046							0.0002		U
DNX	DNX							0.0002		U
MNX	MNX							0.0002		U
HMX	2691410	0.048			0.026			0.0221		U
m-Nitrotoluene	99081							0.0002		U
MNHMX	MNHMX							0.001		U
Nitrobenzene	98953	0.00107		U	0.000682		U	0.0002		U
o-Nitrotoluene	88722							0.0002		U
p-Nitrotoluene	99990							0.0002		U
RDX	121824	0.56			0.43			0.132		
Tetryl	479458	0.00148			0.000631		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana
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	Sample ID	GO012			GO012			GO012			GO012			GO012		
	Collection Date	10/2/1990			2/24/1994			11/5/1996			2/24/1997			6/1/1997		
	Sample Purpose	REG			REG			REG			REG			REG		
	Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.067			0.95			0.96			0.895			1.14		
1,3-Dinitrobenzene	99650	0.042			0.035			0.0252			0.0182			0.0192		
4,4AZOXY	4,4AZOXY							0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.76			3.7			2.61			2.54			2.46		
2,4-Diamino-6-nitrotoluene	6629294							0.00661			0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.0402			0.12			0.0908			0.062			0.077		
2,6-Diamino-4-nitrotoluene	59229753							0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0114			0.0323		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782							0.00081			0.00763			0.00802		
3,5-dinitroaniline	618871							0.00331			0.00594			0.0002		U
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510							0.0002		U	0.0002		U	0.0002		U
Ammonium picrate	131748															
TNX	13980046							0.0002		U	0.0002		U	0.0002		U
DNX	DNX													0.0005		U
MNX	MNX							0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.083		U	0.11			0.235			0.227			0.2		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.00107		U	0.0123		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
Picric acid	88891															
p-Nitrotoluene	99990															
RDX	121824	2.7			3.1		U	2.18			2.64			2.59		
Tetryl	479458	0.000556		U	0.0063		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana
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Sample ID		GO012			GO012			GO012			GO012			GO012		
Collection Date		8/18/1997			2/23/1998			5/18/1998			8/10/1998			2/16/1999		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.505			1.34			0.705			1.22			0.832		
1,3-Dinitrobenzene	99650	0.00669			0.0154			0.0956			0.0114			0.00915		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.989			2.11			1.17			1.42			1.74		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.00298			0.0074			0.00182		J	0.00391		
2,4-Dinitrotoluene	121142	0.0296			0.065			0.037			0.0436			0.0405		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.00573			0.0045			0.00762			0.00867			0.00774		
3,5-dinitroaniline	618871	0.0056			0.0043			0.00637			0.00494			0.0002		U
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.00643			0.0002		U	0.0002		U	0.0131			0.0002		U
Ammonium picrate	131748							0.154								
TNX	13980046	0.0002		U	0.00203						0.0057			0.0002		U
DNX	DNX	0.0005		U	0.0005		U				0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.00014		J				0.0002		U	0.0002		U
HMX	2691410	0.1			0.175			0.128			0.159			0.13		
m-Nitrotoluene	99081										0.0002		U	0.0002		U
MNHMX	MNHMX				0.005						0.0025		U	0.0025		U
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722										0.0002		U	0.0002		U
Picric acid	88891															
p-Nitrotoluene	99990										0.0002		U	0.0002		U
RDX	121824	1.24			2.3			1.92			1.66			1.94		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
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		Sample ID	GO012			GO012			GO012			GO012			GO012		
		Collection Date	5/24/1999			8/16/1999			2/7/2000			12/7/2000			5/15/2000		
		Sample Purpose	REG			REG			REG			REG			REG		
		Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number		Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354		0.762			0.989			1.03			0.804			1.21		
1,3-Dinitrobenzene	99650		0.0107			0.00818			0.00606			0.00848			0.00304		
4,4AZOXY	4,4AZOXY		0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967		1.12			1.03			1.02			0.851			1.54		
2,4-Diamino-6-nitrotoluene	6629294		0.00233			0.00529			0.00266			0.002		U	0.00281		
2,4-Dinitrotoluene	121142		0.035			0.0311			0.0298			0.00503			0.0437		
2,6-Diamino-4-nitrotoluene	59229753		0.00284			0.001		U	0.001		U	0.001		U	0.00228		
2,6-Dinitrotoluene	606202		0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782		0.00746			0.00773			0.00831			0.0122			0.00848		
3,5-dinitroaniline	618871		0.00925			0.00899			0.0221			0.0109			0.00768		
2,2AZOXY	2,2AZOXY											0.005		U			
4-Amino-2,6-dinitrotoluene	19406510		0.0002		U	0.0078			0.0136			0.0084			0.0002		U
Ammonium picrate	131748																
TNX	13980046		0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX		0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX		0.00015		J	0.0002		U	0.0002		U	0.0002		U	0.0002		U
HMX	2691410		0.118			0.121			0.148			0.108			0.162		
m-Nitrotoluene	99081		0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX		0.0025		U	0.0025		U	0.0025		U				0.0025		U
Nitrobenzene	98953		0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722		0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Picric acid	88891																
p-Nitrotoluene	99990		0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824		1.37			1.84			1.2			0.993			1.7		
Tetryl	479458		0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
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Sample ID		GO012			GO012			GO012			GO012			GO012		
Collection Date		8/3/2000			3/5/2001			5/25/2001			9/7/2001			3/14/2002		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	1.59			0.94			0.86			0.553			0.953		
1,3-Dinitrobenzene	99650	0.014			0.00801			0.00699			0.00379			0.00786		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	1.64			1.38			0.983			0.47			0.899		
2,4-Diamino-6-nitrotoluene	6629294	0.0366			0.00214			0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.0469			0.0369			0.0297			0.0002		U	0.051		
2,6-Diamino-4-nitrotoluene	59229753	0.00278			0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0085			0.0121			0.00808			0.0099			0.00835		
3,5-dinitroaniline	618871	0.0106			0.0099			0.00736			0.00874			0.005		U
2,2AZOXY	2,2AZOXY	0.005		U												
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0109			0.0133			0.0002		U
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.164			0.132			0.145			0.096			0.134		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX															
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Picric acid	88891	0.00455														
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	1.8			1.06			1.13			0.869			1		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

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	Sample ID	GO012		
	Collection Date	12/3/2004		
	Sample Purpose	REG		
	Units	mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	1.5		
1,3-Dinitrobenzene	99650	0.013		J
4,4AZOXY	4,4AZOXY			
2,4,6-Trinitrotoluene	118967	0.7		
2,4-Diamino-6-nitrotoluene	6629294			
2,4-Dinitrotoluene	121142	0.02		J
2,6-Diamino-4-nitrotoluene	59229753			
2,6-Dinitrotoluene	606202	0.05		U
2-Amino-4,6-dinitrotoluene	35572782	0.03		U
3,5-dinitroaniline	618871			
2,2AZOXY	2,2AZOXY			
4-Amino-2,6-dinitrotoluene	19406510	0.05		U
Ammonium picrate	131748			
TNX	13980046			
DNX	DNX			
MNX	MNX			
HMX	2691410	0.18		
m-Nitrotoluene	99081	0.05		U
MNHMX	MNHMX			
Nitrobenzene	98953	0.03		U
o-Nitrotoluene	88722	0.05		U
Picric acid	88891			
p-Nitrotoluene	99990	0.05		U
RDX	121824	0.79		P
Tetryl	479458	0.05		U

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Groundwater Analytical Results (Explosives Only)
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	Sample ID	GO013			GO013			GO013		
	Collection Date	9/28/1990			7/10/2003			12/1/2004		
	Sample Purpose	REG			REG			REG		
	Units	mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.00113			0.0002		U	0.0003		U
1,3-Dinitrobenzene	99650	0.000519		U	0.0002		U	0.0003		U
4,4AZOXY	4,4AZOXY				0.001		U			
2,4,6-Trinitrotoluene	118967	0.000588		U	0.0002		U	0.0003		U
2,4-Diamino-6-nitrotoluene	6629294				0.002		U			
2,4-Dinitrotoluene	121142	0.000612		U	0.0002		U	0.0003		U
2,6-Diamino-4-nitrotoluene	59229753				0.001		U			
2,6-Dinitrotoluene	606202	0.00115		U	0.0002		U	0.0005		U
2-Amino-4,6-dinitrotoluene	35572782				0.00117			0.0003		U
2,2AZOXY	2,2AZOXY				0.001		U			
4-Amino-2,6-dinitrotoluene	19406510				0.00131			0.0005		U
TNX	13980046				0.0002		U			
DNX	DNX				0.0002		U			
MNX	MNX				0.0002		U			
HMX	2691410	0.00165		U	0.0002		U	0.00051		JP
m-Nitrotoluene	99081				0.0002		U	0.0005		U
MNHMX	MNHMX				0.001		U			
Nitrobenzene	98953	0.00107		U	0.0002		U	0.0003		U
o-Nitrotoluene	88722				0.0002		U	0.0005		U
p-Nitrotoluene	99990				0.0002		U	0.0005		U
RDX	121824	0.00211		U	0.0392			0.0016		
Tetryl	479458	0.000556		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
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	Sample ID	GO083			GO083			GO083			GO083			GO083		
	Collection Date	10/26/1990			2/25/1994			2/28/1996			3/26/1996			4/30/1996		
	Sample Purpose	REG			REG			REG			REG			REG		
	Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.73			0.8			0.742			0.661			0.599		
1,3-Dinitrobenzene	99650	0.000519		U	0.00563			0.00381			0.00246			0.00259		
4,4AZOXY	4,4AZOXY							0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	5.3			3.1			2.89			2.53			2.62		
2,4-Diamino-6-nitrotoluene	6629294							0.002		U	0.002		U	0.0114		
2,4-Dinitrotoluene	121142	0.029			0.095			0.0616			0.0138			0.0148		
2,6-Diamino-4-nitrotoluene	59229753							0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.057		U	0.012		U	0.0002		U	0.0787			0.0002		U
2-Amino-4,6-dinitrotoluene	35572782							0.146			0.107			0.126		
3,5-dinitroaniline	618871							0.0505			0.0366			0.0347		
2,2AZOXY	2,2AZOXY													0.005		U
4-Amino-2,6-dinitrotoluene	19406510							0.0438			0.0323			0.0376		
Ammonium picrate	131748							0.005		U						
TNX	13980046															
DNX	DNX															
MNX	MNX															
HMX	2691410	0.35			0.099			0.216			0.197			0.17		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.00107		U	0.014		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
p-Nitrotoluene	99990															
RDX	121824	2.9			1.2			2.06			1.72			1.78		
Tetryl	479458	0.028		U	0.095			0.0005		U	0.0005		U	0.0005		U

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Sample ID		GO083			GO083			GO083			GO083			GO083	
Collection Date		5/29/1996			6/24/1996			7/29/1996			11/5/1996			2/24/1997	
Sample Purpose		REG			REG			REG			REG			REG	
Units		mg/L			mg/L			mg/L			mg/L			mg/L	
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.624			0.678			0.701			0.58			0.418		
1,3-Dinitrobenzene	99650	0.00263			0.00247			0.00264			0.00175			0.00083		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	2.52			2.84			2.33			2.19			1.78		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.00305			0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.0525			0.0586			0.043			0.0133			0.0005		U
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.15			0.164			0.182			0.138			0.111		
3,5-dinitroaniline	618871	0.0394			0.0462			0.0467			0.0352			0.0214		
2,2AZOXY	2,2AZOXY	0.005		U	0.005		U									
4-Amino-2,6-dinitrotoluene	19406510	0.0413			0.0467			0.0625			0.037			0.0261		
Ammonium picrate	131748															
TNX	13980046										0.0002		U	0.0002		U
DNX	DNX															
MNX	MNX										0.0002		U	0.0002		U
HMX	2691410	0.175			0.19			0.212			0.152			0.102		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
p-Nitrotoluene	99990															
RDX	121824	1.62			1.95			1.68			1.4			0.84		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
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	Sample ID	GO083			GO083			GO083			GO083			GO083		
	Collection Date	6/1/1997			8/18/1997			11/17/1997			2/23/1998			5/18/1998		
	Sample Purpose	REG			REG			REG			REG			REG		
	Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.514			0.602			0.574			0.483			0.494		
1,3-Dinitrobenzene	99650	0.00161			0.00136			0.00155			0.00146			0.00242		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	2			2.18			1.999			1.71			1.78		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U	0.00084		J	0.002		U
2,4-Dinitrotoluene	121142	0.00983			0.0759			0.0711			0.0119			0.00619		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.105			0.115			0.093			0.0822			0.00807		
3,5-dinitroaniline	618871	0.024			0.025			0.0211			0.0206			0.0217		
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.0235			0.0199			0.021			0.0186			0.0222		
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.00313					
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U			
MNX	MNX	0.0002		U	0.0002		U	0.0002		U	0.00161					
HMX	2691410	0.105			0.142			0.121			0.0895			0.0999		
m-Nitrotoluene	99081															
MNHMX	MNHMX										0.00276					
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.00655			0.0002		U
o-Nitrotoluene	88722															
p-Nitrotoluene	99990															
RDX	121824	0.757			0.938			0.573			0.344			0.382		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

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Groundwater Analytical Results (Explosives Only)
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	Sample ID	GO083			GO083			GO083			GO083			GO083		
	Collection Date	8/10/1998			2/16/1999			5/24/1999			8/16/1999			2/7/2000		
	Sample Purpose	REG			REG			REG			REG			REG		
	Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.478			0.331			0.457			0.435			0.377		
1,3-Dinitrobenzene	99650	0.00137			0.00089			0.00108			0.00082			0.0002		U
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	1.8			1.438			1.43			1.31			1.08		
2,4-Diamino-6-nitrotoluene	6629294	0.00083		J	0.00333			0.00147			0.00752			0.0038		
2,4-Dinitrotoluene	121142	0.0426			0.0301			0.0002		U	0.0358			0.0332		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.00226			0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0795			0.0682			0.0002		U	0.0614			0.0002		U
3,5-dinitroaniline	618871	0.00876			0.00823			0.0113			0.0115			0.0186		
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.0205			0.0182			0.0678			0.0235			0.0283		
Ammonium picrate	131748															
TNX	13980046	0.00379			0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.00065			0.0002		U	0.00093			0.0002		U	0.0002		U
HMX	2691410	0.0878			0.0419			0.0662			0.0546			0.0468		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX	0.0025		U	0.0025		U	0.0025		U	0.0025		U	0.0025		U
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	0.336			0.281			0.375			0.366			0.371		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO083			GO083			GO083			GO083			GO083		
	Collection Date	5/15/2000			8/3/2000			12/7/2000			3/5/2001			5/25/2001		
	Sample Purpose	REG			REG			REG			REG			REG		
	Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.356			0.353			0.329			0.304			0.337		
1,3-Dinitrobenzene	99650	0.0002		U	0.00018		J	0.0002		U	0.0002		U	0.00042		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	1.08			1.05			0.859			0.688			0.818		
2,4-Diamino-6-nitrotoluene	6629294	0.00104		J	0.0126			0.00099		J	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.0348			0.00423			0.00465			0.00394			0.0002		U
2,6-Diamino-4-nitrotoluene	59229753	0.00269			0.00308			0.00454			0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0689			0.0547			0.0773			0.0673			0.0428		
3,5-dinitroaniline	618871	0.00689			0.00336			0.00741			0.00622			0.00583		
2,2AZOXY	2,2AZOXY				0.005		U	0.005		U						
4-Amino-2,6-dinitrotoluene	19406510	0.03			0.036			0.0554			0.0446			0.0377		
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.00081			0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.0495			0.0413			0.0491			0.0447			0.053		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX	0.0025		U												
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	0.404			0.427			0.379			0.325			0.404		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO083			GO083			GO083		
	Collection Date	9/7/2001			3/14/2002			6/11/2002		
	Sample Purpose	REG			REG			REG		
	Units	mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.0297			0.365			0.339		
1,3-Dinitrobenzene	99650	0.0002		U	0.0002		U	0.0002		U
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.829			0.794			0.725		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.0002		U	0.0002		U	0.0002		U
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.053			0.05			0.0601		
3,5-dinitroaniline	618871	0.00568			0.005		U	0.00574		
2,2AZOXY	2,2AZOXY							0.005		U
4-Amino-2,6-dinitrotoluene	19406510	0.037			0.041			0.0655		
Ammonium picrate	131748									
TNX	13980046	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.0656			0.066			0.0767		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX									
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U
RDX	121824	0.328			0.405			0.38		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO084			GO084			GO084			GO084		
Collection Date		10/26/1990			2/25/1994			2/25/1994			7/11/2003		
Sample Purpose		REG			FDUP			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.55			0.31			0.32			0.0815		
1,3-Dinitrobenzene	99650	0.000519		U	0.000458		U	0.000458		U	0.0002		U
4,4AZOXY	4,4AZOXY										0.001		U
2,4,6-Trinitrotoluene	118967	0.56						0.25			0.0455		
2,4-Diamino-6-nitrotoluene	6629294										0.002		U
2,4-Dinitrotoluene	121142	0.00307			0.0112			0.0121			0.0002		U
2,6-Diamino-4-nitrotoluene	59229753										0.001		U
2,6-Dinitrotoluene	606202	0.057		U	0.012		U	0.0006		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782										0.00597		
2,2AZOXY	2,2AZOXY										0.001		U
4-Amino-2,6-dinitrotoluene	19406510										0.00931		
TNX	13980046										0.0002		U
DNX	DNX										0.0002		U
MNX	MNX										0.0002		U
HMX	2691410	0.0118			0.014			0.0133			0.00039		
m-Nitrotoluene	99081										0.0002		U
MNHMX	MNHMX										0.001		U
Nitrobenzene	98953	0.00107		U	0.000682		U	0.000682		U	0.0002		U
o-Nitrotoluene	88722										0.0002		U
p-Nitrotoluene	99990										0.0002		U
RDX	121824	0.29						0.12			0.0215		
Tetryl	479458	0.028		U	0.00503			0.00566			0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO085			GO085			GO085			GO085			GO085		
Collection Date		10/26/1990			3/3/1994			2/28/1996			3/26/1996			4/30/1996		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	7.3			3.8			9.15			9.3			10.1		
1,3-Dinitrobenzene	99650	0.12			0.032			0.0428			0.04			0.0457		
4,4AZOXY	4,4AZOXY							0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	16			4.2			7.5			7.85			9.19		
2,4-Diamino-6-nitrotoluene	6629294							0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.13			0.079			0.101			0.0738			0.0902		
2,6-Diamino-4-nitrotoluene	59229753							0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.057		U	0.059		U	0.0002		U	0.0306			0.0002		U
2-Amino-4,6-dinitrotoluene	35572782							0.291			0.252			0.266		
3,5-dinitroaniline	618871							0.281			0.198			0.194		
2,2AZOXY	2,2AZOXY													0.005		U
4-Amino-2,6-dinitrotoluene	19406510							0.05			0.0199			0.0002		U
Ammonium picrate	131748							0.507								
TNX	13980046															
DNX	DNX															
MNX	MNX															
HMX	2691410	1			0.31		U	1.3			1.64			1.77		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.00107		U	0.067		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
Picric acid	88891															
p-Nitrotoluene	99990															
RDX	121824	7.6			3.8			11.8			11			13		
Tetryl	479458	0.028		U	0.31			0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO085			GO085			GO085			GO085			GO085		
Collection Date		5/29/1996			6/24/1996			7/29/1996			11/5/1996			2/24/1997		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	9.1			10.6			9.99			9.71			8.82		
1,3-Dinitrobenzene	99650	0.0386			0.038			0.0359			0.039			0.026		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	7.47			8.07			7.2			7.35			6.37		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U	0.00696			0.002		U
2,4-Dinitrotoluene	121142	0.0916			0.0908			0.0757			0.0907			0.0546		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.276			0.299			0.344			0.275			0.294		
3,5-dinitroaniline	618871	0.29			0.306			0.242			0.187			0.136		
2,2AZOXY	2,2AZOXY	0.005		U	0.005		U									
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Ammonium picrate	131748															
TNX	13980046										0.0002		U	0.0002		U
DNX	DNX															
MNX	MNX										0.0002		U	0.0002		U
HMX	2691410	1.63			1.82			1.7			1.45			1.4		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
Picric acid	88891															
p-Nitrotoluene	99990															
RDX	121824	10.5			9.05			8.63			8.52			7.39		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO085			GO085			GO085			GO085			GO085		
Collection Date		6/1/1997			8/18/1997			11/17/1997			2/23/1998			5/18/1998		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	8.98			7.54			9.124			8.33			7.79		
1,3-Dinitrobenzene	99650	0.0247			0.0233			0.0254			0.0258			0.0002		U
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	5.79			4.86			6.149			5.32			5.06		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U	0.00364			0.002		U
2,4-Dinitrotoluene	121142	0.0573			0.0531			0.0585			0.0583			0.0569		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.253			0.228			0.0002		U	0.214			0.233		
3,5-dinitroaniline	618871	0.155			0.142			0.144			0.151			0.146		
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U			
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U			
MNX	MNX	0.0002		U	0.0002		U	0.0002		U	0.00948					
HMX	2691410	1.36			0.943			1.343			1.12			1.03		
m-Nitrotoluene	99081															
MNHMX	MNHMX										0.0375					
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
Picric acid	88891															
p-Nitrotoluene	99990															
RDX	121824	6.69			7.31			8.283			6.81			7.62		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO085			GO085			GO085			GO085			GO085		
Collection Date		8/10/1998			2/16/1999			5/24/1999			8/16/1999			2/7/2000		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	8.15			9.64			7.85			6.95			9.12		
1,3-Dinitrobenzene	99650	0.0243			0.0229			0.0226			0.0177			0.0209		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	5			5.6			4.78			4.16			5.13		
2,4-Diamino-6-nitrotoluene	6629294	0.00099		J	0.002		U	0.0033			0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.0563			0.0594			0.0552			0.0567			0.325		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.00435			0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.215			0.184			0.19			0.177			0.209		
3,5-dinitroaniline	618871	0.104			0.227			0.186			0.168			0.104		
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.106		
Ammonium picrate	131748				0.241											
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.00784			0.0002		U	0.00699			0.0002		U	0.0002		U
HMX	2691410	1.03			1.2			1.02			0.865			0.993		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX	0.0025		U	0.0025		U	0.0205			0.0025		U	0.0025		U
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Picric acid	88891															
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	6.13			7.98			6.33			5.53			7.85		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO085			GO085			GO085			GO085			GO085		
Collection Date		5/15/2000			8/3/2000			12/7/2000			3/5/2001			5/25/2001		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	6.47			5.74			5.74			5.17			7.39		
1,3-Dinitrobenzene	99650	0.0152			0.0271			0.0239			0.0176			0.0171		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	3.78			2.97			2.91			2.81			3.38		
2,4-Diamino-6-nitrotoluene	6629294	0.00283			0.0208			0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.0394			0.04			0.0559			0.0442			0.0439		
2,6-Diamino-4-nitrotoluene	59229753	0.00466			0.00581			0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.172			0.168			0.181			0.175			0.174		
3,5-dinitroaniline	618871	0.141			0.14			0.00942			0.189			0.0585		
2,2AZOXY	2,2AZOXY				0.005		U	0.005		U						
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0882			0.0002		U	0.0002		U	0.0336		
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.00384			0.00418			0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.517			0.397			0.553			0.485			0.556		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX	0.0025		U												
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Picric acid	88891				0.112											
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	5.45			3.73			5.08			4.12			4.04		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.138		

Table 5-1
Groundwater Analytical Results (Explosives Only)
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Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO085			GO085			GO085			GO085		
Collection Date		3/14/2002			9/7/2001			6/11/2002			12/3/2004		
Sample Purpose		REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	5.43			7.08			7.51			6.6		
1,3-Dinitrobenzene	99650	0.0159			0.00214			0.016			0.3		U
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U			
2,4,6-Trinitrotoluene	118967	2.37			3.27			3			3		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U			
2,4-Dinitrotoluene	121142	0.0002		U	0.0002		U	0.0002		U	0.1		J
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U			
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.5		U
2-Amino-4,6-dinitrotoluene	35572782	0.0002		U	0.202			0.135			0.3		U
3,5-dinitroaniline	618871	0.005		U	0.068			0.005		U			
2,2AZOXY	2,2AZOXY							0.005		U			
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.5		U
Ammonium picrate	131748												
TNX	13980046	0.0002		U	0.0002		U	0.0002		U			
DNX	DNX	0.0005		U	0.0005		U	0.0005		U			
MNX	MNX	0.0002		U	0.0002		U	0.0002		U			
HMX	2691410	0.447			0.779			0.533			0.89		J
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.5		U
MNHMX	MNHMX												
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.3		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.5		U
Picric acid	88891	0.0024		U	0.155								
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.5		U
RDX	121824	3.98			6.75			5.3			5.3		
Tetryl	479458	0.109			0.121			0.133			0.5		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO104			GO104			GO104			GO104			GO104		
Collection Date		10/27/1990			3/2/1994			3/2/1994			2/28/1996			3/26/1996		
Sample Purpose		REG			FDUP			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	6.7						6.3			9.11			9.84		
1,3-Dinitrobenzene	99650	0.66						0.58			0.519			0.537		
4,4AZOXY	4,4AZOXY										0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	15						11			10.5			11.3		
2,4-Diamino-6-nitrotoluene	6629294										0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.72						0.57			0.442			0.345		
2,6-Diamino-4-nitrotoluene	59229753										0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.057		U	0.06		U	0.06		U	0.0002		U	0.0863		
2-Amino-4,6-dinitrotoluene	35572782										0.165			0.108		
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871										0.0002		U	0.0168		
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510										0.0002		U	0.0002		U
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748										0.005		U			
TNX	13980046															
DNX	DNX															
MNX	MNX															
HMX	2691410	0.75			0.31		U	0.37		U	1.53			1.83		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	4						0.068		U	0.0002		U	0.00403		
o-Nitrotoluene	88722															
p-Nitrotoluene	99990															
RDX	121824	12						7.1			23.4			24.2		
Tetryl	479458	0.028		U				0.12			0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO104			GO104			GO104			GO104			GO104		
Collection Date		4/30/1996			5/29/1996			6/24/1996			7/29/1996			11/5/1996		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	9.54			8.72			9.85			9.57			9.28		
1,3-Dinitrobenzene	99650	0.45			0.527			0.497			0.559			0.526		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	13.9			15.1			11.5			11.3			10.9		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.374			0.512			0.453			0.442			0.392		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.116			0.108			0.133			0.132			0.125		
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871	0.0002		U	0.0002		U	0.0002		U	0.017			0.0002		U
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY	0.005		U	0.005		U	0.005		U						
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748															
TNX	13980046													0.0002		U
DNX	DNX															
MNX	MNX													0.0002		U
HMX	2691410	1.84			1.78			1.86			1.89			1.69		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
p-Nitrotoluene	99990															
RDX	121824	24			22.61			25.3			21.7			22.3		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
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Sample ID		GO104			GO104			GO104			GO104			GO104		
Collection Date		2/24/1997			6/1/1997			8/18/1997			11/17/1997			2/23/1998		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	9.1			9.5			9.2			9.81			9.13		
1,3-Dinitrobenzene	99650	0.403			0.435			0.461			0.42			0.453		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	10.8			13.8			10.1			10.5			10.3		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U	0.002		U	0.0221		
2,4-Dinitrotoluene	121142	0.332			0.376			0.389			0.363			0.398		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.131			0.125			0.109			0.126			0.119		
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871	0.0002		U	0.0281			0.0109			0.00935			0.0122		
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX				0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0204		
HMX	2691410	1.79			1.77			1.84			1.923			1.8		
m-Nitrotoluene	99081															
MNHMX	MNHMX													0.0332		
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
p-Nitrotoluene	99990															
RDX	121824	21.8			21.4			25.5			22.7			20.9		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO104			GO104			GO104			GO104			GO104		
Collection Date		5/18/1998			8/10/1998			11/10/1998			2/16/1999			5/24/1999		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	9.53			9.67			6.95			10.43			10.3		
1,3-Dinitrobenzene	99650	0.436			0.461			0.482			0.313			0.399		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U				0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	10.8			9.8			10.3			12.99			9.83		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.0138						0.002		U	0.0227		
2,4-Dinitrotoluene	121142	0.371			0.386			0.503			0.288			0.338		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U				0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.013	JI	UJ	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.142			0.135			0.013	JI	UJ	0.116			0.151		
2-Nitrotoluene	88722							0.026	JI	UJ						
3,5-dinitroaniline	618871	0.0113			0.00987						0.0002		U	0.0164		
3-Nitrotoluene	99081							0.026	JI	UJ						
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U				0.0002		U	0.0002		U
4-Amino-2,6-dinitrotoluene	9146510							0.013	JI	UJ						
4-Nitrotoluene	99990							0.026	JI	UJ						
Ammonium picrate	131748															
TNX	13980046				0.0002		U				0.0002		U	0.0002		U
DNX	DNX				0.0005		U				0.0005		U	0.0005		U
MNX	MNX				0.0153						0.0002		U	0.0103		
HMX	2691410	1.88			1.86			1.35			2			2.14		
m-Nitrotoluene	99081				0.0002		U				0.0002		U	0.0002		U
MNHMX	MNHMX				0.0025		U				0.0025		U	0.0293		
Nitrobenzene	98953	0.0002		U	0.0002		U	0.03		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722				0.0002		U				0.0002		U	0.0002		U
p-Nitrotoluene	99990				0.0002		U				0.0002		U	0.0002		U
RDX	121824	21.7			20.63			19.8			21.42			21.3		
Tetryl	479458	0.0005		U	0.0005		U	0.01	JI	UJ	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO104			GO104			GO104			GO104			GO104		
Collection Date		8/16/1999			2/7/2000			5/15/2000			8/3/2000			12/7/2000		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	9.8			10.2			10.2			9.8			6.68		
1,3-Dinitrobenzene	99650	0.394			0.0209			0.346			0.448			0.45		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	9.58			10.7			8.9			8.41			9.32		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.0109			0.16			0.002		U
2,4-Dinitrotoluene	121142	0.383			0.0587			0.303			0.356			0.38		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.00642			0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.144			0.209			0.145			0.154			0.162		
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871	0.0133			0.0002		U	0.0123			0.00771			0.0134		
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY										0.005		U	0.005		U
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0604			0.0002		U	0.0002		U	0.0002		U
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0164			0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.0002		U	0.0002		U	0.0117			0.0002		U
HMX	2691410	2.01			2.18			2.19			1.63			1.26		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX	0.0025		U	0.0025		U	0.0025		U						
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	20.4			22			20.6			18.1			11.4		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO104			GO104			GO104			GO104			GO104		
Collection Date		3/5/2001			5/25/2001			9/7/2001			3/14/2002			6/11/2002		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	6.38			10.3			8.94			12			11.1		
1,3-Dinitrobenzene	99650	0.36			0.51			0.389			0.518			0.433		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	7.03			9.04			6.46			11.7			7.74		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.299			0.377			0.0002		U	0.0002		U	0.0002		U
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.144			0.181			0.194			0.0002		U	0.0002		U
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871	0.018			0.0109			0.00271			0.005		U	0.005		U
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY													0.005		U
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
HMX	2691410	1.33			2.02			2.14			2.45			2.26		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX															
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	11.3			19.6			17.8			21.4			18.4		
Tetryl	479458	0.0005		U	0.0197			0.0115			0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO104		
	Collection Date	11/29/2004		
	Sample Purpose	REG		
	Units	mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	15		
1,3-Dinitrobenzene	99650	0.55		
4,4AZOXY	4,4AZOXY			
2,4,6-Trinitrotoluene	118967	11		
2,4-Diamino-6-nitrotoluene	6629294			
2,4-Dinitrotoluene	121142	0.46		B
2,6-Diamino-4-nitrotoluene	59229753			
2,6-Dinitrotoluene	606202	0.5		U
2-Amino-4,6-dinitrotoluene	35572782	0.3		U
2-Nitrotoluene	88722			
3,5-dinitroaniline	618871			
3-Nitrotoluene	99081			
2,2AZOXY	2,2AZOXY			
4-Amino-2,6-dinitrotoluene	19406510	0.5		U
4-Amino-2,6-dinitrotoluene	9146510			
4-Nitrotoluene	99990			
Ammonium picrate	131748			
TNX	13980046			
DNX	DNX			
MNX	MNX			
HMX	2691410	3.3		
m-Nitrotoluene	99081	0.5		U
MNHMX	MNHMX			
Nitrobenzene	98953	0.3		U
o-Nitrotoluene	88722	0.5		U
p-Nitrotoluene	99990	0.5		U
RDX	121824	24		
Tetryl	479458	0.5		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO105			GO105			GO105			GO105			GO105		
Collection Date		9/29/1990			2/28/1994			2/28/1996			3/26/1996			4/30/1996		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	1.2			3.9			0.649			0.535			0.434		
1,3-Dinitrobenzene	99650	0.09			0.32			0.0495			0.044			0.0358		
4,4AZOXY	4,4AZOXY							0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.094			0.0165			0.39			0.444			0.242		
2,4-Diamino-6-nitrotoluene	6629294							0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.033			0.054			0.027			0.0174			0.016		
2,6-Diamino-4-nitrotoluene	59229753							0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.00632			0.06		U	0.0002		U	0.0002		U	0.00533		
2-Amino-4,6-dinitrotoluene	35572782							0.00669			0.00525			0.0051		
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871							0.0119			0.0002		U	0.0002		U
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY													0.005		U
4-Amino-2,6-dinitrotoluene	19406510							0.00225			0.0002		U	0.00153		
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748							0.005		U						
TNX	13980046															
DNX	DNX															
MNX	MNX															
HMX	2691410	0.21			0.36			0.116			0.107			0.0807		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.6			0.068		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
p-Nitrotoluene	99990															
RDX	121824	1.3			0.33			1.43			1.12			0.882		
Tetryl	479458	0.000556		U	0.00371			0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO105			GO105			GO105			GO105			GO105		
Collection Date		5/29/1996			6/24/1996			7/29/1996			11/5/1996			2/24/1997		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.407			0.254			0.199			0.192			0.137		
1,3-Dinitrobenzene	99650	0.0241			0.00245			0.0222			0.0227			0.0177		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.178			0.129			0.111			0.132			0.0842		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U	0.00563			0.002		U
2,4-Dinitrotoluene	121142	0.00298			0.0131			0.0116			0.0141			0.00973		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0051			0.00319			0.00287			0.00321			0.0019		
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871	0.0002		U	0.0002		U	0.0002		U	0.00225			0.00081		
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY	0.005		U	0.005		U									
4-Amino-2,6-dinitrotoluene	19406510	0.00154			0.00119			0.00193			0.0002		U	0.0002		U
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748															
TNX	13980046										0.0002		U	0.0002		U
DNX	DNX															
MNX	MNX										0.0002		U	0.0002		U
HMX	2691410	0.0637			0.0486			0.0284			0.0368			0.0223		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
p-Nitrotoluene	99990															
RDX	121824	0.683			0.532			0.471			0.554			0.388		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO105			GO105			GO105			GO105			GO105		
Collection Date		6/1/1997			8/18/1997			11/17/1997			2/23/1998			5/18/1998		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.176			0.158			0.181			0.096			0.141		
1,3-Dinitrobenzene	99650	0.0195			0.0097			0.0302			0.0144			0.00794		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.124			0.177			0.176			0.0873			0.12		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U	0.00418			0.002		U
2,4-Dinitrotoluene	121142	0.0144			0.00759			0.0147			0.00805			0.00673		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.00439			0.00226			0.0002		U	0.00096			0.00213		
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871	0.00101			0.00164			0.00091			0.0012			0.00095		
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U			
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U			
MNX	MNX	0.0002		U	0.0002		U	0.0002		U	0.00238					
HMX	2691410	0.0299			0.0104			0.0373			0.0157			0.0304		
m-Nitrotoluene	99081															
MNHMX	MNHMX										0.00471					
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
p-Nitrotoluene	99990															
RDX	121824	0.47			0.654			0.707			0.356			0.525		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO105			GO105			GO105			GO105			GO105		
Collection Date		8/10/1998			11/10/1998			2/16/1999			5/24/1999			8/16/1999		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.283			0.216			0.144			0.334			0.597		
1,3-Dinitrobenzene	99650	0.0155			0.0154			0.0206			0.0123			0.0396		
4,4AZOXY	4,4AZOXY	0.005		U				0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.235			0.135	G	U	0.133			0.317			0.326		
2,4-Diamino-6-nitrotoluene	6629294	0.00244						0.00211			0.00523			0.002		U
2,4-Dinitrotoluene	121142	0.00856			0.00366	JP	J	0.00962			0.00865			0.0186		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U				0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.013	JI	UJ	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.00445			0.013	JI	UJ	0.00242			0.00493			0.00723		
2-Nitrotoluene	88722				0.026	JI	UJ									
3,5-dinitroaniline	618871	0.00067						0.0002		U	0.0013			0.00346		
3-Nitrotoluene	99081				0.026	JI	UJ									
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.00139						0.0002		U	0.0002		U	0.0002		U
4-Amino-2,6-dinitrotoluene	9146510				0.00661											
4-Nitrotoluene	99990				0.026	JI	UJ									
Ammonium picrate	131748															
TNX	13980046	0.0002		U				0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U				0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.00218						0.0002		U	0.00105			0.0002		U
HMX	2691410	0.0587			0.0565			0.0295			0.0714			0.118		
m-Nitrotoluene	99081	0.0002		U				0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX	0.0025		U				0.0025		U	0.00606			0.0025		U
Nitrobenzene	98953	0.0002		U	0.01		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U				0.0002		U	0.0002		U	0.0002		U
p-Nitrotoluene	99990	0.0002		U				0.0002		U	0.0002		U	0.0002		U
RDX	121824	1.01			0.625			0.535			1.14			1.71		
Tetryl	479458	0.0005		U	0.00026		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO105			GO105			GO105			GO105			GO105		
Collection Date		2/7/2000			5/15/2000			8/3/2000			12/7/2000			3/5/2001		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.608			0.555			0.559			0.594			0.39		
1,3-Dinitrobenzene	99650	0.0568			0.0213			0.0227			0.0601			0.0257		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.398			0.335			0.393			0.487			0.298		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.00398			0.0586			0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.025			0.00855		U	0.00714			0.00582			0.0074		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0002		U	0.00817		U	0.00731			0.0101			0.00934		
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871	0.00657			0.00102			0.0002		U	0.0002		U	0.0002		U
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY							0.005		U	0.005		U			
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0002		
MNX	MNX	0.0002		U	0.0002		U	0.00279			0.0002		U	0.0002		U
HMX	2691410	0.124			0.115			0.0966			0.11			0.073		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX	0.0025		U	0.0025		U									
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	1.82			1.76			0.655			1.36			0.95		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana
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Sample ID		GO105			GO105			GO105			GO105		
Collection Date		5/25/2001			9/7/2001			3/14/2002			6/11/2002		
Sample Purpose		REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.442			0.741			0.78			0.617		
1,3-Dinitrobenzene	99650	0.0172			0.0457			0.04			0.02		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.184			0.492			0.561			0.228		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.00859			0.0002		U	0.0002		U	0.0002		U
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.00164			0.0002		U	0.0002		U	0.0002		U
2-Nitrotoluene	88722												
3,5-dinitroaniline	618871	0.0002		U	0.00161			0.005		U	0.005		U
3-Nitrotoluene	99081												
2,2AZOXY	2,2AZOXY										0.005		U
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U
4-Amino-2,6-dinitrotoluene	9146510												
4-Nitrotoluene	99990												
Ammonium picrate	131748												
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.0722			0.148			0.145			0.124		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX												
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	1.04			1.89			2			1.42		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO108			GO108			GO108			GO108			GO108		
Collection Date		10/27/1990			11/5/1996			2/24/1997			6/1/1997			8/18/1997		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.73			0.912			0.846			0.93			0.87		
1,3-Dinitrobenzene	99650	0.026		U	0.0144			0.00994			0.00939			0.00905		
4,4AZOXY	4,4AZOXY				0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	1.8			0.706			0.578			0.642			0.564		
2,4-Diamino-6-nitrotoluene	6629294				0.002		U	0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.23			0.09			0.0732			0.0778			0.0714		
2,6-Diamino-4-nitrotoluene	59229753				0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.057		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782				0.00063			0.001			0.00122			0.0002		U
3,5-dinitroaniline	618871				0.0002		U	0.0002		U	0.0002		U	0.00069		
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510				0.0002		U	0.0002		U	0.0002		U	0.0002		U
TNX	13980046				0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX										0.0005		U	0.0005		U
MNX	MNX				0.0002		U	0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.00374			0.0002		U	0.0002		U	0.00116			0.0002		U
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.2			0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
p-Nitrotoluene	99990															
RDX	121824	0.39			0.0122			0.0108			0.0094			0.00797		
Tetryl	479458	0.028		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO108			GO108			GO108			GO108			GO108		
	Collection Date	11/17/1997			2/23/1998			5/18/1998			8/10/1998			2/16/1999		
	Sample Purpose	REG			REG			REG			REG			REG		
	Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.899			0.844			0.784			0.8			0.68		
1,3-Dinitrobenzene	99650	0.0105			0.00952			0.00091			0.00943			0.00903		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.543			0.477			0.4			0.476			0.497		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.00143		J	0.002		U	0.00044		J	0.002		U
2,4-Dinitrotoluene	121142	0.0733			0.0672			0.0556			0.0676			0.0642		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.00083			0.00018		J	0.00087			0.00179			0.0002		U
3,5-dinitroaniline	618871	0.0004			0.00036			0.00034			0.0011			0.0002		U
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
TNX	13980046	0.0002		U	0.0002		U				0.00023			0.0002		U
DNX	DNX	0.0005		U	0.0005		U				0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.0003						0.0002		U	0.0002		U
HMX	2691410	0.0002		U	0.00105			0.0002		U	0.00083			0.0002		U
m-Nitrotoluene	99081										0.0002		U	0.0002		U
MNHMX	MNHMX				0.0025		U				0.0025		U	0.0025		U
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722										0.0002		U	0.0002		U
p-Nitrotoluene	99990										0.0002		U	0.0002		U
RDX	121824	0.00869			0.00826			0.00731			0.00975			0.00888		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO108			GO108			GO108			GO108			GO108		
Collection Date		5/24/1999			8/16/1999			2/7/2000			5/15/2000			8/3/2000		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.797			0.785			0.997			0.784			0.895		
1,3-Dinitrobenzene	99650	0.0114			0.0106			0.0105			0.0103			0.0122		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.571			0.551			0.65			0.639			0.563		
2,4-Diamino-6-nitrotoluene	6629294	0.00181			0.002		U	0.002		U	0.00232			0.0194		
2,4-Dinitrotoluene	121142	0.0793			0.0775			0.0915			0.0854			0.0775		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.0003		J	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0009			0.00068			0.0002		U	0.00186			0.0002		U
3,5-dinitroaniline	618871	0.0019			0.00059			0.00157			0.00139			0.0002		U
2,2AZOXY	2,2AZOXY													0.005		U
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.00162			0.00108			0.00308			0.0002		U	0.0002		U
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX	0.0025		U	0.0025		U	0.0025		U	0.0025		U			
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	0.0002		U	0.0115			0.0098			0.0104			0.0104		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
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Louisiana Army Ammunition Plant
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Sample ID		GO108			GO108			GO108			GO108			GO108		
Collection Date		12/7/2000			3/5/2001			5/25/2001			9/7/2001			3/14/2002		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.953			0.764			1.11			0.269			1.04		
1,3-Dinitrobenzene	99650	0.0122			0.00887			0.0115			0.00843			0.00786		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.605			0.546			0.614			1.78			0.53		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.101			0.0799			0.133			0.142					
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U			
2-Amino-4,6-dinitrotoluene	35572782	0.0002		U	0.0002		U	0.00079			0.0002		U			
3,5-dinitroaniline	618871	0.0002		U	0.00162			0.00153			0.0002		U	0.005		U
2,2AZOXY	2,2AZOXY	0.005		U												
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U			
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0161		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX															
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U			
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U			
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	0.0117			0.00982			0.0123			0.0158			0.0002		U
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
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Louisiana Army Ammunition Plant
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		Sample ID	GO108			GO108		
		Collection Date	6/11/2002			12/2/2004		
		Sample Purpose	REG			REG		
		Units	mg/L			mg/L		
ANALYTE	CAS Number		Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354		1.04			1		
1,3-Dinitrobenzene	99650		0.00993			0.014		J
4,4AZOXY	4,4AZOXY		0.005		U			
2,4,6-Trinitrotoluene	118967		0.545			1.1		
2,4-Diamino-6-nitrotoluene	6629294		0.002		U			
2,4-Dinitrotoluene	121142		0.144			0.088		
2,6-Diamino-4-nitrotoluene	59229753		0.001		U			
2,6-Dinitrotoluene	606202		0.0002		U	0.025		U
2-Amino-4,6-dinitrotoluene	35572782		0.0002		U	0.015		
3,5-dinitroaniline	618871		0.005		U			
2,2AZOXY	2,2AZOXY		0.005		U			
4-Amino-2,6-dinitrotoluene	19406510		0.0002		U	0.025		U
TNX	13980046		0.0002		U			
DNX	DNX		0.0005		U			
MNX	MNX		0.0002		U			
HMX	2691410		0.0002		U	0.05		U
m-Nitrotoluene	99081		0.0002		U	0.025		U
MNHMX	MNHMX							
Nitrobenzene	98953		0.0002		U	0.015		U
o-Nitrotoluene	88722		0.0002		U	0.025		U
p-Nitrotoluene	99990		0.0002		U	0.025		U
RDX	121824		0.041			0.25		P
Tetryl	479458		0.0005		U	0.025		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO109			GO109			GO109			GO109			GO109		
Collection Date		10/26/1990			2/28/1994			2/28/1996			3/26/1996			4/30/1996		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.073			0.095			0.0949			0.08			0.0746		
1,3-Dinitrobenzene	99650	0.023			0.00821			0.00835			0.00457			0.00499		
4,4AZOXY	4,4AZOXY							0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	1.8			3.6			2.94			3.05			3.23		
2,4-Diamino-6-nitrotoluene	6629294							0.0223			0.0188			0.0511		
2,4-Dinitrotoluene	121142	0.0363			0.33			0.114			0.073			0.0842		
2,6-Diamino-4-nitrotoluene	59229753							0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.057		U	0.06		U	0.0002		U	0.0445			0.0002		U
2-Amino-4,6-dinitrotoluene	35572782							0.195			0.184			0.198		
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871							0.34			0.249			0.227		
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY													0.005		U
4-Amino-2,6-dinitrotoluene	19406510							0.116			0.117			0.138		
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748							0.005		U						
TNX	13980046															
DNX	DNX															
MNX	MNX															
HMX	2691410	0.75			0.3			0.674			0.692			0.556		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.00107		U	0.0068		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
p-Nitrotoluene	99990															
RDX	121824	4.2			3.1			3.95			4.33			4.56		
Tetryl	479458	0.028		U	0.0399			0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
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Louisiana Army Ammunition Plant
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Sample ID		GO109			GO109			GO109			GO109			GO109		
Collection Date		5/29/1996			6/24/1996			7/29/1996			11/5/1996			2/24/1997		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.0768			0.0877			0.0856			0.0988			0.0694		
1,3-Dinitrobenzene	99650	0.00458			0.005			0.00536			0.00689			0.00592		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	2.78			3.36			2.82			2.96			2.82		
2,4-Diamino-6-nitrotoluene	6629294	0.0487			0.0244			0.0132			0.0408			0.002		U
2,4-Dinitrotoluene	121142	0.0914			0.0965			0.0904			0.092			0.0592		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.169			0.195			0.217			0.19			0.188		
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871	0.263			0.311			0.296			0.292			0.206		
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY	0.005		U	0.005		U									
4-Amino-2,6-dinitrotoluene	19406510	0.115			0.133			0.187			0.357			0.132		
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748															
TNX	13980046										0.0292			0.0002		U
DNX	DNX															
MNX	MNX										0.0002		U	0.0002		U
HMX	2691410	0.527			0.583			0.622			0.655			0.65		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
p-Nitrotoluene	99990															
RDX	121824	3.96			4.7			4.65			4.34			4.09		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO109			GO109			GO109			GO109			GO109		
Collection Date		8/18/1997			11/17/1997			2/23/1998			5/18/1998			8/10/1998		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.0471			0.0543			0.0467			0.0435			0.0477		
1,3-Dinitrobenzene	99650	0.00747			0.0114			0.00678			0.013			0.0188		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	1.44			1.987			1.7			1.29			1.69		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.0171			0.0306			0.0185		
2,4-Dinitrotoluene	121142	0.0386			0.0578			0.0449			0.0309			0.051		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.189			0.173			0.189			0.196			0.161		
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871	0.097			0.134			0.0934			0.0841			0.0514		
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.152			0.168			0.146			0.135			0.121		
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0224						0.0244		
DNX	DNX	0.0005		U	0.0005		U	0.0005		U				0.0005		U
MNX	MNX	0.0002		U	0.0002		U	0.00174						0.0002		U
HMX	2691410	0.703			0.642			0.631			0.799			0.732		
m-Nitrotoluene	99081													0.0002		U
MNHMX	MNHMX							0.0161						0.0025		U
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722													0.0002		U
p-Nitrotoluene	99990													0.0002		U
RDX	121824	4.27			4.619			4.72			4.24			4.61		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO109			GO109			GO109			GO109			GO109		
Collection Date		11/13/1998			2/16/1999			5/24/1999			8/16/1999			2/7/2000		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.0684			0.0461			0.042			0.0511			0.258		
1,3-Dinitrobenzene	99650	0.0374	JP	J	0.0205			0.0395			0.0373			0.0902		
4,4AZOXY	4,4AZOXY				0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	1.92			2.42			1.58			1.64			2.4		
2,4-Diamino-6-nitrotoluene	6629294				0.002		U	0.0186			0.0275			0.0204		
2,4-Dinitrotoluene	121142	0.098			0.058			0.0395			0.0415			0.0677		
2,6-Diamino-4-nitrotoluene	59229753				0.001		U	0.00912			0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.015	JP	J	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.14			0.173			0.152			0.15			0.13		
2-Nitrotoluene	88722	0.052		U												
3,5-dinitroaniline	618871				0.0855			0.0671			0.0751			0.0134		
3-Nitrotoluene	99081	0.052		U												
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510				0.124			0.126			0.128			0.294		
4-Amino-2,6-dinitrotoluene	9146510	0.11														
4-Nitrotoluene	99990	0.052		U												
Ammonium picrate	131748															
TNX	13980046				0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX				0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX				0.0002		U	0.00117			0.0002		U	0.0002		U
HMX	2691410	0.659			0.652			0.66			0.774			0.771		
m-Nitrotoluene	99081				0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX				0.0025		U	0.0188			0.0025		U	0.0025		U
Nitrobenzene	98953	0.026		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722				0.0002		U	0.0002		U	0.0002		U	0.0002		U
p-Nitrotoluene	99990				0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	3.79			5.51			3.44			3.41			4		
Tetryl	479458	0.026		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

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Groundwater Analytical Results (Explosives Only)
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Sample ID		GO109			GO109			GO109			GO109			GO109		
Collection Date		5/15/2000			8/3/2000			12/7/2000			3/5/2001			5/25/2001		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.307			0.545			0.582			0.443					
1,3-Dinitrobenzene	99650	0.0759			0.0814			0.124			0.0784					
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.964			2.24			1.89			0.846					
2,4-Diamino-6-nitrotoluene	6629294	0.0266			0.201			0.0216			0.0308			0.00922		
2,4-Dinitrotoluene	121142	0.0615			0.0605			0.015			0.0551			0.0002		U
2,6-Diamino-4-nitrotoluene	59229753	0.0114			0.012			0.0137			0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.127			0.114			0.123			0.118			0.131		
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871	0.171			0.155			0.213			0.134			0.0584		
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY				0.005		U	0.005		U						
4-Amino-2,6-dinitrotoluene	19406510	0.21			0.232			0.103			0.0002		U	0.133		
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.0002		U	0.0002		U	0.0002		U			
HMX	2691410	0.624			0.58			0.544			0.625					
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX	0.0025		U												
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	3.84			3.82			2.67			1.76					
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U			

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Sample ID		GO109			GO109			GO109			GO109		
Collection Date		9/7/2001			3/14/2002			6/11/2002			12/3/2004		
Sample Purpose		REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.454			0.97			0.957			0.58		
1,3-Dinitrobenzene	99650	0.069			0.086			0.069			0.03		U
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U			
2,4,6-Trinitrotoluene	118967	1.39			1.69			1.43			0.8		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U			
2,4-Dinitrotoluene	121142	0.0002		U	0.16			0.0532			0.019		JP
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U			
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.05		U
2-Amino-4,6-dinitrotoluene	35572782	0.0971			0.063			0.082			0.03		U
2-Nitrotoluene	88722												
3,5-dinitroaniline	618871	0.0983			0.005		U	0.0836					
3-Nitrotoluene	99081												
2,2AZOXY	2,2AZOXY							0.005		U			
4-Amino-2,6-dinitrotoluene	19406510	0.0804			0.123			0.094			0.05		U
4-Amino-2,6-dinitrotoluene	9146510												
4-Nitrotoluene	99990												
Ammonium picrate	131748												
TNX	13980046	0.0002		U	0.0002		U	0.0002		U			
DNX	DNX	0.0005		U	0.0005		U	0.0005		U			
MNX	MNX	0.0002		U	0.0002		U	0.0002		U			
HMX	2691410	0.597			0.658			0.663			0.35		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.05		U
MNHMX	MNHMX												
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.03		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.05		U
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.05		U
RDX	121824	3.57			4.67			3.86			1.4		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.05		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
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Sample ID		GO110			GO110			GO110			GO110			GO110		
Collection Date		10/26/1990			2/28/1994			2/28/1996			3/26/1996			4/30/1996		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.42			0.46			0.471			0.444			0.499		
1,3-Dinitrobenzene	99650	0.026		U	0.024			0.0236			0.0228			0.0245		
4,4AZOXY	4,4AZOXY							0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.76			0.57			0.664			0.694			0.715		
2,4-Diamino-6-nitrotoluene	6629294							0.0577			0.0002		U	0.133		
2,4-Dinitrotoluene	121142	0.084			0.12			0.0622			0.0534			0.0581		
2,6-Diamino-4-nitrotoluene	59229753							0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.057		U	0.06		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782							0.107			0.0906			0.0704		
3,5-dinitroaniline	618871							0.125			0.1			0.0646		
2,2AZOXY	2,2AZOXY													0.005		U
4-Amino-2,6-dinitrotoluene	19406510							0.0745			0.069			0.0677		
Ammonium picrate	131748							0.005		U						
TNX	13980046															
DNX	DNX															
MNX	MNX															
HMX	2691410	0.14			0.13			0.217			0.247			0.222		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.00107		U	0.0068		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
p-Nitrotoluene	99990															
RDX	121824	3.2			2.8			3.65			4.2			4.24		
Tetryl	479458	0.028		U	0.000631		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
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Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO110			GO110			GO110			GO110			GO110		
Collection Date		5/29/1996			6/24/1996			7/29/1996			11/5/1996			2/24/1997		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.603			0.658			0.626			0.571			0.46		
1,3-Dinitrobenzene	99650	0.0252			0.028			0.0271			0.0248			0.0202		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.729			0.853			0.787			0.782			0.624		
2,4-Diamino-6-nitrotoluene	6629294	0.151			0.0772			0.0386			0.033			0.002		U
2,4-Dinitrotoluene	121142	0.0649			0.0685			0.0655			0.065			0.0504		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0588			0.0623			0.07			0.0598			0.0654		
3,5-dinitroaniline	618871	0.0688			0.0718			0.086			0.068			0.0591		
2,2AZOXY	2,2AZOXY	0.005		U	0.005		U									
4-Amino-2,6-dinitrotoluene	19406510	0.063			0.0704			0.0837			0.0694			0.0694		
Ammonium picrate	131748															
TNX	13980046										0.0796			0.0002		U
DNX	DNX															
MNX	MNX										0.0002		U	0.0002		U
HMX	2691410	0.224			0.291			0.285			0.272			0.243		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
p-Nitrotoluene	99990															
RDX	121824	4.06			4.9			4.26			3.87			4.03		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
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Sample ID		GO110			GO110			GO110			GO110			GO110		
Collection Date		6/1/1997			8/18/1997			11/17/1997			2/23/1998			5/18/1998		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.518			0.566			0.507			0.491			0.466		
1,3-Dinitrobenzene	99650	0.0229			0.0226			0.0213			0.0213			0.0218		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.881			0.775			0.753			0.71			0.861		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U	0.0123			0.137		
2,4-Dinitrotoluene	121142	0.0585			0.0588			0.0562			0.0546			0.0571		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0559			0.0572			0.0623			0.0632			0.0572		
3,5-dinitroaniline	618871	0.0606			0.0746			0.0665			0.0903			0.0713		
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.0613			0.0561			0.0629			0.057			0.065		
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0768					
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U			
MNX	MNX	0.0002		U	0.0002		U	0.0002		U	0.0122					
HMX	2691410	0.212			0.264			0.226			0.24			0.266		
m-Nitrotoluene	99081															
MNHMX	MNHMX										0.00519					
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
p-Nitrotoluene	99990															
RDX	121824	3.76			4.4			3.956			3.86			3.83		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
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Sample ID		GO110			GO110			GO110			GO110			GO110		
Collection Date		8/10/1998			2/16/1999			5/24/1999			8/16/1999			2/7/2000		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.51			0.424			0.506			0.503			0.481		
1,3-Dinitrobenzene	99650	0.0222			0.0205			0.0269			0.0236			0.0227		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.832			0.775			0.994			1.04			1.02		
2,4-Diamino-6-nitrotoluene	6629294	0.0141			0.0697			0.0118			0.125			0.0614		
2,4-Dinitrotoluene	121142	0.0552			0.0514			0.0561			0.0559			0.0542		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.0445			0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0528			0.0578			0.0573			0.0536			0.0564		
3,5-dinitroaniline	618871	0.0293			0.0648			0.0552			0.0614			0.136		
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.0532			0.0614			0.0599			0.0554			0.0574		
Ammonium picrate	131748															
TNX	13980046	0.0832			0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.0104			0.0002		U	0.00636			0.0002		U	0.0002		U
HMX	2691410	0.259			0.262			0.296			0.292			0.302		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX	0.0025		U	0.0025		U	0.0025		U	0.0025		U	0.0025		U
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	3.67			3.99			3.9			3.84			3.92		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO110			GO110			GO110			GO110			GO110		
	Collection Date	5/15/2000			8/3/2000			12/7/2000			3/5/2001			5/25/2001		
	Sample Purpose	REG			REG			REG			REG			REG		
	Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.454			0.471			0.442			0.439			0.523		
1,3-Dinitrobenzene	99650	0.0222			0.0258			0.0242			0.0239			0.0245		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	1.11			0.888			0.821			0.883			0.876		
2,4-Diamino-6-nitrotoluene	6629294	0.0224			0.205			0.0192			0.0736			0.0151		
2,4-Dinitrotoluene	121142	0.0514			0.0459			0.0104			0.048			0.0525		
2,6-Diamino-4-nitrotoluene	59229753	0.0432			0.037			0.0421			0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0513			0.0544			0.05			0.0516			0.0472		
3,5-dinitroaniline	618871	0.0545			0.0539			0.0571			0.055			0.0469		
2,2AZOXY	2,2AZOXY				0.005		U	0.005		U						
4-Amino-2,6-dinitrotoluene	19406510	0.056			0.083			0.0407			0.0777			0.0533		
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.00603			0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.266			0.225			0.246			0.26			0.331		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX	0.0025		U												
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	4.2			3.4			2.65			3.16			4.09		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO110			GO110			GO110			GO110		
	Collection Date	9/7/2001			3/14/2002			6/11/2002			12/3/2004		
	Sample Purpose	REG			REG			REG			REG		
	Units	mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.447			0.496			0.526			0.56		
1,3-Dinitrobenzene	99650	0.022			0.022			0.0272			0.3		U
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U			
2,4,6-Trinitrotoluene	118967	0.669			0.772			0.772			1		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U			
2,4-Dinitrotoluene	121142	0.0002		U	0.0002		U	0.0715			0.3		U
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U			
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.5		U
2-Amino-4,6-dinitrotoluene	35572782	0.0603			0.034			0.0547			0.3		U
3,5-dinitroaniline	618871	0.0558			0.005		U	0.0514					
2,2AZOXY	2,2AZOXY							0.005		U			
4-Amino-2,6-dinitrotoluene	19406510	0.0591			0.075			0.0656			0.5		U
Ammonium picrate	131748												
TNX	13980046	0.0002		U	0.0002		U	0.0002		U			
DNX	DNX	0.0005		U	0.0005		U	0.0005		U			
MNX	MNX	0.0002		U	0.0002		U	0.0002		U			
HMX	2691410	0.282			0.329			0.319			0.61		J
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.5		U
MNHMX	MNHMX												
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.3		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.5		U
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.5		U
RDX	121824	3.45			3.94			3.96			4.9		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.5		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO111			GO111			GO111			GO111			GO111		
Collection Date		9/28/1990			2/28/1996			3/26/1996			4/30/1996			5/29/1996		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.000626		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
1,3-Dinitrobenzene	99650	0.000519		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
4,4AZOXY	4,4AZOXY				0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.000588		U	0.00046			0.00024			0.0002		U	0.0002		U
2,4-Diamino-6-nitrotoluene	6629294				0.002		U	0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.000612		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2,6-Diamino-4-nitrotoluene	59229753				0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.00115		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782				0.00018		J	0.0002		U	0.0002		U	0.00014		J
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871				0.0002		U	0.0002		U	0.0002		U	0.0002		U
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY										0.005		U	0.005		U
4-Amino-2,6-dinitrotoluene	19406510				0.0002		U	0.0002		U	0.0002		U	0.0002		U
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748				0.005		U									
TNX	13980046															
DNX	DNX															
MNX	MNX															
HMX	2691410	0.00165		U	0.00031			0.00039			0.00044			0.00042		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.00107		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
p-Nitrotoluene	99990															
RDX	121824	0.00211		U	0.00359			0.00387			0.0033			0.00434		
Tetryl	479458	0.000556		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO111			GO111			GO111			GO111			GO111		
Collection Date		6/24/1996			7/29/1996			11/5/1996			2/24/1997			6/1/1997		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
1,3-Dinitrobenzene	99650	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY	0.005		U												
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748															
TNX	13980046							0.0002		U	0.0002		U	0.0002		U
DNX	DNX													0.0005		U
MNX	MNX							0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.0004			0.0005			0.00038			0.0002		U	0.00029		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
p-Nitrotoluene	99990															
RDX	121824	0.00397			0.00409			0.00359			0.00073			0.00193		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO111			GO111			GO111			GO111			GO111		
Collection Date		8/18/1997			11/17/1997			2/23/1998			5/18/1998			8/10/1998		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
1,3-Dinitrobenzene	99650	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U				0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U				0.0005		U
MNX	MNX	0.0002		U	0.0002		U	0.0002		U				0.0002		U
HMX	2691410	0.00024			0.00028			0.0002		U	0.00037			0.00032		
m-Nitrotoluene	99081													0.0002		U
MNHMX	MNHMX							0.0025		U				0.0025		U
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722													0.0002		U
p-Nitrotoluene	99990													0.0002		U
RDX	121824	0.00354			0.00319			0.0002		U	0.00365			0.00336		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO111			GO111			GO111			GO111			GO111		
Collection Date		11/10/1998			2/16/1999			5/24/1999			8/16/1999			2/7/2000		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.00065		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
1,3-Dinitrobenzene	99650	0.00065		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
4,4AZOXY	4,4AZOXY				0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.00026		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2,4-Diamino-6-nitrotoluene	6629294				0.002		U	0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.00065		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2,6-Diamino-4-nitrotoluene	59229753				0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.01		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.00026		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Nitrotoluene	88722	0.00052		U												
3,5-dinitroaniline	618871				0.0002		U	0.0002		U				0.00149		
3-Nitrotoluene	99081	0.00052		U												
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510				0.0002		U	0.0002		U	0.0002		U	0.0002		U
4-Amino-2,6-dinitrotoluene	9146510	0.00026		U												
4-Nitrotoluene	99990	0.00052		U												
Ammonium picrate	131748															
TNX	13980046				0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX				0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX				0.0002		U	0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.00107			0.0002		U	0.00046			0.00034			0.0002		U
m-Nitrotoluene	99081				0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX				0.0025		U	0.0025		U	0.0025		U	0.0025		U
Nitrobenzene	98953	0.01		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722				0.0002		U	0.0002		U	0.0002		U	0.0002		U
p-Nitrotoluene	99990				0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	0.00643			0.00069			0.00546			0.00259			0.00321		
Tetryl	479458	0.00026		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO111			GO111			GO111			GO111			GO111		
Collection Date		5/15/2000			8/3/2000			12/7/2000			3/5/2001			5/25/2001		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
1,3-Dinitrobenzene	99650	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871	0.00024			0.0002		U	0.0002		U	0.0002		U	0.0002		U
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY				0.005		U	0.005		U						
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.00026		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX	0.0025		U												
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	0.0016			0.00221			0.0002		U	0.0002		U	0.00249		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

		Sample ID	GO111			GO111			GO111			GO111		
		Collection Date	9/7/2001			3/14/2002			6/11/2002			12/1/2004		
		Sample Purpose	REG			REG			REG			REG		
		Units	mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number		Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354		0.0002		U	0.0002		U	0.0002		U	0.00022		JP
1,3-Dinitrobenzene	99650		0.0002		U	0.0002		U	0.0002		U	0.0003		U
4,4AZOXY	4,4AZOXY		0.005		U	0.005		U	0.005		U			
2,4,6-Trinitrotoluene	118967		0.0002		U	0.0002		U	0.0002		U	0.00042		
2,4-Diamino-6-nitrotoluene	6629294		0.002		U	0.002		U	0.002		U			
2,4-Dinitrotoluene	121142		0.0002		U	0.0002		U	0.0002		U	0.0003		U
2,6-Diamino-4-nitrotoluene	59229753		0.001		U	0.001		U	0.001		U			
2,6-Dinitrotoluene	606202		0.0002		U	0.0002		U	0.0002		U	0.0005		U
2-Amino-4,6-dinitrotoluene	35572782		0.0002		U	0.0002		U	0.0002		U	0.0003		U
2-Nitrotoluene	88722													
3,5-dinitroaniline	618871		0.00031						0.005		U			
3-Nitrotoluene	99081													
2,2AZOXY	2,2AZOXY								0.005					
4-Amino-2,6-dinitrotoluene	19406510		0.0002		U	0.0002		U	0.0002		U	0.0005		U
4-Amino-2,6-dinitrotoluene	9146510													
4-Nitrotoluene	99990													
Ammonium picrate	131748													
TNX	13980046		0.0002		U	0.0002		U	0.0002		U			
DNX	DNX		0.0005		U	0.0005		U	0.0005		U			
MNX	MNX		0.0002		U	0.0002		U	0.0002		U			
HMX	2691410		0.00029			0.00041			0.00041			0.001		U
m-Nitrotoluene	99081		0.0002		U	0.0002		U	0.0002		U	0.0005		U
MNHMX	MNHMX													
Nitrobenzene	98953		0.0002		U	0.0002		U	0.0002		U	0.0003		U
o-Nitrotoluene	88722		0.0002		U	0.0002		U	0.0002		U	0.0005		U
p-Nitrotoluene	99990		0.0002		U	0.0002		U	0.0002		U	0.0005		U
RDX	121824		0.00023			0.00268			0.003			0.00078		J
Tetryl	479458		0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO112			GO112			GO112			GO112			GO112		
	Collection Date	9/28/1990			2/28/1996			3/26/1996			4/30/1996			5/29/1996		
	Sample Purpose	REG			REG			REG			REG			REG		
	Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.000626		U	0.0156			0.0116			0.00698			0.0135		
1,3-Dinitrobenzene	99650	0.000519		U	0.0102			0.00437			0.00554			0.00633		
4,4AZOXY	4,4AZOXY				0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.000588		U	0.152			0.0602			0.092			0.11		
2,4-Diamino-6-nitrotoluene	6629294				0.00348			0.00143			0.00412			0.0062		
2,4-Dinitrotoluene	121142	0.000612		U	0.0105			0.00414			0.00582			0.0008		
2,6-Diamino-4-nitrotoluene	59229753				0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.00888			0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782				0.00144			0.0014			0.00128			0.00132		
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871				0.00935			0.0002		U	0.0002		U	0.0002		U
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY										0.005		U	0.005		U
4-Amino-2,6-dinitrotoluene	19406510				0.00108			0.00091			0.00099			0.00113		
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748				0.0626											
TNX	13980046															
DNX	DNX															
MNX	MNX															
HMX	2691410	0.00198			0.0192			0.00857			0.00757			0.00798		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.00107		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
Picric acid	88891															
p-Nitrotoluene	99990															
RDX	121824	0.068			0.64			0.319			0.395			0.326		
Tetryl	479458	0.000556		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

		Sample ID	GO112			GO112			GO112			GO112			GO112		
		Collection Date	6/24/1996			7/29/1996			11/5/1996			2/24/1997			6/1/1997		
		Sample Purpose	REG			REG			REG			REG			REG		
		Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number		Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354		0.0107			0.00749			0.00673			0.00466			0.00598		
1,3-Dinitrobenzene	99650		0.00766			0.00667			0.00626			0.00425			0.00716		
4,4AZOXY	4,4AZOXY		0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967		0.134			0.112			0.0969			0.0716			0.127		
2,4-Diamino-6-nitrotoluene	6629294		0.00326			0.00153		J	0.00219			0.002		U	0.002		U
2,4-Dinitrotoluene	121142		0.00912			0.00794			0.0103			0.0054			0.00954		
2,6-Diamino-4-nitrotoluene	59229753		0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202		0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782		0.00187			0.00126			0.00132			0.00102			0.00139		
2-Nitrotoluene	88722																
3,5-dinitroaniline	618871		0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.00326		
3-Nitrotoluene	99081																
2,2AZOXY	2,2AZOXY		0.005		U												
4-Amino-2,6-dinitrotoluene	19406510		0.00173			0.0002		U	0.00122			0.00103			0.00145		
4-Amino-2,6-dinitrotoluene	9146510																
4-Nitrotoluene	99990																
Ammonium picrate	131748																
TNX	13980046								0.0002		U	0.0002		U	0.0002		U
DNX	DNX														0.0005		U
MNX	MNX								0.0002		U	0.0002		U	0.0002		U
HMX	2691410		0.0146			0.00908			0.00779			0.00624			0.00899		
m-Nitrotoluene	99081																
MNHMX	MNHMX																
Nitrobenzene	98953		0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722																
Picric acid	88891																
p-Nitrotoluene	99990																
RDX	121824		0.548			0.382			0.349			0.304			0.462		
Tetryl	479458		0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO112			GO112			GO112			GO112			GO112	
	Collection Date	8/18/1997			11/17/1997			5/18/1998			8/10/1998			11/10/1998	
	Sample Purpose	REG			REG			REG			REG			REG	
	Units	mg/L			mg/L			mg/L			mg/L			mg/L	
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.0064			0.00536			0.00734			0.0046			0.0185		
1,3-Dinitrobenzene	99650	0.00683			0.00749			0.00765			0.00535			0.0127		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U			
2,4,6-Trinitrotoluene	118967	0.13			0.111			0.0944			0.0582			0.0943		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U	0.00101		J			
2,4-Dinitrotoluene	121142	0.00905			0.00895			0.00871			0.00574			0.0117		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U			
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.00588	JP	J
2-Amino-4,6-dinitrotoluene	35572782	0.00077			0.0009			0.00102			0.00069			0.000958	JI	J
2-Nitrotoluene	88722													0.0052		U
3,5-dinitroaniline	618871	0.0002		U	0.00262			0.0002		U	0.0002		U			
3-Nitrotoluene	99081													0.00052		U
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.00064			0.00119			0.00145			0.00056					
4-Amino-2,6-dinitrotoluene	9146510													0.00494	JI	J
4-Nitrotoluene	99990													0.00052		U
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U				0.0002		U			
DNX	DNX	0.0005		U	0.0005		U				0.0005		U			
MNX	MNX	0.0002		U	0.0002		U				0.0002		U			
HMX	2691410	0.012			0.0106			0.0109			0.00701			0.0305		
m-Nitrotoluene	99081										0.0002		U			
MNHMX	MNHMX										0.0025		U			
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.01		U
o-Nitrotoluene	88722										0.0002		U			
Picric acid	88891															
p-Nitrotoluene	99990										0.0002		U			
RDX	121824	0.61			0.522			0.559			0.335			1.31		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.00446		

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO112			GO112			GO112			GO112			GO112	
	Collection Date	2/16/1999			5/24/1999			8/16/1999			2/7/2000			5/15/2000	
	Sample Purpose	REG			REG			REG			REG			REG	
	Units	mg/L			mg/L			mg/L			mg/L			mg/L	
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.00411			0.00461			0.0081			0.00841			0.0072		
1,3-Dinitrobenzene	99650	0.00605			0.00492			0.00716			0.0118			0.0106		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.0479			0.0506			0.0651			0.0829			0.138		
2,4-Diamino-6-nitrotoluene	6629294	0.00274			0.00103			0.00452			0.00294			0.00296		
2,4-Dinitrotoluene	121142	0.00612			0.00511			0.0078			0.0119			0.0117		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.00152			0.001		U	0.001		U	0.00207		
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0002		U	0.00059			0.00043			0.00065			0.402		
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871	0.0002		U	0.00121			0.00222			0.0212			0.00812		
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.00022			0.00037			0.00073			0.0002		U	0.0002		U
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.0102			0.00756			0.0124			0.0183			0.0202		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX	0.0025		U	0.0025		U	0.0025		U	0.0025		U	0.0025		U
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Picric acid	88891															
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	0.498			0.33			0.492			0.896			0.811		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO112			GO112			GO112			GO112			GO112	
	Collection Date	5/25/2001			8/3/2000			12/7/2000			3/5/2001			9/7/2001	
	Sample Purpose	REG			REG			REG			REG			REG	
	Units	mg/L			mg/L			mg/L			mg/L			mg/L	
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.024			0.00905			0.0173			0.0108			0.0156		
1,3-Dinitrobenzene	99650	0.0172			0.0101			0.0113			0.0119			0.0159		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.338			0.152			0.194			0.207			0.274		
2,4-Diamino-6-nitrotoluene	6629294	0.00201			0.0255			0.00335			0.00396			0.002		U
2,4-Dinitrotoluene	121142	0.0201			0.0108			0.00184			0.012			0.0002		U
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.00178			0.00183			0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.00108			0.0002		U	0.00076			0.00103			0.0002		U
2-Nitrotoluene	88722															
3,5-dinitroaniline	618871	0.00172			0.00881			0.00899			0.00396			0.0102		
3-Nitrotoluene	99081															
2,2AZOXY	2,2AZOXY				0.005		U	0.005		U						
4-Amino-2,6-dinitrotoluene	19406510	0.00237			0.0002		U	0.0002		U	0.0002		U	0.0002		U
4-Amino-2,6-dinitrotoluene	9146510															
4-Nitrotoluene	99990															
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.002		U	0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.0322			0.0159			0.0179			0.0198			0.0296		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX															
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Picric acid	88891				0.0764									0.127		
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824				0.754			0.723			0.831			1.46		
Tetryl	479458	0.0193			0.0005		U	0.0005		U	0.0005		U	0.0138		

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

		Sample ID	GO112			GO112			GO112			GO112			GO112		
		Collection Date	3/14/2002			6/11/2002			3/20/2003			11/29/2004			11/29/2004		
		Sample Purpose	REG			REG			REG			FD			REG		
		Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number		Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354		0.0185			0.023			0.0187			0.0045		J	0.0058		J
1,3-Dinitrobenzene	99650		0.0164			0.0175			0.0137			0.0034		J	0.0045		J
4,4AZOXY	4,4AZOXY		0.005		U	0.005		U	0.001		U						
2,4,6-Trinitrotoluene	118967		0.259			0.039			0.315			0.079			0.11		
2,4-Diamino-6-nitrotoluene	6629294		0.002		U	0.002			0.001		U						
2,4-Dinitrotoluene	121142		0.0002		U	0.0282			0.0231		U	0.0035		JB	0.0039		JB
2,6-Diamino-4-nitrotoluene	59229753		0.001		U	0.001		U	0.001		U						
2,6-Dinitrotoluene	606202		0.0002		U	0.0002		U	0.0002		U	0.01		U	0.01		U
2-Amino-4,6-dinitrotoluene	35572782		0.0002		U	0.00259			0.00237			0.0026		J	0.0034		J
2-Nitrotoluene	88722																
3,5-dinitroaniline	618871		0.005		U	0.005		U									
3-Nitrotoluene	99081																
2,2AZOXY	2,2AZOXY					0.005			0.001		U						
4-Amino-2,6-dinitrotoluene	19406510		0.0002		U	0.0002		U	0.0002		U	0.01		U	0.01		U
4-Amino-2,6-dinitrotoluene	9146510																
4-Nitrotoluene	99990																
Ammonium picrate	131748																
TNX	13980046		0.0002		U	0.0002		U	0.0002		U						
DNX	DNX		0.0005		U	0.0005		U	0.0005		U						
MNX	MNX		0.0002		U	0.0002		U	0.0023								
HMX	2691410		0.0264			0.032			0.0237			0.0069		JP	0.0089		J
m-Nitrotoluene	99081		0.0002		U	0.0002		U	0.0002		U	0.01		U	0.01		U
MNHMX	MNHMX								0.001		U						
Nitrobenzene	98953		0.0002		U	0.0002		U	0.0002		U	0.006		U	0.006		U
o-Nitrotoluene	88722		0.0002		U	0.0002		U	0.0002		U	0.01		U	0.01		U
Picric acid	88891		0.0024		U												
p-Nitrotoluene	99990		0.0002		U	0.0002		U	0.0002		U	0.01		U	0.01		U
RDX	121824		0.937			1.5			0.991			0.26			0.36		
Tetryl	479458		0.0005		U	0.014			0.0106			0.01		U	0.01		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO140			GO140			GO140			GO140			GO140		
	Collection Date	2/28/1996			3/26/1996			4/30/1996			5/29/1996			6/24/1996		
	Sample Purpose	REG			REG			REG			REG			REG		
	Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.0223			0.0292			0.0137			0.0185			0.0216		
1,3-Dinitrobenzene	99650	0.0845			0.0883			0.082			0.0772			0.0882		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	2.43			2.63			3.12			2.93			2.8		
2,4-Diamino-6-nitrotoluene	6629294	0.00727			0.002		U	0.0172			0.0179			0.00972		
2,4-Dinitrotoluene	121142	0.106			0.108			0.101			0.103			0.116		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0224			0.0228			0.0238			0.0207			0.027		
3,5-dinitroaniline	618871	0.0002		U	0.00718			0.00651			0.00548			0.00838		
2,2AZOXY	2,2AZOXY							0.005		U	0.005		U	0.005		U
4-Amino-2,6-dinitrotoluene	19406510	0.0143			0.018			0.015			0.0166			0.0211		
Ammonium picrate	131748	0.0582														
TNX	13980046															
DNX	DNX															
MNX	MNX															
HMX	2691410	0.182			0.209			0.162			0.156			0.197		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
Picric acid	88891															
p-Nitrotoluene	99990															
RDX	121824	3.71			4.2			4.14			3.9			4.49		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO140			GO140			GO140			GO140			GO140		
	Collection Date	7/29/1996			11/5/1996			2/24/1997			6/1/1997			8/18/1997		
	Sample Purpose	REG			REG			REG			REG			REG		
	Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.0194			0.0118			0.0132			0.0128			0.0111		
1,3-Dinitrobenzene	99650	0.0845			0.0785			0.0546			0.063			0.0562		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	2.51			2.36			2.07			2.03			1.78		
2,4-Diamino-6-nitrotoluene	6629294	0.00491			0.00762			0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.106			0.091			0.071			0.0836			0.0781		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0257			0.0202			0.0256			0.0222			0.0188		
3,5-dinitroaniline	618871	0.00562			0.00598			0.00382			0.0057			0.00512		
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.0326			0.0146			0.0194			0.0192			0.013		
Ammonium picrate	131748															
TNX	13980046				0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX										0.0005		U	0.0005		U
MNX	MNX				0.0002		U	0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.213			0.184			0.149			0.137			0.132		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
Picric acid	88891															
p-Nitrotoluene	99990															
RDX	121824	4.01			3.42			2.98			2.78			3.03		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO140			GO140			GO140			GO140			GO140		
	Collection Date	11/17/1997			2/23/1998			5/18/1998			8/10/1998			2/16/1999		
	Sample Purpose	REG			REG			REG			REG			REG		
	Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.0111			0.0143			0.0112			0.0102			0.00873		
1,3-Dinitrobenzene	99650	0.0587			0.063			0.0546			0.00509			0.0435		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	1.889			1.88			1.92			1.65			1.63		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.00397			0.0259			0.0043			0.0109		
2,4-Dinitrotoluene	121142	0.0808			0.0878			0.0723			0.07			0.0629		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0185			0.0165			0.0182			0.0164			0.0154		
3,5-dinitroaniline	618871	0.00414			0.00637			0.00469			0.00187			0.0002		U
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.0152			0.0153			0.0253			0.0181			0.0187		
Ammonium picrate	131748							0.086		J						
TNX	13980046	0.0002		U	0.0132						0.0123			0.0002		U
DNX	DNX	0.0005		U	0.0005		U				0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.00016		J				0.0002		U	0.0002		U
HMX	2691410	0.132			0.138			0.119			0.113			0.11		
m-Nitrotoluene	99081										0.0002		U	0.0002		U
MNHMX	MNHMX				0.0025		U				0.0025		U	0.0025		U
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722										0.0002		U	0.0002		U
Picric acid	88891															
p-Nitrotoluene	99990										0.0002		U	0.0002		U
RDX	121824	2.666			2.57			2.13			2.08			2.14		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO140			GO140			GO140			GO140			GO140		
	Collection Date	5/24/1999			8/16/1999			2/7/2000			5/15/2000			8/3/2000		
	Sample Purpose	REG			REG			REG			REG			REG		
	Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.00992			0.0114			0.0133			0.00684			0.00995		
1,3-Dinitrobenzene	99650	0.0534			0.047			0.0432			0.0343			0.0458		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	1.7			1.56			1.57			1.18			1.36		
2,4-Diamino-6-nitrotoluene	6629294	0.00738			0.0204			0.002		U	0.00831			0.0573		
2,4-Dinitrotoluene	121142	0.067			0.0604			0.0617			0.0603			0.0583		
2,6-Diamino-4-nitrotoluene	59229753	0.00901			0.001		U	0.001		U	0.00876			0.00648		
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0193			0.0155			0.017			0.0211			0.0142		
3,5-dinitroaniline	618871	0.00377			0.00351			0.01			0.0034			0.0352		
2,2AZOXY	2,2AZOXY													0.005		U
4-Amino-2,6-dinitrotoluene	19406510	0.0234			0.0155			0.0125			0.0136			0.0164		
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.113			0.108			0.115			0.0857			0.0805		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX	0.0025		U	0.0025		U	0.0025		U	0.0025		U			
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Picric acid	88891													0.0524		
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	1.93			1.78			1.89			1.41			1.64		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO140			GO140			GO140			GO140			GO140		
Collection Date		12/7/2000			3/5/2001			5/25/2001			9/7/2001			3/14/2002		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.0102			0.0106						0.00661			0.0128		
1,3-Dinitrobenzene	99650	0.0474			0.0486						0.0276			0.0522		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	1.27			1.05						0.635			0.973		
2,4-Diamino-6-nitrotoluene	6629294	0.00458			0.0278			0.00558			0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.0135			0.0556			0.0002		U	0.0002		U	0.0002		U
2,6-Diamino-4-nitrotoluene	59229753	0.00771			0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.135			0.0172			0.0139			0.0132			0.0148		
3,5-dinitroaniline	618871	0.00481			0.00443			0.00317			0.0026			0.005		U
2,2AZOXY	2,2AZOXY	0.005		U												
4-Amino-2,6-dinitrotoluene	19406510	0.01			0.0002		U	0.0139			0.00756			0.0184		
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.0835			0.0852						0.0679			0.0946		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX															
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Picric acid	88891										0.0264			0.0656		
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	1.52			1.7						1.13			2.04		
Tetryl	479458	0.0005		U	0.0005		U				0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO140			GO140		
	Collection Date	6/11/2002			11/30/2004		
	Sample Purpose	REG			REG		
	Units	mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.0119			0.0099		J
1,3-Dinitrobenzene	99650	0.0547			0.039		
4,4AZOXY	4,4AZOXY	0.005		U			
2,4,6-Trinitrotoluene	118967	1			0.77		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U			
2,4-Dinitrotoluene	121142	0.0756			0.038		B
2,6-Diamino-4-nitrotoluene	59229753	0.001		U			
2,6-Dinitrotoluene	606202	0.0002		U	0.05		U
2-Amino-4,6-dinitrotoluene	35572782	0.0163			0.017		J
3,5-dinitroaniline	618871	0.005		U			
2,2AZOXY	2,2AZOXY	0.005		U			
4-Amino-2,6-dinitrotoluene	19406510	0.0195			0.05		U
Ammonium picrate	131748						
TNX	13980046	0.0002		U			
DNX	DNX	0.0005		U			
MNX	MNX	0.0002		U			
HMX	2691410	0.106			0.068		J
m-Nitrotoluene	99081	0.0002		U	0.05		U
MNHMX	MNHMX						
Nitrobenzene	98953	0.0002		U	0.03		U
o-Nitrotoluene	88722	0.0002		U	0.05		U
Picric acid	88891						
p-Nitrotoluene	99990	0.0002		U	0.05		U
RDX	121824	2.17			2.2		
Tetryl	479458	0.0005		U	0.05		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO141			GO141			GO141			GO141			GO141		
	Collection Date	9/30/1990			2/28/1996			3/26/1996			4/30/1996			5/29/1996		
	Sample Purpose	REG			REG			REG			REG			REG		
	Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.73			1.26			1.6			1.5			1.42		
1,3-Dinitrobenzene	99650	0.066			0.0957			0.12			0.0983			0.12		
4,4AZOXY	4,4AZOXY				0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	1.5			2.09			2.81			3.42			2.64		
2,4-Diamino-6-nitrotoluene	6629294				0.002		U	0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.25			0.39			0.456			0.41			0.498		
2,6-Diamino-4-nitrotoluene	59229753				0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.029		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782				0.0058			0.00055			0.00282			0.00568		
3,5-dinitroaniline	618871				0.0002		U	0.0103			0.0045			0.0112		
2,2AZOXY	2,2AZOXY										0.005		U	0.005		U
4-Amino-2,6-dinitrotoluene	19406510				0.0002		U	0.0002		U	0.0002		U	0.0002		U
Ammonium picrate	131748				1.98											
TNX	13980046															
DNX	DNX															
MNX	MNX															
HMX	2691410	0.0123			0.0102			0.0002		U	0.00272			0.0521		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.22			0.012			0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
Picric acid	88891															
p-Nitrotoluene	99990															
RDX	121824	1.6			0.84			0.933			0.836			1.04		
Tetryl	479458	0.000556		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

		Sample ID	GO141			GO141			GO141			GO141			GO141		
		Collection Date	6/24/1996			7/29/1996			11/5/1996			2/24/1997			6/1/1997		
		Sample Purpose	REG			REG			REG			REG			REG		
		Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number		Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354		1.84			1.68			1.45			1.52			1.72		
1,3-Dinitrobenzene	99650		0.136			0.134			0.112			0.0974			0.119		
4,4AZOXY	4,4AZOXY		0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967		3.1			2.77			2.46			2.5			2.65		
2,4-Diamino-6-nitrotoluene	6629294		0.002		U	0.002		U	0.0002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142		0.56			0.535			0.417			0.366			0.466		
2,6-Diamino-4-nitrotoluene	59229753		0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202		0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782		0.00299			0.0002		U	0.00177			0.00529			0.00512		
3,5-dinitroaniline	618871		0.0103			0.00717			0.00473			0.00479			0.00693		
2,2AZOXY	2,2AZOXY		0.005		U												
4-Amino-2,6-dinitrotoluene	19406510		0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Ammonium picrate	131748																
TNX	13980046								0.0002		U	0.0002		U	0.0002		U
DNX	DNX														0.0005		U
MNX	MNX								0.0002		U	0.0002		U	0.0002		U
HMX	2691410		0.0148			0.014			0.011			0.0117			0.0145		
m-Nitrotoluene	99081																
MNHMX	MNHMX																
Nitrobenzene	98953		0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722																
Picric acid	88891																
p-Nitrotoluene	99990																
RDX	121824		1.12			1.1			0.965			1.12			1.2		
Tetryl	479458		0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO141			GO141			GO141			GO141			GO141		
	Collection Date	8/18/1997			11/17/1997			2/23/1998			5/18/1998			8/10/1998		
	Sample Purpose	REG			REG			REG			REG			REG		
	Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	1.62			1.591			1.67			1.66			1.66		
1,3-Dinitrobenzene	99650	0.124			0.123			0.127			0.122			0.127		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	2.56			2.575			2.68			2.55			2.57		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.00917			0.002		U	0.00532		
2,4-Dinitrotoluene	121142	0.461			0.453			0.473			0.456			0.464		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.00164			0.0002		U	0.00318			0.0101			0.00456		
3,5-dinitroaniline	618871	0.00659			0.00425			0.00481			0.00489			0.00385		
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Ammonium picrate	131748										0.456					
TNX	13980046	0.0002		U	0.0002		U	0.0002		U				0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U				0.0005		U
MNX	MNX	0.0002		U	0.0002		U	0.00118						0.0002		U
HMX	2691410	0.0167			0.0126			0.0148			0.0174			0.0172		
m-Nitrotoluene	99081													0.0002		U
MNHMX	MNHMX							0.0025		U				0.0025		U
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722													0.0002		U
Picric acid	88891															
p-Nitrotoluene	99990													0.0002		U
RDX	121824	1.42			1.222			1.33			1.3			1.24		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

		Sample ID	GO141			GO141			GO141			GO141			GO141		
		Collection Date	2/16/1999			5/24/1999			8/16/1999			2/7/2000			5/15/2000		
		Sample Purpose	REG			REG			REG			REG			REG		
		Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number		Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354		1.74			1.71			1.76			1.6			1.4		
1,3-Dinitrobenzene	99650		0.0908			0.128			0.119			0.0834			0.104		
4,4AZOXY	4,4AZOXY		0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967		2.53			3.26			2.95			1.98			2.59		
2,4-Diamino-6-nitrotoluene	6629294		0.002		U	0.0094			0.002		U	0.002		U	0.00849		
2,4-Dinitrotoluene	121142		0.329			0.465			0.422			0.288			0.371		
2,6-Diamino-4-nitrotoluene	59229753		0.001		U	0.00069		J	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202		0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782		0.0002		U	0.0002		U	0.0002		U	0.00136			0.0002		U
3,5-dinitroaniline	618871		0.0002		U	0.00873			0.00755			0.0243			0.00501		
2,2AZOXY	2,2AZOXY																
4-Amino-2,6-dinitrotoluene	19406510		0.0002		U	0.00196			0.0002		U	0.0195			0.0002		U
Ammonium picrate	131748		1.64														
TNX	13980046		0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX		0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX		0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
HMX	2691410		0.0136			0.0133			0.0155			0.00899			0.0128		
m-Nitrotoluene	99081		0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX		0.0025		U	0.0025		U	0.0025		U	0.0025		U	0.0025		U
Nitrobenzene	98953		0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722		0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Picric acid	88891																
p-Nitrotoluene	99990		0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824		1.42			1.38			1.42			1.12			1.31		
Tetryl	479458		0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
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Louisiana Army Ammunition Plant
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Sample ID		GO141			GO141			GO141			GO141			GO141	
Collection Date		8/3/2000			12/7/2000			3/5/2001			5/25/2001			9/7/2001	
Sample Purpose		REG			REG			REG			REG			REG	
Units		mg/L			mg/L			mg/L			mg/L			mg/L	
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	1.66			1.08			1.22			1.61			1.18		
1,3-Dinitrobenzene	99650	0.108			0.109			0.124			0.118			0.095		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	2.34			1.97			1.45			2.15			1.51		
2,4-Diamino-6-nitrotoluene	6629294	0.0956			0.002		U	0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.362			0.045			0.403			0.373			0.565		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.00512			0.0002		U	0.0115			0.0062			0.0151		
3,5-dinitroaniline	618871	0.00906			0.00833			0.00864			0.00498			0.0142		
2,2AZOXY	2,2AZOXY	0.005		U	0.005		U									
4-Amino-2,6-dinitrotoluene	19406510	0.0134			0.0002		U	0.0002		U	0.0002		U	0.0002		U
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.0108			0.0123			0.0167			0.0126			0.0552		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX															
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Picric acid	88891	1.01												0.549		
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	1.24			0.961			1.21			1.45			1.21		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.00591			0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

		Sample ID	GO141			GO141			GO141		
		Collection Date	3/14/2002			6/11/2002			12/4/2004		
		Sample Purpose	REG			REG			REG		
		Units	mg/L			mg/L			mg/L		
ANALYTE	CAS Number		Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354		1.52			1.32			1.6		
1,3-Dinitrobenzene	99650		0.094			0.074			0.065		J
4,4AZOXY	4,4AZOXY		0.005		U	0.005		U			
2,4,6-Trinitrotoluene	118967		1.86			1.66			2		
2,4-Diamino-6-nitrotoluene	6629294		0.002		U	0.002		U			
2,4-Dinitrotoluene	121142		0.0002		U	0.618			0.11		JP
2,6-Diamino-4-nitrotoluene	59229753		0.001		U	0.001		U			
2,6-Dinitrotoluene	606202		0.0002		U	0.0002		U	0.5		U
2-Amino-4,6-dinitrotoluene	35572782		0.0002		U	0.00506			0.3		U
3,5-dinitroaniline	618871		0.005		U	0.0052					
2,2AZOXY	2,2AZOXY					0.005					
4-Amino-2,6-dinitrotoluene	19406510		0.0002		U	0.0002		U	0.5		U
Ammonium picrate	131748										
TNX	13980046		0.0002		U	0.0002		U			
DNX	DNX		0.0005		U	0.0005		U			
MNX	MNX		0.0002		U	0.0002		U			
HMX	2691410		0.0157			0.0171			0.34		J
m-Nitrotoluene	99081		0.0002		U	0.0002		U	0.5		U
MNHMX	MNHMX										
Nitrobenzene	98953		0.0002		U	0.0002		U	0.3		U
o-Nitrotoluene	88722		0.0002		U	0.0002		U	0.5		U
Picric acid	88891		0.0905								
p-Nitrotoluene	99990		0.0002		U	0.0002		U	0.5		U
RDX	121824		1.34			NA			1.3		P
Tetryl	479458		0.0005		U	0.0005			0.5		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
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Sample ID		GO168			GO168			GO168			GO168			GO168		
Collection Date		9/29/1990			2/28/1996			3/26/1996			4/30/1996			5/29/1996		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.1			0.209			0.223			0.144			0.191		
1,3-Dinitrobenzene	99650	0.11			0.104			0.114			0.0884			0.102		
4,4AZOXY	4,4AZOXY				0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.61			1.72			2.52			2.35			1.78		
2,4-Diamino-6-nitrotoluene	6629294				0.002		U	0.002		U	0.00256			0.002		U
2,4-Dinitrotoluene	121142	0.39			0.43			0.404			0.367			0.432		
2,6-Diamino-4-nitrotoluene	59229753				0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.029		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782				0.0002		U	0.00054			0.00153			0.00171		
3,5-dinitroaniline	618871				0.0002		U	0.00574			0.00504			0.00748		
2,2AZOXY	2,2AZOXY										0.005		U	0.005		U
4-Amino-2,6-dinitrotoluene	19406510				0.0002		U	0.0002		U	0.0002		U	0.0002		U
Ammonium picrate	131748				2.32											
TNX	13980046															
DNX	DNX															
MNX	MNX															
HMX	2691410	0.0161			0.00515			0.0002		U	0.00155			0.00314		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.22			0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
Picric acid	88891															
p-Nitrotoluene	99990															
RDX	121824	1.5			0.425			0.386			0.358			0.4		
Tetryl	479458	0.014		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
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Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO168			GO168			GO168			GO168			GO168		
	Collection Date	6/24/1996			7/29/1996			11/5/1996			2/24/1997			6/1/1997		
	Sample Purpose	REG			REG			REG			REG			REG		
	Units	mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.175			0.213			0.221			0.174			0.189		
1,3-Dinitrobenzene	99650	0.103			0.121			0.11			0.0972			0.119		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	1.79			1.92			1.89			2			1.99		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.392			0.49			0.414			0.37			0.476		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.00144			0.0002		U	0.00393			0.0002		U	0.0002		U
3,5-dinitroaniline	618871	0.00549			0.00429			0.00405			0.0036			0.00711		
2,2AZOXY	2,2AZOXY	0.005		U												
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Ammonium picrate	131748															
TNX	13980046							0.0002		U	0.0002		U	0.0002		U
DNX	DNX													0.0005		U
MNX	MNX							0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.00487			0.00401			0.00315			0.00374			0.00746		
m-Nitrotoluene	99081															
MNHMX	MNHMX															
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722															
Picric acid	88891															
p-Nitrotoluene	99990															
RDX	121824	0.436			0.484			0.455			0.496			0.503		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

	Sample ID	GO168			GO168			GO168			GO168			GO168	
	Collection Date	8/18/1997			11/17/1997			2/23/1998			5/18/1998			8/10/1998	
	Sample Purpose	REG			REG			REG			REG			REG	
	Units	mg/L			mg/L			mg/L			mg/L			mg/L	
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.208			0.199			0.201			0.191			0.204		
1,3-Dinitrobenzene	99650	0.119			0.116			0.118			0.107			0.117		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	1.98			2.05			1.96			2.04			2.03		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.002		U	0.002		U	0.002		U	0.00856		
2,4-Dinitrotoluene	121142	0.456			0.45			0.452			0.418			0.445		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0002		U	0.0002		U	0.00385			0.0002		U	0.0002		U
3,5-dinitroaniline	618871	0.00458			0.00327			0.00447			0.00365			0.00252		
2,2AZOXY	2,2AZOXY															
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Ammonium picrate	131748										0.179					
TNX	13980046	0.0002		U	0.0002		U	0.0002		U				0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U				0.0005		U
MNX	MNX	0.0002		U	0.0002		U	0.0002		U				0.0002		U
HMX	2691410	0.00374			0.00438			0.00488			0.00929			0.00947		
m-Nitrotoluene	99081													0.0002		U
MNHMX	MNHMX							0.0025		U				0.0025		U
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722													0.0002		U
Picric acid	88891															
p-Nitrotoluene	99990													0.0002		U
RDX	121824	0.685			0.54			0.54			2.81			0.661		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO168			GO168			GO168			GO168			GO168		
Collection Date		2/16/1999			5/24/1999			8/16/1999			2/7/2000			12/7/2000		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.147			0.23			0.231			0.256			0.242		
1,3-Dinitrobenzene	99650	0.0881			0.129			0.122			0.131			0.135		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	1.95			3.28			2.69			2.8			1.92		
2,4-Diamino-6-nitrotoluene	6629294	0.002		U	0.0123			0.002		U	0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.346			0.507			0.452			0.494			0.0463		
2,6-Diamino-4-nitrotoluene	59229753	0.001		U	0.0011			0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.0002		U	0.00261			0.0002		U	0.0048			0.0002		U
3,5-dinitroaniline	618871	0.0002		U	0.00527			0.00617			0.00388			0.00746		
2,2AZOXY	2,2AZOXY													0.005		U
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Ammonium picrate	131748	1.72														
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.00634			0.0075			0.00686			0.00698			0.00724		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX	0.0025		U	0.0025		U	0.0025		U	0.0025		U			
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Picric acid	88891															
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	0.528			0.669			0.664			0.745			0.606		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Sample ID		GO168			GO168			GO168			GO168			GO168		
Collection Date		5/15/2000			8/3/2000			3/5/2001			5/25/2001			9/7/2001		
Sample Purpose		REG			REG			REG			REG			REG		
Units		mg/L			mg/L			mg/L			mg/L			mg/L		
ANALYTE	CAS Number	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354	0.0562			0.192			0.149			0.243			0.269		
1,3-Dinitrobenzene	99650	0.0314			0.108			0.0851			0.114			0.121		
4,4AZOXY	4,4AZOXY	0.005		U	0.005		U	0.005		U	0.005		U	0.005		U
2,4,6-Trinitrotoluene	118967	0.537			1.57			0.791			1.87			1.74		
2,4-Diamino-6-nitrotoluene	6629294	0.00173		J	0.145			0.0101			0.002		U	0.002		U
2,4-Dinitrotoluene	121142	0.00981			0.351			0.287			0.328			0.0002		U
2,6-Diamino-4-nitrotoluene	59229753	0.00205			0.001		U	0.001		U	0.001		U	0.001		U
2,6-Dinitrotoluene	606202	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
2-Amino-4,6-dinitrotoluene	35572782	0.00145			0.00843			0.00115			0.00318			0.0002		U
3,5-dinitroaniline	618871	0.00192			0.00502			0.00686			0.00204			0.0031		
2,2AZOXY	2,2AZOXY				0.005		U									
4-Amino-2,6-dinitrotoluene	19406510	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Ammonium picrate	131748															
TNX	13980046	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
DNX	DNX	0.0005		U	0.0005		U	0.0005		U	0.0005		U	0.0005		U
MNX	MNX	0.0002		U	0.002		U	0.0002		U	0.0002		U	0.0002		U
HMX	2691410	0.00178			0.00479			0.00672			0.00501			0.015		
m-Nitrotoluene	99081	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
MNHMX	MNHMX	0.0025		U												
Nitrobenzene	98953	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
o-Nitrotoluene	88722	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
Picric acid	88891				1.11									0.852		
p-Nitrotoluene	99990	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U
RDX	121824	0.225			0.659			0.343			0.664			0.817		
Tetryl	479458	0.0005		U	0.0005		U	0.0005		U	0.00422			0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

		Sample ID	GO168			GO168			GO168		
		Collection Date	3/14/2002			6/11/2002			12/4/2004		
		Sample Purpose	REG			REG			REG		
		Units	mg/L			mg/L			mg/L		
ANALYTE	CAS Number		Result	Lab Flag	Data Val	Result	Lab Flag	Data Val	Result	Lab Flag	Data Val
1,3,5-Trinitrobenzene	99354		0.022			0.267			0.0006		
1,3-Dinitrobenzene	99650		0.015			0.116			0.0003		U
4,4AZOXY	4,4AZOXY		0.005		U	0.005		U			
2,4,6-Trinitrotoluene	118967		0.209			1.94			0.0038		
2,4-Diamino-6-nitrotoluene	6629294		0.002		U	0.002		U			
2,4-Dinitrotoluene	121142		0.0002		U	0.535			0.00012		JP
2,6-Diamino-4-nitrotoluene	59229753		0.001		U	0.001		U			
2,6-Dinitrotoluene	606202		0.0002		U	0.556			0.0005		U
2-Amino-4,6-dinitrotoluene	35572782		0.0002		U	0.0002		U	0.0019		
3,5-dinitroaniline	618871		0.005		U	0.005		U			
2,2AZOXY	2,2AZOXY					0.005		U			
4-Amino-2,6-dinitrotoluene	19406510		0.0002		U	0.0002		U	0.002		
Ammonium picrate	131748										
TNX	13980046		0.0002		U	0.0002		U			
DNX	DNX		0.0005		U	0.0005		U			
MNX	MNX		0.0002		U	0.0002		U			
HMX	2691410		0.0002		U	0.0147			0.0016		
m-Nitrotoluene	99081		0.0002		U	0.0002		U	0.0005		U
MNHMX	MNHMX										
Nitrobenzene	98953		0.0002		U	0.0002		U	0.0003		U
o-Nitrotoluene	88722		0.0002		U	0.0002		U	0.0005		U
Picric acid	88891		0.219								
p-Nitrotoluene	99990		0.0002		U	0.0002		U	0.0005		U
RDX	121824		0.119			0.745			0.019		
Tetryl	479458		0.0005		U	0.0005			0.0005		U

Table 5-1
Groundwater Analytical Results (Explosives Only)
Area P 3rd Five-Year Review
Louisiana Army Ammunition Plant
Doyline, Louisiana

Notes:

4,4AZOXY = 2,2',6,6'-Tetranitro-4,4'-azoxytoluene
2,2AZOXY = 4,4',6,6'-Tetranitro-2,2'-azoxytoluene
TNX = Hexahydro-1,3,5-trinitroso-1,3,5-triazine
DNX = Hexahydro-1,3-dinitroso-5-dinitro-1,3,5-triazine
MNX = Hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine
MNHMX = Mononitroso-octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine

mg/L = milligrams per liter
CAS = Chemical Abstracts Society

Data Validation Qualifiers:
U = non detect at reporting limit
J = estimated concentration
B = constituent reported in laboratory blank

Figures

OFFICE	DRAWN BY	CHECKED BY	APPROVED BY
BTR	B. Holt 2/7/03	MRL 5/23/06	DRL 5/23/06

DRAWING NUMBER 108923_AV-45

Shreveport

Minden

Sibley

Haughton

Doyline

Camp Minden
(Formerly Louisiana Army Ammunition Plant)

Clarke Bayou

Caney Branch

Bayou Dorcheat

Sherman Creek

Boone Creek

Lake Bistineau

Main

528 371 7 20 79 3227 164 614 163

LOUISIANA

LEGEND

LAAP SITE

NEARBY TOWNS

N W E S

4,000 2,000 0 4,000 Feet

Shaw®

LOUISIANA ARMY AMMUNITION PLANT
DOYLINE, LOUISIANA

FIGURE 1-1

SITE LOCATION MAP

OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
BTR	B. Holt 2/7/03	ARL 5/23/06	ARL 5/23/06	108923_AV-47

Caney Branch

Clark's Bayou

Bayou Dorcheat

Lake Bistineau

Dixie Inn

Detrex Lagoon

Victory Landfill

ADMINISTRATION AREA

DOYLINE

DA-9

CPG

T-7

Y

OWL

N

B

M-3

L-5

G

C

T-6

H

LF-3

BG-5

L-1

L-2

L-3

E

F

J

M-4

L-4

D

K

S

P

BG-8

528

7

371

79

20

80

164

163

614

LAAP Operable Units

- OU-1 Area P Pink Water Lagoon (Area P)
- OU-2 Burning Ground 5 (BG-5)
- OU-3 M-4 Waste Water Lagoon (M-4)
- OU-4 Burning Ground No. 8 Landfill (BG-8)
- OU-5 Landfill No. 3 (LF-3)
- OU-6 Oily Waste Landfarm (OWL)
- OU-7 Burning Ground No. 8 Pink Water Lagoons (BG-8)

Soil/Source OU
EPA Superfund ROD
September 1996

Soils at Y-Line Facility
LAAP OU-8
EPA Superfund ROD
February 2000

PBC NO.
GS-10F-0048J

- Chromic Acid Etching Facility
- LAAP OU-9 Soil Sites: (9) Load/Assemble/Pack Lines, (3) Test Areas
- LAAP OU-10 Installation-Wide Groundwater
- Other AOCs

N
W E
S

3,000 1,500 0 3,000
Feet

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LOUISIANA ARMY AMMUNITION PLANT
DOYLINE, LOUISIANA

FIGURE 1-2

LAAP FACILITY LAYOUT

DRAWING NUMBER	108923-B62
APPROVED BY	5/23/06
CHECKED BY	12/12/05
DRAWN BY	J.BOUDREAUX 12/12/05
OFFICE	BTR
X-REF	---
IMAGE	---

CLOSED LEACHING PITS P

GO171 GO172 OW1D OW2D OW5S OW3D OW6S PT2D OW4S PT1S GO141 GO140 GO204 GO203 GO012 GO085 GO084 GO169 GO170 GO169A GO169B GO168 GO206 10 11 14 15 9 FORMER LAGOONS GO083 GO009 GO109 GO110 5 8 6 4 12 13 GO202 GO100 7 3 2 GO106 GO105 GO104 16 1 GO201 GO205 FENCE BOUNDARY GO014 GO108 GO107 GO013 GO208 GO210 GO112 GO111 GO207 GO189 GO190 GO188

N

SCALE
0 250 500 FEET

LEGEND

G0015 MONITORING WELL LOCATION (UPPER TERRACE)

G0173 MONITORING WELL LOCATION (LOWER TERRACE)

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LOUISIANA ARMY AMMUNITION PLANT
DOYLINE, LOUISIANA

FIGURE 2-1

AREA P LAGOONS SITE MAP

DRAWING NUMBER	108923-B63
APPROVED BY	5/23/06
CHECKED BY	KK 12/12/05
DRAWN BY	J.BOUDREAUX 12/12/05
OFFICE	BTR
X-REF	---
IMAGE	---

BURMA R

N

G0016

G0192 G0191 G0197

CHROMIC ACID ETCH FACILITY

SUMP G0193 JACK MILLER MACHINES

BUILDING 2600

G0195 G0198

G0194

G0196 G0199 G0200

G0270

G0184

G0076

G0020B

G0020 G0078 G0077

G0159 G0185

LEGEND

G0173 MONITORING WELL LOCATION (LOWER TERRACE)

#22 WATER WELL

SCALE

0 200 400 FEET

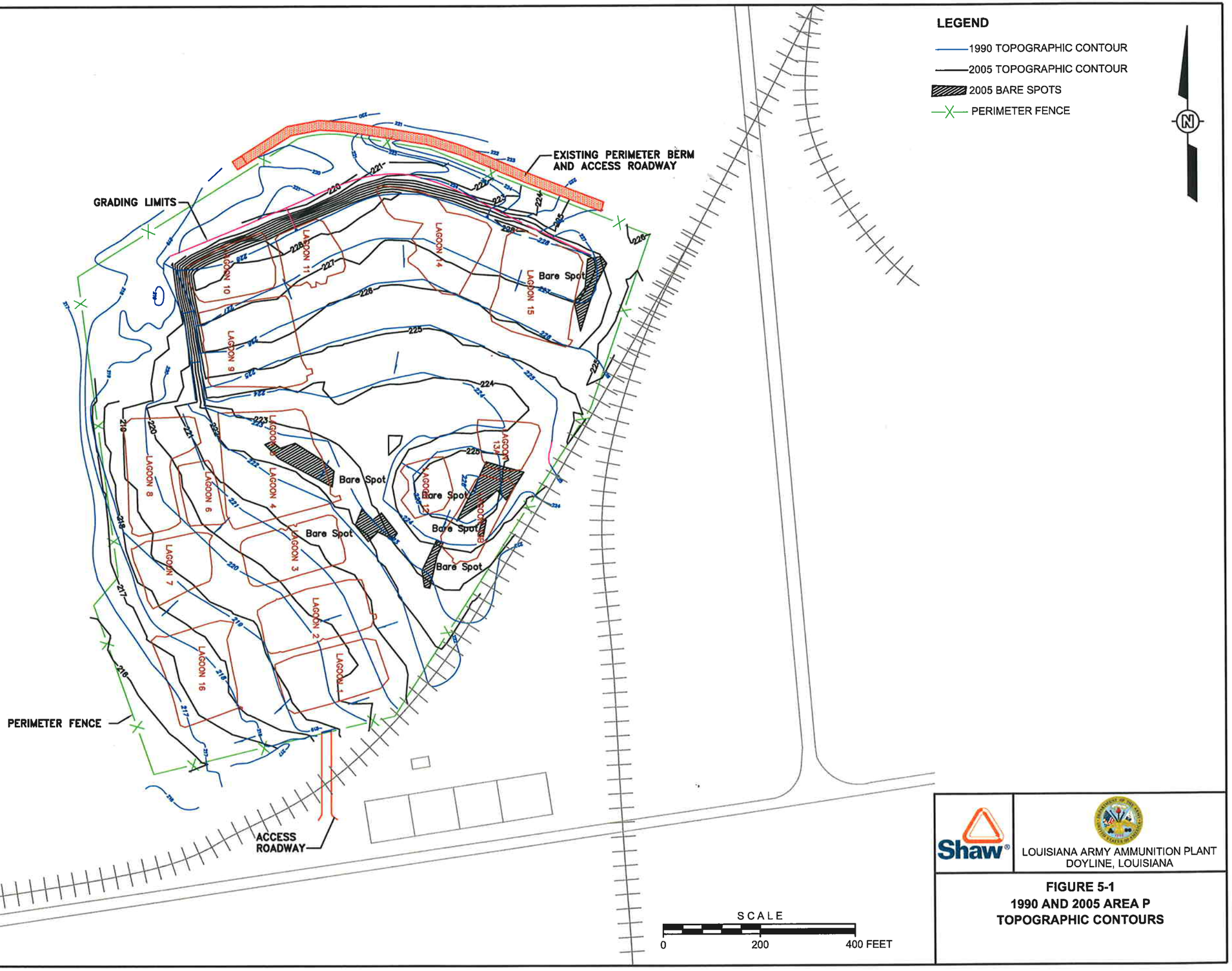
Shaw

LOUISIANA ARMY AMMUNITION PLANT
DOYLINE, LOUISIANA

FIGURE 2-2

Y-LINE SITE MAP

IMAGE	X-REF	OFFICE	DRAWN BY		CHECKED BY		APPROVED BY		DRAWING NUMBER
---	---	KNX	C. BENTLEY	2/27/06	BNK	3/23/06	MCL	3/23/06	108923_001



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LOUISIANA ARMY AMMUNITION PLANT
DOYLINE, LOUISIANA

FIGURE 5-1
1990 AND 2005 AREA P
TOPOGRAPHIC CONTOURS

Appendix A
Responsiveness Summary

Responsiveness Summary

LAAP community participation consists of a Technical Review Committee (TRC), public meetings, and public notices. The TRC has held meetings, on an as-needed basis, of community members, the EPA, LDEQ, and the Army with open public participation. A Community Involvement Plan Update (Shaw 2005a) for LAAP provides detailed information on community participation for the installation restoration program. The information repositories for public access to the administrative record files for LAAP are at the Army Environmental Center and at Camp Minden.

In accordance with Sections 113 and 117 of CERCLA, the Army provided public notice that it was performing a five year review of the Soil/Source OU and Y-Line Chromic Acid Etching Facility. The notice was run in the Minden Herald Press from February 13 through February 15, 2006. The text of the notice is presented below. To date (May 23, 2006), the Army has not received any expressed or written comments, concerns, or questions from the public.

EPA has provided comments on the draft final Five Year Review Report. A response to the EPA's comments are provided in Appendix B (Responses To Reviewers Comments) and the responses have been incorporated in the final Five Year Review Report. No other comments have been received.

Transcript of Public Notice
Ran in the Minden Press Herald
From February 13 -15, 2006

Public Notice
Five-Year Review of the Soil/Source OU and
Y-Line Chromic Acid Etching Facility
Louisiana Army Ammunition Plant

February 2006

A review of the environmental restoration at the Soil/Source Operable Unit (OU) (includes study areas Area P, Burning Ground (BG) No. 5, Landfill No. 3, Oily Waste Landfarm, BG- 8 Landfill, BG-8 Lagoon, and Manufacturing Area M-4 Lagoon) and Y-Line Chromic Acid Etching Facility, located on the Louisiana Army Ammunition Plant (LAAP), is required by federal law every five years to ensure the protection of human health and the environment. Information generated for the Soil/Source OU will be for the Third Five-Year Review and information obtained for the Y-Line Facility will be for the First Five-Year Review. This Public Notice serves as the announcement that the review for both areas is in progress and the final report will be available at LAAP when it is complete. Any interested parties are invited to contact Doyle Williams at (318) 382-4205 to provide current information and/or concerns.

Appendix B

Responses to Reviewer Comments

APPENDIX B
RESPONSE TO
TECHNICAL REVIEW OF DRAFT FINAL
THIRD FIVE-YEAR REVIEW LAAPOU-1 and
FIRST FIVE-YEAR REVIEW LAAPOU-8 REPORT

LOUISIANA ARMY AMMUNITION PLANT
DOYLINE, LOUISIANA

The comments below are the result of a review of the Draft Final Third Five-Year Review LAAPOU-1 and First Five-Year Review LAAPOU-8 Report (report) for the Louisiana Army Ammunition Plant in Doyline, Louisiana.

2.1.8 Preliminary Investigations, Page 2-10, ending paragraph from Page 2-9.

The report describes a "no further action" Record of Decision (ROD). This should be changed to "limited action" since some additional action was required for Operable Unit 1 (OU-1) (Area P).

Response to Comment in Section 2.1.8

Not sure what the "limited action" that is being referred to. As stated in the ROD for OU-1, "the selected remedy for the Soil/Source OU is No Further Action for each of the seven study areas." (ESE, 1996). Area P is one of the seven areas in OU-1.

4.3 Site Inspection, Page 4-3, Paragraph 1.

The report uses the phrase "No Further Action requirements." It is suggested to change the word "requirements" to "remedy."

Response to Comment in Section 4.4 (page 4-3)

The phrase will be revised to read "No Further Action remedy."

5.5.2 Groundwater Sampling Results, Pages 5-5 & 5-6.

The end of Page 5-5 and continuing onto Page 5-6 indicates that the increasing trend in explosives in the Lower Terrace groundwater is from infiltration from the Upper Terrace groundwater. However, it appears that the concentrations in the Lower Terrace are higher than those in the Upper Terrace (see wells G0109 vs. G0110 and G0140 vs. G0141 in Appendix F). It is unclear and should be explained how the higher concentration could occur in the Lower Terrace under this scenario.

Response to Comment in Section 5.5.3 (pages 5-5 & 5-6)

Wells GO109 and GO110 and GO140 and GO141 are well pairs located in the Upper and Lower Terraces respectively, and located near the center of the former pit and the

northwest perimeter, respectively. As seen in the concentration trend graphs in Appendix F for the constituents RDX, HMX, and TNT, the initial concentrations were higher in the Upper Terrace wells(GO109, GO140) than in the Lower Terrace wells (GO110, GO141). Additionally, the Upper Terrace wells are exhibiting decreasing trends in concentration while the Lower Terrace wells are showing increasing trend. This was predicted in the fate and transport groundwater modeling performed in the "Follow-On Remedial Investigation for Soils and the Site-wide Groundwater Operable Units" (Shaw, 2005) Vol.1 , Appendix I, which shows migration(not infiltration) downward from the Upper Unit to the Lower Unit as a result of hydraulic connection between the two units which in this area are separated by silty clays and sometimes are directly connected. This results in decreases in concentration in the Upper Unit and increases in the Lower Unit. Note that the model also predicted lateral migration in the Lower Unit which is not being seen in the data. This is probably a result of the model excluding the effects of constituent degradation. The paragraph will be revised to include this explanation and reference to the groundwater model.

5.6.1 Technical Assessment Question A, Page 5-7, Paragraph 1.

In the middle of the paragraph, the report references Appendix E. The text should be changed to reference Appendix F. In addition, this paragraph contains the same conclusion that the Lower Terrace groundwater concentrations are a result of groundwater migration from the Upper Terrace. It is unclear and should be explained how lower concentrations in the Upper Terrace groundwater could cause the higher concentration in the Lower Terrace.

Response to Comment in Section 5.6.1

The reference to Appendix E will be revised to reference F. A reference to the explanation proposed for page 5-6 will be included.

8.0 Statement of Protectiveness, Page 8-1, Paragraph 2.

The last part of the first sentence, "…but an increase of concentrations in the Lower Terrace aquifer." should be deleted. The increase does not support the conclusion that the clay cap prevents migration of precipitation. The text on the increased concentrations in the Lower Terrace aquifer could be placed before the last sentence.

Response to Comment in Section 8.0

The remedial action in the Area P lagoons allowed up to 100 mg/kg of RDX and HMX to be left in the soil. It is believed that the clay cap is preventing precipitation from infiltrating through the soil and leaching constituents from the soil. If leaching were occurring, then the leached contamination would act as a continuing source of

contamination and groundwater concentration would not be decreasing in the Upper Terrace. Therefore, decreases in concentration in the Upper Terrace demonstrates the effectiveness of the clay cap.

Other comments

1. Five Year Review Summary Form - The "Recommendations and Follow-up" section in the summary form is inconsistent with the "Recommendations" found in the report at p. 7.1 for the OU 1 - 7 remedy. The report acknowledges the ground water underneath the cap is in need of further study which may require remedial action to the ground water. Thus, the Five Year Review Summary Form should be changed to reflect the recommendations provided in the body of the 5 yr. review report at p. 7-1.

Response to Other Comment 1

The recommendations in the Five Year Review Summary Form are limited to the soil source area of Area P and the performance of the remedial action to protecting the groundwater. Any reference to further investigation of the groundwater in the Upper and Lower Terrace is a reference to the investigations currently being performed in LAAP OU-010, the site-wide groundwater unit. The reference on p. 7-1 will be revised to clarify the study being performed in OU-010.

2. Five Year Review Summary Form - The Protectiveness Statement in the summary form does not reveal the whole story as it relates to the OU 1 - 7 remedy. Unfortunately here, it appears the shallow ground water has been interpreted to mean the Upper and Lower Terrace aquifers. The RAO for the OU 1-8 remedy is the protection of the shallow ground water (Upper and Lower Terrace). From this report, the RAO is only being met with respect to the Upper Terrace. Perhaps the RAO for this remedy was intended to protect the upper portion of the shallow ground water and not the lower portion of the shallow ground water. If this is not the case, then it appears that the remedy is not protective of the environment, as the concentration of contamination in the Lower Terrace (also part of the shallow ground water) is increasing.

Same comment for the Protectiveness Statement at p. 8-1.

Response to Other Comment 2

The stated purpose of the IRA was the protection of the shallow groundwater. This clearly would include the Upper Terrace and may include the Lower Terrace as it is distinguished from the deeper groundwater found in the Wilcox Aquifer. If the reader acknowledges that the RAO is being met for the Upper Terrace, then how can it not also be met for the Lower Terrace. The migration of contaminants from one unit to the other is the scope of the investigation of LAAP OU-010, the site-wide groundwater unit. The text will be revised to clarify the role of LAAP-010.

3. Section 3.2, at p. 3-1 - The word "investigation" should be added after "site-wide groundwater" in the second sentence of the first paragraph.

Response to Other Comment 3

The text will be revised to read "…site-wide groundwater investigation".

4. Section 5.6.1 Is the remedy functioning as intended by the ROD - In the last paragraph (last 2-3 sentences of the paragraph) it appears to show that the environment (Lower Terrace aquifer) is not being protected. I suppose the selected remedy in the OU 1 - 7 ROD did not intend to protect the Lower Terrace, but it appears the Lower Terrace is part of the shallow ground water included in the RAO for OU 1 - 7. It may be appropriate to state that the ground water OU will address the contamination in the Lower Terrace.

Response to Other Comment 4

See response to Other Comment 2. The text will be revised to clarify the role of LAAP-010.

5. Section 8.0 - See comment 2. It appears that the OU 1 - 7 remedy is protective of the Upper Terrace but not the Lower Terrace. It also appears the contamination issues in the Lower Terrace will be addressed in the ground water investigation and ROD. As such, the way the protectiveness determination is currently written is inaccurate, and does not make sense. How can the remedy be described as protective if the Lower Terrace (with increasing concentration of contamination) was part of the RAO? Is there some technical information or modeling that demonstrates that the Lower Terrace contamination will attenuate in a specific number of years? The remedy appears to be protective only as it pertains to the Upper Terrace.

Response to Other Comment 5

The remedy is protective in that additional contamination is not being leached from the soil into the groundwater. It was not intended to address the migration of contamination within the unit. That is the scope of the groundwater investigation being performed as part of LAAP-010. The text will be revised to clarify the limited scope of the RAO and the scope of LAAP-010.

Appendix C

Site Inspection Checklist and Photographs

Site Inspection Checklist

I. SITE INFORMATION

Site name: LAAP	**Date of inspection:** 2/16/06
Location and Region:	**EPA ID:** LAD0213820533
Agency, office, or company leading the five-year review: Shaw Environmental, Inc.	**Weather/temperature:** Cool and Dry

Remedy Includes: (Check all that apply)

- ☒ Landfill cover/containment
- ☒ Access controls
- ☒ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Other_____
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Doyle Williams (Name) Consultant (Title) 2/16/06 (Date)
   Interviewed ☒ at site ☐ at office ☐ by phone Phone no. 318-982-4205
   Problems, suggestions; ☒ Report attached _____

2. **O&M staff** _____NA_____ (Name) _____ (Title) _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency _____USEPA_____
Contact ___Bartolome Canallas____ __Regional Project Mgr 2/14/06___ _____
Name Title Date Phone no.
Problems; suggestions; ☒ Report attached _____
_____

Agency _____LDEQ_____
Contact _ John Halk ___ Env. Scientist Manager __2/14/06__ _____
Name Title Date Phone no.
Problems; suggestions; ☒ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

4. **Other interviews** (optional) ☒ Report attached.

Steve Flowers, Environmental Program Manager Valantech Systems, Inc.

Dallas Garner, Planning Department (retired), Louisiana Army Ammunition Plant

Danny Harrelson, Engineer, US Army Corps of Engineers

Brad King, Environmental Department Manager, LA Army National Guard

Col. Ron Stucky, Commander, Camp Minden, LAARNG

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
   - ☐ O&M manual — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ As-built drawings — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Maintenance logs — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

2. **Site-Specific Health and Safety Plan** — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Contingency plan/emergency response plan — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

3. **O&M and OSHA Training Records** — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

4. **Permits and Service Agreements**
   - ☐ Air discharge permit — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Effluent discharge — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Waste disposal, POTW — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Other permits_____ — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

5. **Gas Generation Records** — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks_____

6. **Settlement Monument Records** — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks_____

7. **Groundwater Monitoring Records** — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks_____

8. **Leachate Extraction Records** — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks_____

9. **Discharge Compliance Records**
   - ☐ Air — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ Water (effluent) — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks_____

10. **Daily Access/Security Logs** — ☐ Readily available — ☐ Up to date — ☒ N/A

    Remarks_____

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State
☐ PRP in-house ☐ Contractor for PRP
☒ Federal Facility in-house ☐ Contractor for Federal Facility
☐ Other_____

2. **O&M Cost Records**

☒ Readily available ☐ Up to date
☐ Funding mechanism/agreement in place
Original O&M cost estimate_____ ☐ Breakdown attached

Total annual cost by year for review period if available

From_____ To____2001___ _____24,000_____ ☐ Breakdown attached
Date Date Total cost
From_____ To____2002__ _____ 24,000____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ 24,000____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____24,000____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____24,000____ ☐ Breakdown attached
Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: ____NA_____

V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured ☐ N/A

Remarks_____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A

Remarks_____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) ___Self reporting_____
Frequency ___quarterly_____
Responsible party/agency ____Doyle Williams, Army_____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date ☒ Yes ☐ No ☐ N/A
Reports are verified by the lead agency ☒ Yes ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met ☒ Yes ☐ No ☐ N/A
Violations have been reported ☒ Yes ☐ No ☐ N/A
Other problems or suggestions: ☐ Report attached

_____
_____
_____
_____

2. **Adequacy** ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☒ No vandalism evident
Remarks_____
_____

2. **Land use changes on site** ☐ N/A
Remarks_____None_____
_____

3. **Land use changes off site** ☐ N/A
Remarks_____None_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable ☒ N/A

1. **Roads damaged** ☐ Location shown on site map ☐ Roads adequate ☐ N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

VII. LANDFILL COVERS ☒ Applicable ☐ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☒ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

2. **Cracks** ☐ Location shown on site map ☒ Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____
   _____

3. **Erosion** ☐ Location shown on site map ☒ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

4. **Holes** ☐ Location shown on site map ☒ Holes not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

5. **Vegetative Cover** ☐ Grass ☒ Cover properly established ☐ No signs of stress
   ☐ Trees/Shrubs (indicate size and locations on a diagram)
   Remarks Some bare spots, these areas have previously been resealed, but will not sustain growth, no erosion evident _____
   _____

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
   Remarks
   _____
   _____

7. **Bulges** ☐ Location shown on site map ☒ Bulges not evident
   Areal extent_____ Height_____
   Remarks_____
   _____

8. **Wet Areas/Water Damage** ☒ Wet areas/water damage not evident
- ☐ Wet areas ☐ Location shown on site map Areal extent_____
- ☐ Ponding ☐ Location shown on site map Areal extent_____
- ☐ Seeps ☐ Location shown on site map Areal extent_____
- ☐ Soft subgrade ☐ Location shown on site map Areal extent_____

Remarks_____

9. **Slope Instability** ☐ Slides ☐ Location shown on site map ☒ No evidence of slope instability
Areal extent_____
Remarks_____

B. Benches ☐ Applicable ☒ N/A
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay
Remarks_____

2. **Bench Breached** ☐ Location shown on site map ☐ N/A or okay
Remarks_____

3. **Bench Overtopped** ☐ Location shown on site map ☐ N/A or okay
Remarks_____

C. Letdown Channels ☐ Applicable ☒ N/A
(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** ☐ Location shown on site map ☐ No evidence of settlement
Areal extent_____ Depth_____
Remarks_____

2. **Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation
Material type_____ Areal extent_____
Remarks_____

3. **Erosion** ☐ Location shown on site map ☐ No evidence of erosion
Areal extent_____ Depth_____
Remarks_____

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____
_____

5. **Obstructions** Type_____ ☐ No obstructions
☐ Location shown on site map Areal extent_____
Size_____
Remarks_____
_____

6. **Excessive Vegetative Growth** Type_____
☐ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks_____
_____

D. Cover Penetrations ☐ Applicable ☒ N/A

1. **Gas Vents** ☐ Active ☐ Passive
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance
☐ N/A
Remarks_____
_____

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

4. **Leachate Extraction Wells**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A
Remarks_____
_____

E. Gas Collection and Treatment ☐ Applicable ☒ N/A

1. **Gas Treatment Facilities**
   ☐ Flaring ☐ Thermal destruction Collection for reuse
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____
   _____

2. **Gas Collection Wells, Manifolds and Piping**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____
   _____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   ☐ Good condition ☐ Needs Maintenance ☐ N/A
   Remarks_____
   _____

F. Cover Drainage Layer ☐ Applicable ☒ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
   Remarks_____
   _____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
   Remarks_____
   _____

G. Detention/Sedimentation Ponds ☐ Applicable ☒ N/A

1. **Siltation** Areal extent_____ Depth_____ ☐ N/A
   ☐ Siltation not evident
   Remarks_____
   _____

2. **Erosion** Areal extent_____ Depth_____
   ☐ Erosion not evident
   Remarks_____
   _____

3. **Outlet Works** ☐ Functioning ☐ N/A
   Remarks_____
   _____

4. **Dam** ☐ Functioning ☐ N/A
   Remarks_____
   _____

H. Retaining Walls ☐ Applicable ☒ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____
   _____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
   Remarks_____
   _____

I. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☒ N/A

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
   ☐ Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____
   _____

3. **Erosion** ☐ Location shown on site map ☒ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

4. **Discharge Structure** ☐ Functioning ☒ N/A
   Remarks_____
   _____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

2. **Performance Monitoring** Type of monitoring_____
   ☐ Performance not monitored
   Frequency_____ ☐ Evidence of breaching
   Head differential_____
   Remarks_____
   _____

C. Treatment System ☐ Applicable ☒ N/A

1. **Treatment Train** (Check components that apply)
   - ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
   - ☐ Air stripping ☐ Carbon adsorbers
   - ☐ Filters_____
   - ☐ Additive (*e.g.*, chelation agent, flocculent)_____
   - ☐ Others_____
   - ☐ Good condition ☐ Needs Maintenance
   - ☐ Sampling ports properly marked and functional
   - ☐ Sampling/maintenance log displayed and up to date
   - ☐ Equipment properly identified
   - ☐ Quantity of groundwater treated annually_____
   - ☐ Quantity of surface water treated annually_____

   Remarks_____
   _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   - ☐ N/A ☐ Good condition ☐ Needs Maintenance

   Remarks_____
   _____

3. **Tanks, Vaults, Storage Vessels**
   - ☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance

   Remarks_____
   _____

4. **Discharge Structure and Appurtenances**
   - ☐ N/A ☐ Good condition ☐ Needs Maintenance

   Remarks_____
   _____

5. **Treatment Building(s)**
   - ☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
   - ☐ Chemicals and equipment properly stored

   Remarks_____
   _____

6. **Monitoring Wells** (pump and treatment remedy)
   - ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   - ☐ All required wells located ☐ Needs Maintenance ☐ N/A

   Remarks_____
   _____

D. Monitoring Data

1. Monitoring Data
   - ☒ Is routinely submitted on time ☒ Is of acceptable quality

2. Monitoring data suggests:
   - Groundwater plume is effectively contained ☒ Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ All required wells located ☐ Needs Maintenance ☒ N/A

Remarks_____

_____

10.1 X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Remedy appears to be functioning, groundwater COC concentrations continue to decrease in the Upper Terrace Unit. COC concentrations are increasing in the Lower Unit due to downward migration. Horizontal migration in Lower Unit also evident, but appears to be very slow

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

O & M appears to be adequate. Some minor deficiencies do not appear to be affecting the protectiveness of the remedy.

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

_____None_____

10.1.1 D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

Completion of the Groundwater FS for Groundwater OU will present remedial options for GW and will present an optimized monitoring plan

Appendix D

Site Inspection Logbook

Aug. 1998
Monitor wells are cleared and painted
W.A. Smiffen

May 26, 1999 Grass mowed W.A. Smiffen

Aug. 25, 1999 Grass mowed W.A. Smiffen

Sept. 19, 2000 Measured water levels in 54 monitor wells. Cap looked good considering heat & dry weather. Must have received some rain. Bare areas still need work. Boundary around fence needs mowing and fence needs clearing. W.A. Smiffen

Dec. 4 - 15, 2000 Sampled monitor wells in Area P for natural attenuation program. No changes in area since Sept.
W.A. Smiffen

Jan. 22, 2001 During monthly water level readings it was noted that the fence around Area P had been cleared of vegetation and repaired where it was needed. W.A. Smiffen

April 26, 2001 Water levels were measured in the monitor wells. No significant changes were noted in Area P. Vegetation looked good on the cap due to spring rains. W.A. Smyffer

July 25, 2001 Water levels were measured in the monitor wells. Normal drying out of vegetation due to summer heat. Old water main (cast iron pipe) had been excavated where it ran across the cap. W.A. Smyffer

Nov. 30, 2001 Water levels were measured in monitor wells. Grass had been cut recently, Needs outside of fence mowed, Water line needs filling and is causing errosion on west end. W.A. Smyffer

Feb. 22, 2002 Water levels were measured in monitor wells. No changes from previous report. Warning signs have been put on perimeter fence. W.A. Smyffer

May 21, 2002 Water levels measured in monitor wells, No changes from previous report. W.A. Smyffer

August 23, 2002 Water levels measured in monitor wells. Grass cut recently. Need to mow grass ten feet outside of fence. Need to fill in old water line right of way on west end of cap. Its starting to erode. W.A. Snuffer

Nov. 25, 2002 Water levels measured in monitor wells. Water line still needs to be filled in with soil. No other changes.

W.A. Snuffer

Feb. 28, 2003 Measured water levels in monitor wells. Work is still needed on water line and bare areas, No new changes.

W.A. Snuffer

May 28, 2003 Measured water levels in monitor wells. No changes in site.

W.A. Snuffer

Sept. 24, 2003 Measured water levels in monitor wells. Needs mowing outside of fence. Fence needs repair on west side at old water line.

W.A. Snuffer

Dec. 10, 2003 Measure water levels in monitor wells. Outside of fence needs mowing and fence repaired on westside at old water line.

W.A. Smyffer

Mar. 9 2004 Measure water levels in monitor wells No significant changes since Dec. 2003.

W.A. Smyffer

June 2004 Sampling carried out at end of June. Lots of water in woods surrounding fenced area. Trees have blown down on trails to some monitor wells. Grass was mowed to prevent fires from flare testing. It is recommended to let field dry more in futur; to reduce damage to cap. No other significant changes.

W.A. Smyffer

Sept. 10, 2004 Grass was cut and more ground water samples were collected for five year review.

W.A. Smyffer

Dec. 3 2004 Sample monitor wells with Shaw. No new problems. Site in good shape overall.

W.A. Smyffer

Apr. 27, 2005 Used ATV to check site. Va
Tree down by monitor well 141, Blocks
trail to Raine's cemetary. Grass has been
mowed. Bare spots are smaller which
is typical this time of year. Fence still
needs mending in places. Overall - site
is in good shape. W.A. Smyffer

Aug. 18, 2005 Used ATV to check site.
Grass on cap recently mowed. Looks like the
site has been getting good rain for this time
of year. Needs mowing on outer 10' of
perimeter. Clearing has recently been done
around monitor wells. Bare spots still
need work. Overall site is in good shape
W.A. Smyffer

Nov. 18, 2005 Used ATV to check site
Site has not change significantly. Grass
looks good, bare areas still present
There's been enough rain to maintain grass,
but areas that are normally wet were
dry. Perimeter still needs mowing.
Overall in good shape.
W.A. Smyffer

Appendix E

Interview Records

INTERVIEW DOCUMENTATION FORM			
The following is a list of individual interviewed for this five-year review. See the attached contact record(s) for a detailed summary of the interviews.			
Name	**Title/Position**	**Organization**	**Date**
Bartolome Canellas	Remedial Project Manager	US Environmental Protection Agency, Region 6	14 February 2006
Steve Flowers	Environmental Program Manager	Valentech Systems, Inc.	14 February 2006
Dallas Garner	Planning Department, retired	Louisiana Army Ammunition Plant	14 February 2006
John Halk	Environmental Scientist Manager	Lousiana Department of Environmental Quality	14 February 2006
Danny Harrelson	Engineer	US Army Corps of Engineers	14 February 2006
Brad King	Environmental Department Manager	Louisiana Army National Guard	14 February 2006
COL Ron Stuckey	Commander	Camp Minden, LAARNG	14 February 2006
Doyle Williams	Consultant	Engineering, Environment, Inc.	14 February 2006

APPENDIX E
INTERVIEW QUESTIONS

Third Five Year Review for
LAAP OU-1 through LAAP OU-7
and
First Five Year Review for LAAP OU-8
Louisiana Army Ammunition Plant

February 14, 2006

1. Back ground information (name, who work for, position, and involvement with LAAP, if any)

Name: *Bartolome J. Cañellas (Mail Code - 6SF-LP)*
Employer: *U.S. Environmental Protection Agency, Region 6*
1445 Ross Avenue, Suite 1200
Dallas, TX 75202
Position: *Remedial Project Manager*
Superfund Division, Remedial Branch
Louisiana/Oklahoma Section
Involvement: *EPA Project Manager for the LAAP site.*

2. How long have you lived, or worked, in the LAAP area?

Working out of Dallas, TX, as project manager for sites in Louisiana, Oklahoma and New Mexico.
Involve with the LAAP project for the last two years.

3. Are you aware of the Interim Remedial Action cleanup effort at Area P or the No Further Action determinations for soils at the other locations?

Yes, from the site records in the EPA, Area P was a major concern for the State and the EPA. This area was investigated and remediated to the satisfaction of the agencies in 1987 through 1991.

Other soil/source areas were investigated and resulted in 1996/1997 Record of Decision (ROD) or determinations that No Further Action was necessary for the current and anticipated land uses. As stated in the ROD, in the unlikely event that the property was transferred and land uses change, the Army would readdress potential risks based in the new uses.

In a similar way, the area known as the Y Line and Chromium etching facility soils were investigated and resulted in a May 2000 Record of Decision or determination that no CERCLA remedial action was necessary. As stated in the ROD, if land uses change, the determination will be re-evaluated.

A group of Load Assembly Pack (LAP) areas and test areas has been investigated and a proposed plan was completed in 2005. A ROD is anticipated for 2006.

Finally, the site wide groundwater is currently under investigation and proposed plans and a ROD is anticipated for 2006.

4. Have you participated in any activities at LAAP?

As Remedial Project Manager, the EPA provides oversight to the activities and investigations that the Army at the LAAP facility. Oversight activities are also coordinated with the State, the Louisiana Department of Environmental Quality.

Other activities are as Work Assignment Manager for contracts in which EPA consultants provide oversight to activities related to the LAAP investigations.

5. Do you have any comments about the effectiveness of the IRA or NFA?

The remedial action implemented was effective to eliminate risk to human health and the environment in the area of the pink water lagoons (Area P).

Investigations at other areas of smaller concern found risk was acceptable for the anticipated land uses and no further action was appropriate at that time.

Other areas are currently under investigation with the oversight of the U.S. Environmental Protection Agency and the Louisiana Department of Environmental Quality.

6. Do you have any other environmental concerns or issues we haven't discussed already?

No.

7. Is there anything you would like to add?

Five-Year reviews are conducted at Superfund sites and they involve all the different areas or operable units for which a final determination has been made. The threshold driving the need of Five-Year review is not land use, but is "unlimited use and unrestricted exposure (uu/ue)", thus areas subject to no further action determination are reviewed to verify land uses remain as anticipated.

A Five-Year review was completed for the Area P lagoons in December 1995. A second Five-Year review was completed in September 2000.

APPENDIX E
INTERVIEW QUESTIONS

Third Five Year Review for
LAAP OU-1 through LAAP OU-7
and
First Five Year Review for LAAP OU-8
Louisiana Army Ammunition Plant

February 14, 2006

1. Back ground information (name, employer, position, and involvement with LAAP, if any)

Name: *Steve Flowers*
Employer: *Valentech Systems, Inc*
Position: *Environmental Program Manager/IT Systems Manager*
Involvement: *Former Installation Environmental Affairs Manager*

2. How long have you lived, or worked, in the LAAP area?

I have worked at the installation for almost 18 years.

3. Are you aware of the Interim Remedial Action cleanup effort at Area P or the No Further Action determinations for soils at the other locations?

Yes. I am familiar with the ongoing remediation program at LAAP. I am aware of the Area P cleanup and the No Further Action determination for soils.

4. Have you participated in any activities at LAAP?

Yes. I was involved in a number of environmental engineering projects at the installation, and I assisted at times with various administrative efforts associated with the remediation program.

5. Do you have any comments about the effectiveness of the IRA or NFA?

I believe that these were the correct decisions based on the scientific evidence gathered from the many soil and water samples collected.

6. Do you have any other environmental concerns or issues we haven't discussed already?

No.

7. Is there anything you would like to add?

I believe that there is enough historical data collected from the remediation program that it can now be reasonably concluded within the year. Long-term groundwater monitoring should be sufficient to allay anyone's concerns regarding potential contamination.

APPENDIX E
INTERVIEW QUESTIONS

Third Five Year Review for
LAAP OU-1 through LAAP OU-7
and
First Five Year Review for LAAP OU-8
Louisiana Army Ammunition Plant

February 14, 2006

1. Back ground information (name, who work for, position, and involvement with LAAP, if any)

Name: *Dallas Garner*
Employer: *Retired LAAP Employee*
Position: *Planning Department*
Involvement: *30 year employee at LAAP. Worked for Ron Stuckey, now the Commander of Camp Minden.*

2. How long have you lived, or worked, in the LAAP area?

Have live in Doyline since 1964

3. Are you aware of the Interim Remedial Action cleanup effort at Area P or the No Further Action determinations for soils at the other locations?

Yes, mostly the IRA for Area P.

4. Have you participated in any activities at LAAP?

I was the operator of Doyline Water System, which was regularly sampled from1994 through 2000.

5. Do you have any comments about the effectiveness of the IRA or NFA?

Not aware of any concerns in the community of Doyline.

6. Do you have any other environmental concerns or issues we haven't discussed already?

No.

7. Is there anything you would like to add?

No.

APPENDIX E
INTERVIEW QUESTIONS

Third Five Year Review for
LAAP OU-1 through LAAP OU-7
and
First Five Year Review for LAAP OU-8
Louisiana Army Ammunition Plant

February 14, 2006

1. Back ground information (name, who work for, position, and involvement with LAAP, if any)

Name: *John Halk*
Employer: *Louisiana Department of Environmental Quality*
Position: *Environmental Scientist Manager*
Remediation Services Division, Group 3
Involvement: *LAAP site falls within Group 3 geographic boundaries, and he is assigned as supervisor for the Team Leader assigned to the site.*

2. How long have you lived, or worked, in the LAAP area?

Does not live or work in the LAAP area.

3. Are you aware of the Interim Remedial Action cleanup effort at Area P or the No Further Action determinations for soils at the other locations?

Yes, from the site records in the EPA, Area P was a major concern for the State and the EPA. This area was investigated and remediated to the satisfaction of the agencies in 1987 through 1991.

Yes. I served as primary contact and project manager for the State at the Area P Incineration project. Area P Lagoon sediments were excavated and underwent thermal destruction. Resultant soils/sediment ash residuals were compacted and placed into the former lagoon area, graded, and re-seeded. This took place between approximately 1987 to 1991.

I am also aware of the Record of Decision or determinations of no further action for other soil area operable units of LAAP that occurred in the CERCLA history of the site. These areas were addressed adequately under direction of USEPA and LDEQ within the Superfund Act framework.

The groundwater operable unit is site-wide and is currently under investigation. This operable unit will be addressed in a ROD determination for the site in the future.

4. Have you participated in any activities at LAAP?

Throughout the federal and state involvement as a listed Superfund site, I have participated in numerous inspections, meetings, and decisions regarding site work.

5. Do you have any comments about the effectiveness of the IRA or NFA?

The IRA involved thermal destruction of the explosives-contaminated sediments, which very effectively reduced the overall risk of those sediments to leach explosives compounds to groundwater.

6. Do you have any other environmental concerns or issues we haven't discussed already?

No.

7. Is there anything you would like to add?

It is my desire to work with the new owner of the LAAP facility to continue to address the environmental issues at the site and continue the cooperation of all parties in the future. It is important that all parties understand their respective roles so that environmental issues are dealt with in a sound manner.

APPENDIX E
INTERVIEW QUESTIONS

Third Five Year Review for
LAAP OU-1 through LAAP OU-7
and
First Five Year Review for LAAP OU-8
Louisiana Army Ammunition Plant

February 14, 2006

1. Back ground information (name, who work for, position, and involvement with LAAP, if any)

Name: *Danny Harrelson*
Employer: *United States Army Corps of Engineers*
Position:
Involvement: *Co-author of monitored natural attenuation study from December 1993 to present.*

2. How long have you lived, or worked, in the LAAP area?

Danny has carried out sampling and studies of Area P and other areas since 1993 to the present.

3. Are you aware of the Interim Remedial Action cleanup effort at Area P or the No Further Action determinations for soils at the other locations?

Yes.

4. Have you participated in any activities at LAAP?

Yes.

5. Do you have any comments about the effectiveness of the IRA or NFA?

It would appear that the discontinuity of contractors has prolonged the clean up from coming to a conclusion. A stable contractor could have saved effort and time.

6. Do you have any other environmental concerns or issues we haven't discussed already?

No.

7. Is there anything you would like to add?

No.

APPENDIX E
INTERVIEW QUESTIONS

Third Five Year Review for
LAAP OU-1 through LAAP OU-7
and
First Five Year Review for LAAP OU-8
Louisiana Army Ammunition Plant

February 14, 2006

1. Back ground information (name, who work for, position, and involvement with LAAP, if any)

Name: *Brad King*
Employer: *Louisiana Army National Guard*
Position: *Environmental Department Manager*
Involvement: *Environmental projects oversight.*

2. How long have you lived, or worked, in the LAAP area?

I live in Covington, LA. I have some environmental knowledge of the LAAP.

3. Are you aware of the Interim Remedial Action cleanup effort at Area P or the No Further Action determinations for soils at the other locations?

Yes, some historical knowledge.

4. Have you participated in any activities at LAAP?

Yes. Environmental project oversight since 1998.

5. Do you have any comments about the effectiveness of the IRA or NFA?

No comments.

6. Do you have any other environmental concerns or issues we haven't discussed already?

Yes, concerns about future environmental issues discovered from past LAAP waste management practices.

7. Is there anything you would like to add?

No.

APPENDIX E
INTERVIEW QUESTIONS
Louisiana Army Ammunition Plant Five Year Reviews for
LAAP OU 1-7 (Area P, BG-5, LF-3, OWL, BG-8 Landfill and BG-8 Lagoon, and M-4)
and
LAAP OU 8 (Y-Line Chromic Acid Etching Facility)

February 14, 2006

1. Back ground information (name, who work for, position, and involvement with LAAP, if any)

Ronnie Stuckey, Installation Commander

2. How long have you lived, or worked, in the LAAP area?

15 months as Installation Commander, worked here from 1982 – 1990 as Manager of Production, Planning and Control

3. Are you aware of the Interim Remedial Action cleanup effort at Area P or the No Further Action determinations for soils at the other locations?

My knowledge of these efforts are based on discussions with AEC representatives.

4. Have you participated in any activities at LAAP?
No.

5. Do you have any comments about the effectiveness of the IRA or NFA?

   Based on conversations with subject matter experts in this field, I am satisfied with the effectiveness of both IRA & NFA.

6. Do you have any other environmental concerns or issues we haven't discussed already?

Yes, I have concerns regarding recently identified environmental issues that existed prioe to property conveyance in Jan 2005.

7. Is there anything you would like to add?

No.

APPENDIX E
INTERVIEW QUESTIONS

Third Five Year Review for
LAAP OU-1 through LAAP OU-7
and
First Five Year Review for LAAP OU-8
Louisiana Army Ammunition Plant

February 14, 2006

1. Back ground information (name, who work for, position, and involvement with LAAP, if any)

Name: *Doyle Williams*
Employer: *Engineering Environment, Inc.*
Position: *Consultant*
Involvement: *Technical lead for Army Environmental Center for 35 years at LAAP. Worked in Safety, Engineering, and Environmental.*

2. How long have you lived, or worked, in the LAAP area?

35 Years.

3. Are you aware of the Interim Remedial Action cleanup effort at Area P or the No Further Action determinations for soils at the other locations?

Yes.

4. Have you participated in any activities at LAAP?

Yes.

5. Do you have any comments about the effectiveness of the IRA or NFA?

Justified by laboratory data.

6. Do you have any other environmental concerns or issues we haven't discussed already?

No.

7. Is there anything you would like to add?

No.

Appendix F

Concentration Trend Graphs

Appendix G
Five-Year Review Concurrence Letters
from USEPA Region VI and LDEQ

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

MEMORANDUM

SUBJECT: Concurrence on the Five-Year Review for Louisiana Army Ammunition Plant, Doyline, Bossier and Webster Parishes, Louisiana, EPA ID# LA0213820533

FROM: Bartolome J. Cañellas
Remedial Project Manager (6SF-LP) Bartolome J. Cañellas 6/17/2006

THROUGH: for Wren Stenger, Chief
LA/NM Branch (6SF) 6/19/06

TO: Sam Coleman, P.E., Director
Superfund Division (6SF)

This memorandum documents that EPA concurs with the U.S. Army's findings in the Five-Year Review Report for Louisiana Army Ammunition Plant (LAAP).

Summary of Five-Year Review Findings

The remedy conducted at the site in Area P is protective of human health and the environment. This conclusion has been made based on a review of available data, interviews with persons familiar with the interim remedial action, a site inspection made on November 18, 2005, the technical review of data and currently applicable regulatory requirements.

Interviews were conducted with significant people such as LAAP former employees, the Louisiana Army National Guard, and regulators. These particular people were chosen because of their involvement with the project through the years and their ability to be aware of public concern due to their position. Of the eight people interviewed, there was unanimous agreement that the interim remedial action of soil excavation, incineration, disposal of the incinerator ash and capping of the disposal area was a successful solution to protecting human health and the environment. The cap and surrounding locations at Area P were inspected for signs of deterioration including erosion, subsidence, stressed vegetation, mowing and maintenance of the fence. In addition, ground water data that had been collected since the last five-year review was evaluated.

Federal, state and local regulations were reviewed to see that there have been no regulatory changes over the last five years that would jeopardize the protectiveness of the original remedy. None were found.

CONCURRENCES
FIVE-YEAR REVIEW REPORT
for
Louisiana Army Ammunition Plant
Doyline
Bossier and Webster Parishes, Louisiana
EPA ID# LA0213820533

Document reviewed by:
EPA Region 6
Remedial Project Manager: Bartolome J. Cañellas (6SF-LP) Date 5/24/2006

Concur By:
EPA Region 6
Site Attorney: George Malone (6RC-S) Date 6/2/06

Concur By:
EPA Region 6
Superfund Branch Chief, Office of
Regional Counsel: Mark A. Peycke (6RC-S) Date 06/09/06

Concur By:
EPA Region 6
LA/OK Section Chief Sing Chia (6SF-LP) Date 6/19/06

Concur By
EPA Region 6
LA/OK/NM Branch Chief: for Wren Stenger (6SF-L) Date 6/19/06

Concur By
EPA Region 6
Deputy Director, Superfund Division Pam Phillips (6SF-) Date 6/28/06

Actions Needed

There were no major recommendations or follow-up actions for the maintenance of the cap. There is a need to continue monitoring the ground water to verify that contaminants are not migrating.

Inspection and maintenance of the soil cover, fencing and the protective warning signs is recommended in association with the long-term biannual groundwater monitoring and sampling.

Continue review of land uses to verify that an industrial setting is maintained is also recommended.

Other Comments

The site was transferred from the U.S. Army to the State of Louisiana as per a Feasibility Of Suitability for Early Transfer (FOSET), it is now called Camp Minden. Under the terms of the FOSET, the Army will continue its responsibilities of evaluating and maintaining operable units, reaching Records of Decision, implementing the necessary remedial activities and continue conducting Five Year Reviews in coordination with the State of Louisiana.

This Five-Year review was reviewed by the EPA Headquarters and found well-written and thorough.

Concurrence

I concur with the U.S. Army's findings in the Five-Year Review of Interim Remedial Action at Former Area P Lagoons, the six additional study areas and the Y-Line Chromic Acid Etching Facility at the Louisiana Army Ammunition Plant dated June 2006. The Army has stated that the remedy is protective of human health and the environment, and will remain so provided the action items identified in the Five-Year Review Report are addressed as described above.

U.S. Environmental Protection Agency

By: Pamela Phillips, Acting Date: 6/28/06

Samuel Coleman, P.E.
Director
Superfund Division

6-16-06
6SF-L

DEPARTMENT OF ENVIRONMENTAL QUALITY

KATHLEEN BABINEAUX BLANCO
GOVERNOR

MIKE D. McDANIEL, Ph.D.
SECRETARY

JUN 13 2006

Mr. Bartolomé J. Cañellas, Remedial Project Manager
US Environmental Protection Agency, Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

RE: Draft Final Five-Year Reviews for LAAP-OU1 through 7 and LAAP-OU-8
Louisiana Army Ammunition Plant, **AI No. 8993**
Highway 80 East, Doyline, LA, Webster Parish

Dear Mr. Cañellas:

Thank you for requesting the Remediation Services Division's (RSD) comments on the referenced report. We have reviewed the draft final document and have no additional comments at this time.

Please contact this office at (225) 219-3227 or Ms. Dorothy Orphe at (318) 676-7232 with any questions or requests. Your consideration is appreciated.

Sincerely,

John Halk, Environmental Scientist Manager
Remediation Services Division

c: Dorothy Orphe, Environmental Scientist Staff, RSD

U. S. Environmental Protection Agency
Michael A. Hebert, Remedial Project Manager
EPA Region 6 (6SF-LP)
1445 Ross Avenue
Dallas, TX 75202-2733

Brad King, ECAS Program Manager
Military Department, State of LA
102 North Dogwood Drive
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ENVIRONMENTAL **ASSESSMENT**
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US Army
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1 Rock Island Arsenal
Rock Island, IL 61299-6000

Doyle Williams, Camp Minden, York Avenue, Building 2618
Minden, LA 71055